

Risk and opportunity in an increasingly digital world

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Risk and opportunity in an increasingly digital world

The increasing digitization of insurance raises issues about strategy, risk, market and organizational structure, workforce, and culture – issues that, in the final analysis, require the full board’s careful attention. Like the technology itself, insurers’ understanding of the impact of digitization is evolving rapidly. Following a recent meeting of the Insurance Governance Leadership Network (IGLN), one expert remarked, *“I’m very encouraged. A year ago the question was ‘Is this important?’ Now it is ‘What do we do about it?’”*

On March 24, IGLN participants met in London to discuss digital transformation, what it means for complex insurers, and how boards can add value as insurers make strategic decisions in an increasingly digital world. For a list of meeting participants, see Appendix 1, on page 12. Despite progress on insurers’ digital strategies, IGLN participants acknowledged that a tremendous amount of work remains to be done. During their conversations, participants identified several important themes and areas ripe for progress. Each of these areas has implications for resource allocation, strategy, and organizational structure. This *ViewPoints*¹ is guided by the following questions:

- How should board directors define and think about digital transformation?
- How quickly are leading insurers embracing the digital world?
- How can traditional insurers redefine their offerings to remain relevant?
- What should boards do to lead organizations through digital transformation?

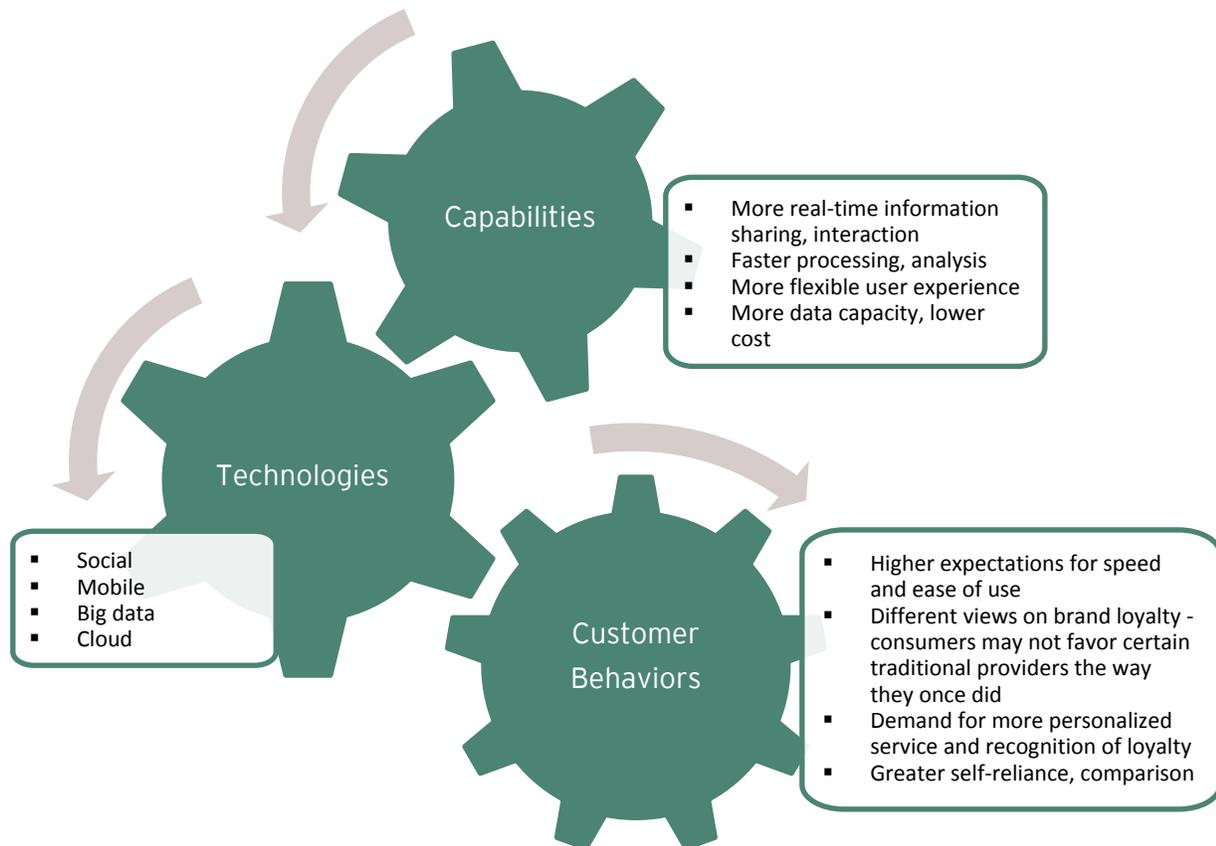
How should board directors define and think about digital transformation?

