Innovating insurance

Lessons from the world's leading innovators

IBM Institute for Business Value

Executive Report

Insurance

How IBM can help

Maturing markets, tight capital, increasing risk and technologically sophisticated customers are just some of the pressures the insurance industry faces today. As a result, insurers will have to work faster, more efficiently and, above all, smarter. Those that do will thrive; those that don't will fail. Insurers need to be more nimble, innovative and connected with their customers. The IBM Global Insurance team has reinvented itself to provide solutions to help clients meet the demands of today's insurance business. From enhanced customer service to greater efficiency in the back office and improved risk management, there's a smarter solution for you. For more information about IBM Insurance solutions, visit **ibm.com**/insurance.

Innovation – key to future protection

With high levels of protection through regulation and other factors, insurers have lacked an imperative to innovate to remain competitive. Yet, shrinking premiums in a slow economic environment, rapidly changing customer expectations and behaviors, and unprecedented technological advancement are changing the game. Insurers can no longer count on barriers to entry to protect them, as emergent forces of change gnaw away at traditional business models. They need a more systematic approach for driving innovation across their organizations, cultures and processes. This executive report highlights key innovation lessons from the world's most successful organizations and identifies specific strategies that can help insurers innovate and outperform.

Executive Summary

The insurance industry is rarely noted for innovation. The traditional insurance business model has been in place for centuries, founded on stability and consistency of customer relationships based on sustained trust. Indeed, in 2007 the Competitive Enterprise Institute concluded that, "Since…1959, the [insurance] industry has not introduced a single entirely new property and casualty insurance product for individual customers."[1]

The insurance industry has largely escaped major dislocation. Insurers have felt protected by strong barriers to entry: strict regulation, the scale to create a risk portfolio based on the law of large numbers, the time necessary to establish a trust relationship with customers and, last but not least, customer inertia.

Yet, in the past several years, change has been accelerating, threatening the complacent ways of the industry. With new technologies rapidly evolving, consumers now expect insurers to deliver superior, personalized and seamless service across all channels. Customers assume carriers will have deeper insight into their individual preferences, as well as anticipate their wants and needs. In a recent IBM Institute for Business Value study, 41 percent of consumers surveyed told us they switched insurers because their previous carriers could not accommodate their changing needs.[2]

To succeed in this new environment, innovative capabilities, once considered "nice-to-haves," need to become central to insurance carriers' everyday business. Innovation enables insurers to streamline operations, transform functions, create efficiencies and develop superior capabilities. For customers, innovation can bring advanced products and services for new and compelling experiences. And innovation can help define new partnering and business models, disrupting traditional insurance industry value chains and enterprise models.[3]

Only **23 percent** of insurance leaders provide a clear impetus for innovation

Only **19 percent** of insurance leaders have a specialized innovation department

Only **18 percent** of insurance leaders measure innovation outcomes

Insurers can embrace these opportunities by emulating leading innovators. The IBM Institute for Business Value collaborated with the Economist Intelligence Unit to survey more than 1,000 C-suite executives or their direct reports from 17 industries worldwide, including 57 from the insurance industry. Our objective was to identify the most valuable innovation lessons that organizations can apply to their own businesses.

We identified three key themes associated with financial outperformance in which insurers lag behind innovation leaders: organizational structures that support innovation, cultural environments to make innovation thrive and processes to convert ideas to innovation.

No industry is immune to change

Rapid technological development is creating a perfect storm of disruption across industries. Digitization – combined with the ever-growing ubiquity of cloud, intelligent cognition, nanotechnology and other innovative technologies – is fundamentally changing both business economics and customer expectations.

Barriers to entry in many industries are falling precipitously, with traditional value chains fragmenting and new economic ecosystems emerging. Specifically, business economics are being redefined across three dimensions:

Connected and open – proliferation of broadband and mobile devices is creating an environment of expanded engagement with customers, partners and others.

Simple and intelligent – reduced complexity and the growth of ever-smarter cognitive technologies based on sophisticated analytics and expanding sources of data are supporting more insight-driven decision making.

Fast and scalable – expansion of agile approaches, easier integration of activities and reduced cost of collaboration inside and outside the organization are supporting broader, faster development cycles and business models.

At the same time, rapid expansion of capabilities is fueling ever-rising expectations and empowerment of consumers. Customers are developing an insatiable desire for compelling experiences across all areas of their lives. They are demanding more convenience and greater transparency. Many are seeking opportunities to influence the organizations with which they interact. And customers are demonstrating less patience and a greater willingness to switch brands.