The digitization of insurance encompasses many trends, including the emergence of new technologies, changing customer preferences, and the advent of new competitors. Insurers feel the impact of disruption across the entire value chain, from underwriting and risk management to claims. Appendix 2, on page 13, provides a summary of selected disruptive forces and implications for the insurance value chain.

Several directors noted that conversations about digital transformation are difficult to scope because the topic itself is hard to define. One director admitted to being *“a bit at sea,”* while several others described the topic as *“overwhelming.”* One director found it helpful to remember that *“digitization or digital transformation is not just about technology.”* But, at the same time, it can be difficult to focus on the many things “transformation” can entail. Over the course of this meeting and numerous conversations, IGLN participants defined digital transformation in the following ways:

- **Digitization is the intersection of new technologies, new capabilities, and changing customer behavior.** Included in this nexus are social networks, mobile

connectivity, big data, and cloud computing.² New technologies enhance insurers' capabilities by improving channel integration and customer-focused interactivity; allow for more efficient, agile, and simplified systems; and improve underwriting and risk management. Ultimately, these changes empower individuals to interact more, and more selectively, with insurers. They create opportunities for insurers to learn more about customers, their preferences, and the risks for which they are insured. And they enable rapid and sometimes deep innovation.



- **Digitization is a force that is reshaping the entire economy, not just the sector.** One CRO asked, “How are new technologies changing the paradigm? What about the products themselves could change due to changes in lifestyle or behavior?” There is a growing recognition that digital disruption isn’t solely a sectoral phenomenon, wherein different businesses, such as booksellers or banks, will experience dislocation. It is an economy-wide phenomenon. The sharing economy, crowdfunding, and the Internet of things are just three examples of technologically enabled phenomena that are beginning to have profound effects on underlying economies. One executive suggested, “[The sharing economy means] they are not buying cars anymore in California.” Similarly, Airbnb will soon pass Hilton Worldwide and InterContinental Hotels Group as the largest hotelier in the world,³ yet it owns no hotels and has few assets. Several directors noted that another new reality – more information and greater transparency in markets – may permanently increase volatility going forward. These forces are changing the way

“[Big data] changes everything, it's the equivalent to oil and electricity a century ago and printing five or six centuries ago.”
 - Henri de Castries,
 CEO, AXA

people buy, sell, and rent, as well as all of the associated risks and benefits. For insurers, the nature of risk is changing, creating the need for new products and making others obsolete.

- **Digitization is a risk and an opportunity.** *“Is it a threat or an opportunity?”* asked one executive. He continued, *“The answer is, it is both.”* A CRO observed, *“There is a lot of ‘Whoa, I didn’t see that coming’ in digital. It is really untested. If we bifurcate the pool, do we destroy risk pooling? Do we create better risks? Uninsurable people?”* One director suggested digitization will be fantastically disruptive to traditional distribution channels. Participants listed many associated threats, including pricing volatility, lower revenue, less retention, obsolete products or models, new competitors, distribution problems and channel conflict, the risk of inaction, and cybercrime. Participants also identified many opportunities, including new products, services, and partnerships, better underwriting and pricing, lower operating costs and higher profits, and new opportunities to cross-sell, up-sell, and retain.

“There is nothing wrong with taking risks if you are thoughtful about them. It is a question of the risks you take.”

- Chief risk officer

How quickly are leading insurers embracing the digital world?

“Not fast enough,” said one director. Another director observed, *“The pace of change is slow in insurance. [Real change] will be slower than [in] other industries. The question is when it will happen – 5, 10, 20 years?”* Several participants suggested that the slow rate of change may be allowing some firms to deprioritize digital investment and transformation projects.

In reality, while participants acknowledge changing consumer purchase and usage patterns, and new financial realities, there are very few new products or services being offered by insurers. To date, most of the digital investment within the sector has been to modernize systems to comply with regulation and reduce cost, or to digitize existing offerings. According to one CRO, *“Companies are much better about bringing in IT [information technology], but you sense it is just about improving existing systems – more execution than innovation. It is about straight-through processing, signature collection, etc. It is very tactical.”* While these are necessary activities, they may not be enough to keep pace with new competitors whose investment is focused squarely on more radical innovation, meeting new kinds of demand, and customer value.

One executive acknowledged, *“The challenge to the risk committee is to recognize the strategic opportunity to move forward. The challenge is are we doing it fast enough? There is a real risk in not doing it fast enough.”* Directors understand that standing still is not an option, and they worry that not moving quickly enough carries significant risks.

How can traditional insurers redefine their offerings to remain relevant?

One director described two vastly diverging potential futures for the insurance industry: *“During this discussion, I was struck by the dichotomy between the disintermediated world, where we are manufacturers only, and the world of partnerships, where you are part of the provision of even more services.”*

In the first future, the breakup of the insurance value chain, the growth of non-traditional competitors, and disintermediation could relegate insurers to underwriting and manufacturing, but in the second future, insurers leverage data and core capabilities, partner with other entities, and provide more comprehensive services as well as insurance products. Participants identified the following principles to guide smart digital investment and bring about the second future:

- **At a minimum, projects should reduce costs and modernize systems.** Insurance is an expensive business. According to one director, *“Whatever you do, you have to take cost out. That is a necessity.”* Another said, *“You have to go digital to reduce cost. There is no choice.”* There are a number of common solutions, such as straight-through processing, digital signatures, and more self-service opportunities, which most firms are actively pursuing.
- **Future insurance solutions should be simpler and remove friction from interactions.** According to one executive, *“The elegance is in making the complex simple for the customer. The people who can do that will be the winners.”* Another director said, *“Right now we insure for the actuary. We need to put simple offers out there. How do you make insurance enjoyable?”*

However, while insurers may need to drive toward simplicity, less friction also poses risks. One director acknowledged, *“Clients can conduct reverse auctions. It eliminates the cost of commission and administration. It does reduce cost, but when you reduce frictional costs, it affects product persistency. It is easy to switch, which can equal disaster.”*

“Digital is not about technology, it is about making customers’ lives easier. How do you make the process as frictionless as possible?”
- Expert

Digital passports and identities

In recent years, a number of digital companies have begun to develop digital identity applications to simplify customers’ online lives. Apple Pay and Apple’s Passbook are two popular examples of applications that act as a digital wallet. These apps store and sync passwords, coupons, boarding passes, event tickets, and credit card information in the digital world and across devices.

The next service innovation of this kind will be the digital passport and digital identity. This type of technology can dramatically reduce market friction and transaction costs, allowing customers to shop and switch among providers more easily. Several initiatives are currently under way.

- **Estonian electronic ID card.** In Estonia, the mandatory national ID card serves both as a legal photo identification and as a means to verify a person’s identity online. The card contains a chip that can be used in any system, public or private, that requires electronic identification. The card is commonly used for legal travel in the EU, national health insurance, bank account identification, public transportation, voting, access to government databases, and access to prescribed medication.

➤ **UK digital financial services passport.** The Savings & Investment Policy Project, a coalition of several dozen companies and trade groups, is developing a digital passport to enable customers to see a virtual dashboard of their savings and investment products across companies, and to facilitate establishing new accounts more easily. According to one expert, *“You will only have to ID yourself digitally once. You will be preauthenticated. It will provide a consolidated view of the financial holdings – like a portable passport.”* Currently, setting up a new savings or investment account is time consuming and expensive for customers and banks because rules against money laundering require customers to apply in person with numerous documents.