The insurance industry is not immune to these forces. Across lines of business, insurers will be confronted on the one side by demanding consumers and on the other by emergent competitors.

"Non-traditional competitors are entering the market. The innovation will be very disruptive for us and the industry."[4]

CEO, Life Insurer, United States

Disruption by a thousand innovations

With isolated pockets of innovation steadily causing micro-disruptions in all parts of the insurance value chain, the sweeping changes affecting other industries are beginning to impact the insurance sector (see Figure 1).

Figure 1
New technology improves operational efficiency and customer experience across the insurance value chain

	1 Marketing and product development	2 Policyholder acquisition	3 Underwriting	4 Policy administration and asset management	5 Claims
Aggregation		●			
Cloud				●	
Cognitive computing	●	●	●	●	●
Contextual mobility		●	●		●
Customer analytics	●	●			
Drones					●
Geospatial data			●		
Internet of Things	●				●
Mobile		●	●	●	●
Social		●		●	●
Telematics	●		●		●
Weather data			●		●

Source: IBM Institute for Business Value analysis.

Global examples of technology-fueled insurance innovation abound, many of which have won or have been nominated for innovation awards in various countries:

- *Marketing and product development.* Canada-based The Co-operators Group Limited was nominated for an Insurance-Canada.ca Technology Award in 2015 for the use of telematics in its En-Route auto insurance program. The group's usage-based insurance product rewards driving behavior by tracking where, when and how people drive. Participants receive discounts of 5–25 percent on their premiums.[5]

- *Policyholder acquisition.* Chinese peer-to-peer insurance platform TongJuBao protects members in unusual financial-distress situations, such as taking care of an aging parent or divorce. They apply a “back-to-the-roots” model of mutual protection, with each member creating or enrolling in a community that shares the risk up to a pre-agreed limit.[6]
- *Underwriting.* In another Canadian example, Intact Financial uses contextual systems and geocoding to enable underwriters to make more informed and faster decisions regarding new policies and renewals, visually presenting internal and external risks to underwriters in real time. The system resulted in a 15-percent reduction in processing time, with a projected improvement in loss ratio due to better risk selection and premiums that reflect a customer’s specific exposure.[7]
- *Policy servicing.* German insurer Versicherungskammer Bayern is using cognitive computing system Watson to analyze customer communications, such as letters and emails. It recognizes the reason for a communication, as well as customer mood and expectations for resolution of issues. The results of the cognitive system are superior to “classical” input solutions using simple keyword search and help the (human) back-office clerk react to customer requests quickly and adequately.[8]
- *Claims and benefits.* Multiple insurance companies, including U.S. insurer AIG, have been exploring the use of drones, or unmanned aerial vehicles (UAVs), for claims. Besides efficiency gains, this practice could improve job safety for claims inspectors. According to an AIG press release, “UAVs can help accelerate surveys of disaster areas with high-resolution images for faster claims handling, risk assessment and payments. They can also quickly and safely reach areas that could be dangerous or inaccessible for manual inspection.”[9]

Insurance companies have been slow to embrace innovation and navigate disruption.

In the past, innovation and navigating disruption have not been priorities in the insurance industry. Carriers generally felt protected by several innate and external characteristics of insurance. Foremost among these is industry regulation. Across more than a decade of C-suite studies by the IBM Institute for Business Value, insurance executives have named regulation as the top external force impacting the industry. However, lately its impact seems to be diminishing. While in the most recent C-suite study, 81 percent of insurance executives still named regulation as the top influence factor, market (81 percent) and technology (79 percent) factors are seen as having almost the same impact.[10]

Actuarial science and the law of large numbers set a lower limit to the risk-pool size of any single insurance portfolio. Yet going forward, advanced analytics and cognitive systems will allow a more targeted approach to individual risk pricing without requiring that good risks subsidize bad ones. This will lead to successful cherry picking of risks, which – while not uncontroversial among the more conservative players in the industry – are likely to reduce profit margins overall.

Finally, insurance is a product based on trust. Insurers effectively sell a promise, with personal sales channels providing the public face of this trust arrangement. Nonetheless, this form of innate industry protection is being eroded from two sides.

First, cognitive systems in the form of digital virtual assistants are greatly improving accessibility and quality of advice. While this will also benefit intermediaries when they use these cognitive systems as advisory aids, in many cases these systems can serve as stand-alone insurance experts, replacing much of the rationale for intermediaries.