- **Insurers must evolve from product providers to problem solvers.** Insurers in a digital world need to consider moving from selling products to offering more comprehensive services. One executive said, *“Today the focus is on how to digitize traditional insurance. In the future it will have to be about different models.”* The digital age is changing the nature of risk, creating new problems that require a different kind of solution and make some traditional products obsolete. Forward-thinking insurers are prioritizing digital projects that address this new future. One executive gave the following example: *“My daughter had a laptop stolen, and she lost her life. Our proposition as insurers should be to make you whole. It’s not, ‘Here’s some money to replace a thing.’ It’s a new laptop with all the data. It is service. It is dealing with the problem and working to prevent it.”*
- **To become problem solvers, insurers must leverage core capabilities, find partners, and improve customer education.** IGLN participants elaborated on how a focus on core strengths, partnering, and customer education can position insurers for future success.
 - **Core capabilities.** *“It sounds simple enough, but insurers need to figure out what they are good at and do more of that,”* said one director. Another suggested that many insurers have branched into new areas and adjacencies in search of growth and failed.
 - **Partnerships.** For firms to excel at wraparound service, they will need to partner. In this way, insurers can focus on core areas and partners can do the same to create a better overall service. One expert said that partnering allows the insurer *“to drive big ideas,”* adding, *“Maybe the insurer’s service is the glue.”* Another expert brought up Fitbit, the company that specializes in fitness-tracking services and accessories: *“Fitbit is an example. Those folks are smarter at what they do. So you partner with them – the people with passion and drive and expertise. You don’t create that for yourself.”* Insurers may be reluctant to give up a portion of the value chain, but one participant asserted, *“Winners will be the good partners that leverage their core competencies.”*

What should insurers insource and outsource?

Partnerships may be essential in the new world order, but how does a company decide what should stay in-house and what should be outsourced? Participants identified two guiding principles:

- **Do not outsource problems.** In the words of one expert, *“Insurers need to straighten out their spaghetti.”* Companies often run into trouble when they outsource challenges. The expert continued, *“The insurer couldn’t deal with [a problem] so they gave it to another company ... It looks good on the [profit-and-loss sheet] but it doesn’t deal with the issue, and it comes back later.”*
 - **Do not outsource core assets.** *“You need the people who create your digital assets to be your own,”* said one executive. Another suggested several digital areas that should remain in-house: (1) digital development, including mobile platforms, (2) application programming interfaces (APIs), a key aspect of software development and interaction, and (3) data analytics.
- **Customer education.** Transparency and better information has made customers savvier than they were. One director noted, *“The good news is that people will be better at understanding their own risk. There is more self-knowledge.”* However, limited financial sophistication and information overload are still problems for customers, which insurers must address to ensure customers choose products wisely. Several participants suggest this challenge is more acute with younger customers and can create confusion and mistrust. One director said, *“[Digitalization is useful because] you improve your knowledge about the customer and they learn from you. But how do you do effective education with the customer? It is very challenging. Customers are not very sophisticated.”*
 - **Offerings should leverage technology to deepen relationships.** Online and mobile technologies make it possible to improve connectivity across customer segments, which many participants saw as a positive development. In addition to allowing more opportunities to sell products, connectivity makes retention efforts easier. However, one director cautioned that too much connectivity *“can become intrusive on privacy.”* The director added, *“It is good to know what customers want and be convenient – up to a point.”*
 - **Insurers should use technology to access new customer segments.** By removing cost and increasing access, technology can enable insurers to reach less-wealthy market segments. According to one executive, *“You will be able to do more in microinsurance. For some segment of the market, topping off insurance will make sense. When you can do this on a smartphone, you remove friction and cost.”*

How will regulation affect digital growth?

As insurers redesign products and leverage new data sources, many leaders are concerned about the potential impact of future regulation. One executive said, *“Regulation is still not designed to account for digital. When we ask for clarity, they are struggling.”* Regulators agree that they have more work to do to understand digital and its possible implications for insurers. *“I am here to learn as well,”* acknowledged a supervisor in a recent meeting. *“We certainly don’t have this figured out yet.”*

Insurers worry that new regulatory and legal trends could create impediments to digital growth or even compromise insurers’ ability to pool risk. One director said, *“Regulators will be there to explore what data is legal. The trend is that customers will have to opt in to [permit insurers to] use their data. They will own it. This is the way Europe is headed. Do you refuse to underwrite if they won’t opt in? What does that do to risk pools or disenfranchisement?”*

What should boards do to lead organizations through digital transformation?

Although companies genuinely wish to modernize, simplify their systems, and expand their digital footprint, there are many constraints, including legacy systems, limited financial and talent resources, unaccommodating organizational cultures, and security requirements. For boards, it can be challenging to provide advice on navigating these constraints and choosing a reasonable path forward. Directors identified the following areas as part of their digital mandate:

Improving legacy architecture

In a 2013 EY global insurance digital survey, 80% of respondents listed “legacy technology constraints” as a top inhibitor of digital growth.⁴ The vast majority of large and complex insurers operate their core systems on multiple, mutually incompatible, antiquated architectures that, even on their own, are inflexible and expensive to maintain. In recent years, new solvency and regulatory requirements have stretched many of these systems to the breaking point. One director said, *“It is hard not to starve a growth budget when the engine needs so much work. Then we layer on new reports for Solvency II or this regulator or that one. The investment will be significant for many, many years.”*

Changing the way the board approaches technology governance

Directors want to improve the overall level of expertise on the board in order to provide management with meaningful advice and challenge. One executive focused on the challenge aspect: *“Are boards asking the difficult questions? Are they getting management outside of their comfort zones?”* A director was critical of current efforts: *“The board doesn’t govern this. We only talk about it once a year. How many boards have a tech committee?”* In discussing the processes and structures necessary to support better technology governance, members noted the following possibilities:

- **Technology committees.** *“We are exploring creating a technology committee of the board,”* acknowledged one director. When technology issues are bundled into risk or audit committee discussions, the focus may tend to be more on finance, compliance, or risk. A committee dedicated to technology enables boards to focus time, attention, and expertise on the specific issues. However, another director was skeptical: *“I’m not convinced you achieve better results by pulling IT out.”* A recent study of North American companies suggests that only 5.2% of public-company boards have a technology committee, despite the proliferation of business models built on analytics and software.⁵ One executive noted that technology companies themselves avoid too much governance structure: *“Spotify [the online music provider] has no governance. If someone in Singapore or San Francisco thinks they need to add something to the app, they do it.”*
- **Director recruitment.** Boards in all sectors are appointing directors with C-suite experience in the technology sector. One executive said, *“Lately, there seem to be two to three experts out of the eight to ten individuals on a board. We have two practitioners on our board. They invest in digital for their jobs. They are very engaged. However, the general board is in a learning mode, not a challenging mode.”*
- **Materials and education.** *“You can’t add a tech expert and say you are covered. The board as a whole also has to have some level of proficiency in the issues,”* said one director. Board members simultaneously report feeling overwhelmed by the information they receive and admit to wanting more and better information. In a recent study of US directors, 27% of board members were dissatisfied with the quality of the material they see about their company’s technology strategy, and 40% said they did not get enough material about IT.⁶ When asked, all IGLN directors reported education efforts of some kind designed to improve the overall technology literacy of the board, including experiments with new and different kinds of materials and presentations.

Enhancing talent in the organization

Acquiring new talent throughout the organization, including at the board level, is a priority for many companies. A number of banks have publically acknowledged they are in a talent war with large technology companies. With some exceptions, IGLN participants report that they are able to attract the kind of individuals they need. One executive spoke for several and said, *“Financial services is a good attractor of talent. You do get the kids from Stanford or the schools the next tier down.”* Another executive disagreed, noting, *“The Googles of the world are actually employing people just to keep them off of the market. Between those sorts of tactics and our rigid structures, we are behind on talent.”*

Developing a culture that supports both innovation and control

All insurers face a fundamental challenge to profitable digital growth: their cultures are built on controls, rather than experimentation. In describing Amazon’s “innovation culture” to shareholders, CEO Jeff Bezos wrote:

Failure comes part and parcel with invention. It's not optional. We understand that and believe in failing early and iterating until we get it right. When this process works, it means our failures are relatively small in size (most experiments can start small), and when we hit on something that is really working for customers, we double-down on it with hopes to turn it into an even bigger success. However, it's not always as clean as that. Inventing is messy, and over time, it's certain that we'll fail at some big bets too.⁷

One executive agreed that to win in the technology game, *“you have to change, be lean, and fail fast.”* However, strict controls, bureaucracy, and process intensity are part of the culture and fabric of the modern insurer. A participant asked, *“What is it you want? A culture of good controls or of innovation?”* Several participants suggested it is very difficult to have both. One executive framed the challenge more positively: *“The objective is safety and security and also driving innovation. The challenge is to figure out how to do innovation securely.”* Participants said the following cultural attributes are essential for creating a more digital insurer:

- **Digital mentality.** *“IT is the company; you just sell insurance on top,”* said one participant. A common refrain among digital companies in the retail space is that they are actually technology companies that deal in specific products and services. Companies like Amazon, Zappos, and Capital One Bank define themselves as technology companies that work in consumer products and finance. Will or should insurers envision themselves in this way? Ultimately, this sort of theory of the business must be supported by the insurer's commitments. An executive said, *“You can't bring enthusiastic youth into an environment that doesn't like, or wants to cut, IT.”*

“How do you get your traditional employee base to think digitally?”
- Director

One CRO cautioned insurers to balance being digital with their traditional value proposition: *“Young guys are good, but it is a traditional customer that has the wealth. If the focus is on wealth, it is not just about what the youth think. Wealth is older. Yes, we are looking at technology, but it is important to know your customer and your business model.”*

- **Agility.** *“To do digital well, you need agile,”* said one director. In this case “agile” extends beyond simple nimbleness within the organization to the use of agile development processes. Agile processes run counter to strict controls. Used in technology development, “agile” is a decentralized process that allows programmers to iterate rapidly through short “sprint” phases, which allow for faster feedback.⁸

Creating experimentation structures

IGLN participants noted that insurers are experimenting with a number of different structures to support innovation.

- **Labs, departments, and science centers.** Among participating insurers and other large insurance groups, the dominant strategy has been to create separate departments or units to promote innovation, because, as one director put it, *“If you screw up in the core systems it would be an existential threat.”* These ring-fenced groups (dubbed “science departments” or “innovation labs”) give entrepreneurial individuals the opportunity to cut through the bureaucracy of a larger organization.

One director said, *“A lab situation with bright talent is a less restrictive way to develop new approaches. The challenge that comes with this approach is figuring out how to integrate it. You could also modernize the whole organization, but this approach would likely be too slow.”* An executive suggested that eventually the ring-fenced entities need to be integrated: *“A lab is a catalyst to demonstrate the value. Things that are ring fenced don’t mature into products. You start small and push it out into the organization.”* Although several insurers have established such labs, it is still too early to say whether they and their products have had a positive impact.

- **Venture capital.** Within the last several months, numerous insurers have announced venture capital investments and vehicles targeting big data, analytics, and the cloud. In February, AXA launched a €200 million venture capital fund with a presence in six cities to invest in promising start-ups.⁹ Likewise, in April, XL Group announced the creation of XL Innovate, a venture capital initiative focused on developing new capabilities in the insurance sector. One of the stated goals of XL Innovate is to “create partnerships outside of traditional underwriting to find ways to underwrite currently uninsured risks.”¹⁰

Enhancing digital security

One executive paraphrased a presenter he had heard, noting, *“Digital is good and cyber is bad.”* Cybercrime is the dark side of the digital world. As insurers and their customers become more digitally dependent, the risks of financial, reputational, and even physical harm increase. In one survey, 43% of respondents acknowledged recent attacks on infrastructure, which included manipulation of equipment or destruction of data.¹¹ Participants also note that supervisors are taking an increasing interest in this topic. Many insurers have seen the silver lining, however, and are increasing their cyber risk offerings. Within the organization, directors recognize that security is an essential part of their control mandate: *“If we cannot reasonably protect ourselves, or customers, vendors, and the like, we should not expect to be successful in digital pursuits.”* Participants identified two areas in which directors should focus energies to advance cybersecurity discussions:

- **Competency.** One executive suggested, *“I think [the board has] to spend at least a day a year on info security ... At a minimum, you need to have a sense for the security issues and understand the risk and where there are gaps. That is the hardest thing to explain to a board. The board has to take more time and be patient with the geeks. Translating the issues takes time.”*
- **Budget.** *“Insurers spend far too little on this issue, but sell risk protection as a business. The measure is that it should be 5%–10% of your IT budget on security. It is close to 1% for insurers,”* said one executive. The pure security budget – which includes protection and monitoring tools, but not data management, access, or remediation – may need to increase significantly to keep pace with risk.

★ ★ ★

While digital transformation may be slower in the insurance sector than in others, the changes, as they come, are no less profound. Where boards used to think about technology

in terms of new investments, there is a growing understanding that the digital age is creating, and will require, new products, services, skills, relationships, and cultures from leading insurers. Boards see a long road ahead and many threats and opportunities. Despite a preponderance of participants with experience and backgrounds in risk, the prevailing mood at the end of this discussion was optimistic. Insurers see tremendous opportunity, which they must vigorously pursue, to engage with customers, develop new offerings, and find meaningful partnerships.

About the Insurance Governance Leadership Network (IGLN)

The IGLN addresses key issues facing complex global insurers. Its primary focus is the non-executive director, but it also engages members of senior management, policymakers, supervisors, and other key stakeholders committed to outstanding governance and supervision in support of building strong, enduring, and trustworthy insurance institutions. The IGLN is organized and led by Tapestry Networks, with the support of EY. *ViewPoints* is produced by Tapestry Networks and aims to capture the essence of the IGLN discussion and associated research. Those who receive *ViewPoints* are encouraged to share it with others in their own networks. The more board members, members of senior management, advisers, and stakeholders who become engaged in this leading-edge dialogue, the more value will be created for all.

About Tapestry Networks

Tapestry Networks is a privately held professional services firm. Its mission is to advance society's ability to govern and lead across the borders of sector, geography, and constituency. To do this, Tapestry forms multistakeholder collaborations that embrace the public and private sector, as well as civil society. The participants in these initiatives are leaders drawn from key stakeholder organizations who realize the status quo is neither desirable nor sustainable, and are seeking a goal that transcends their own interests and benefits everyone. Tapestry has used this approach to address critical and complex challenges in corporate governance, financial services, and healthcare.

About EY

EY is a global leader in assurance, tax, transaction, and advisory services to the insurance industry. The insights and quality services it delivers help build trust and confidence in the capital markets and in economies the world over. EY develops outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, EY plays a critical role in building a better working world for its people, for its clients, and for its communities. EY supports the IGLN as part of its continuing commitment to board effectiveness and good governance in the financial services sector.

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Appendix 1: Meeting Participants

AIG

- John Fitzpatrick, Risk and Capital Committee Chair and Audit Committee Member

Assicurazioni Generali

- Sabrina Pucci, Non-executive Director

Aviva

- John Lister, Group Chief Risk Officer
- Monique Shivanandan, Chief Information Officer

CNP Assurances

- Marcia Campbell, Audit and Risk Committee Member

NN Group

- Doug Caldwell, Chief Risk Officer and Management Board Member

Old Mutual

- Roger Marshall, Audit Committee Chair, Risk Committee Member, Nomination Committee Member and Remuneration Committee Member

RSA

- Alastair Barbour, Group Audit Committee Chair and Investment Committee Member
- David Weymouth, Group Chief Risk Officer

Sanlam

- Paul Bradshaw, Non-executive Director

Sompo Japan Nipponkoa Holdings

- Jan Carendi, Senior Advisor to CEO
- Shoichiro Takemoto, Director and Managing Executive Officer, Group Chief Risk Officer

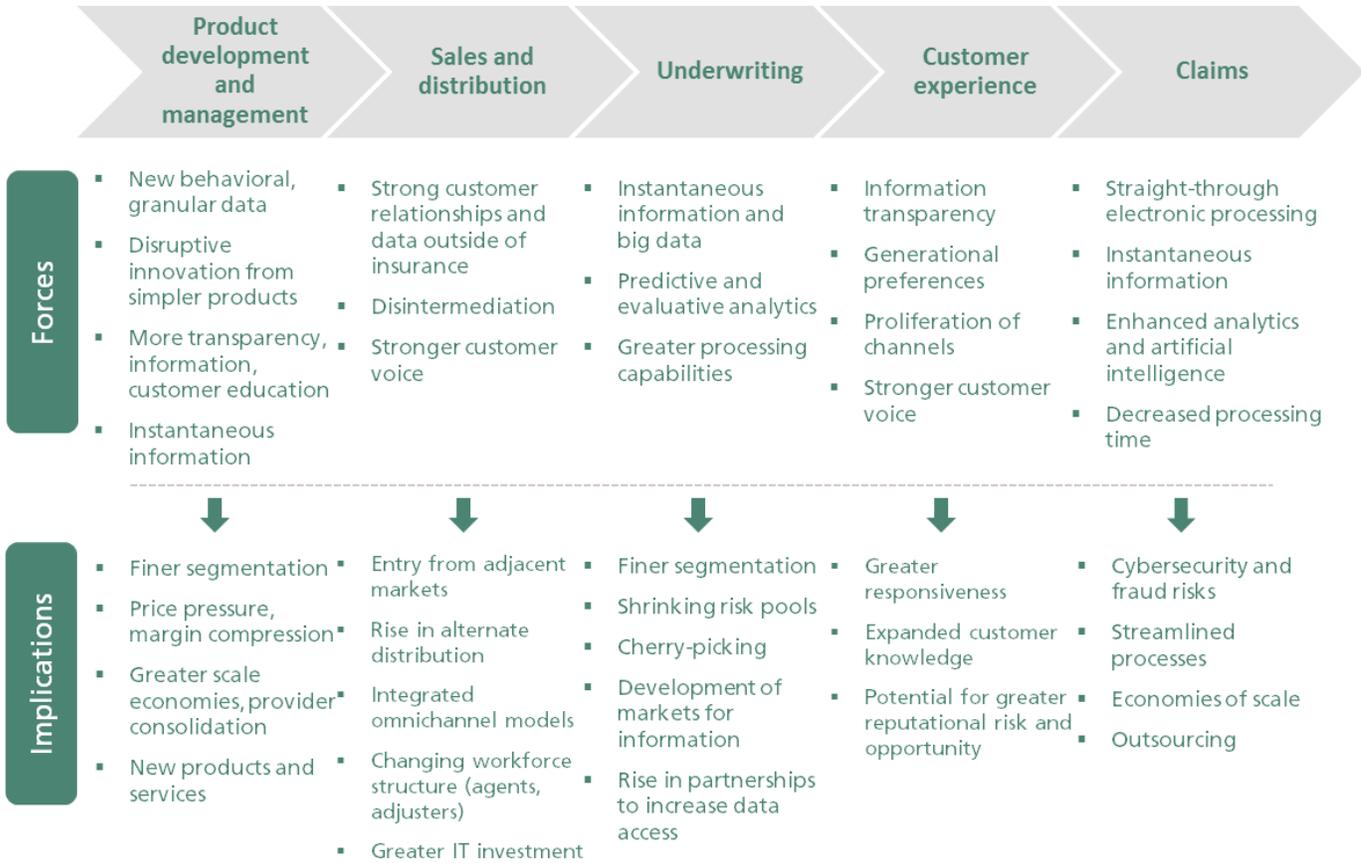
EY

- Shaun Crawford, Global Insurance Sector Leader
- Graham Handy, Partner, EMEIA Insurance Risk Leader
- Chris Lamberton, Partner, UK Digital Lead

Tapestry Networks

- Leah Daly, Principal
- Jonathan Day, Vice Chairman
- Peter Fisher, Partner

Appendix 2: Digital disruption in the insurance value chain



Endnotes

- ¹ *ViewPoints* reflects the network's use of a modified version of the Chatham House Rule whereby names of network participants and their corporate or institutional affiliations are a matter of public record, but comments are not attributed to individuals, corporations, or institutions. Network participants' comments appear in italics.
- ² Chris Howard, et al., "[The Nexus of Forces: Social, Mobile, Cloud and Information.](#)" *Gartner*, June 14, 2012.
- ³ Austin Carr, "[What Hotel Operators Really Think of Airbnb.](#)" *Fast Company*, March 20, 2014.
- ⁴ EY, *Insurance in a Digital World: The Time Is Now* (London: EYGM Limited, 2013), 14.
- ⁵ Kim Nash, "[Morgan Stanley Board Pushes Emerging Area of Tech Governance.](#)" *CIO Journal* (blog), *Wall Street Journal*, March 26, 2015.
- ⁶ Kim Nash, "[Corporate Boards and CIOs Are Seeing a Lot More of Each Other.](#)" *CIO Journal* (blog), *Wall Street Journal*, March 27, 2015.
- ⁷ John Cook, "[Shareholder letter: Amazon's Jeff Bezos on Innovation, Urban Campuses and Mayday Marriage Proposals.](#)" *Geek Wire*, April 10, 2014.
- ⁸ For more information on agile development please see, Agile Alliance, "[What is agile software development.](#)"
- ⁹ Michael Stothard, "[Axa Chief Henri de Castries Takes Aim at Regulators.](#)" *Financial Times*, February 25, 2015.
- ¹⁰ "[XL Group creates venture capital fund, XL Innovate, names Hutton as Head.](#)" *Insurance Journal*, April 2, 2015.
- ¹¹ Trend Micro and the Organization of American States, *Report on Cybersecurity and Critical Infrastructure in the Americas* (Irving, TX: Trend Micro, 2015), 24.