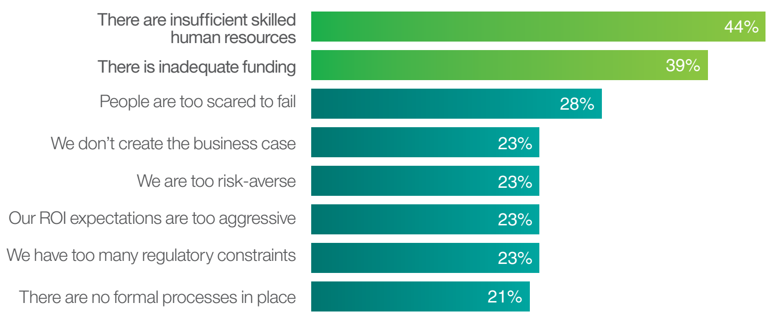
Second, insurance products are likely to undergo a fundamental change as customer behavior shifts away from individual ownership of physical goods, decoupling insurance purchases coincident with asset purchases. For example, instead of buying a car and associated auto insurance, customers would buy a mobility service that includes insurance, eliminating interaction between insurer and customer. This will be even truer when autonomous cars become common; when a piece of software acts as the driver, the trust relationship shifts from insurer to the vehicle manufacturer or mobility orchestrator.

While these and other industry disruptions individually may seem relatively distant or insignificant in the hallowed halls of insurance headquarters, when combined, they are likely to have a massive impact – in a surprisingly short time.

Insurers would do well to accelerate the rate at which they embrace innovation, yet few do. In our recent innovation study, only 30 percent of insurance respondents state they pursue innovation as a priority. They cite their top barriers to innovation as: lack of resources, both in skills and money, followed by the conservative culture of the insurance industry, which discourages trial and error – an essential element of successful innovation (see Figure 2).

Figure 2

Lack of skills and funding are the main barriers to innovation



Source: IBM Institute for Business Value Global Innovation Survey 2014, published 2015.

Figure 3
New banking ecosystems are emerging

Source: IBM Institute for Business Value analysis.

Regulated industries are not immune to radical disruption. A noteworthy analogy is how disruption is shaking up banking, an industry with strong similarities to insurance.

Banks are being eaten alive[11]

Even in highly regulated industries such as banking, technology-driven disruption is hitting traditional business models and behaviors hard. The banking industry is struggling, both in retail and corporate banking, and in asset management. Banks are experiencing a triple set of challenges: declining revenues limit returns and reduce resources available for new ventures; new classes of customers demand more from their banking experiences than ever before; and a new breed of competitor is emerging in banking, at both the retail end of the business and for corporate customers. Traditional banking is, in effect, becoming commoditized, and over the next five years, some prominent banking brands will experience challenges that will be existential in magnitude.

But all is not dire. Instead of becoming increasingly marginalized by intense competition from new, unanticipated quarters, the most dynamic banks are seizing an opportunity to position themselves at the epicenter of a rapidly evolving engagement ecosystem (see Figure 3). Possessing deep customer relationships, entrepreneurial banks can reposition themselves to overseeing and orchestrating a broad range of best-in-class services for the benefit of their customers.

Banks that actively partner to build ecosystems around their customers will be better positioned to offer lower costs, a wider range of services and deeper, richer experiences forged from innovation of fintechs and others. Consequently, banking culture is set to evolve. As banks are relieved of traditional banking functions, they will have more time and resources available to focus on facilitating and orchestrating customer interactions and experiences.

Successful innovation is more than magic

To optimize the benefits of innovation, insurers need to embrace it both holistically and systematically. In the IBM Institute for Business Value Global Innovation Survey, only 6 percent of the 1,000 organizations surveyed globally outperform in both revenue growth and operating efficiency or profitability (see Figure 4).

We found that outperformers treat innovation differently than others. Specifically they:

1. Build an organization that encourages innovation
2. Create a culture that fosters innovation
3. Design processes that enable innovation.

Almost across the board, insurers struggle with these innovation dimensions. And this starts at the top – innovation is not deemed a priority by insurance leaders; therefore, they don't envision, let alone implement, changes in organization, culture and processes conducive to innovation.

Figure 4

Only 6 percent of organizations outperform their peers in growth and profitability

6%

Outperformers

Organizations that achieved high revenue growth and profitability

65%

Peer Performers

Organizations with any other performance combinations

29%

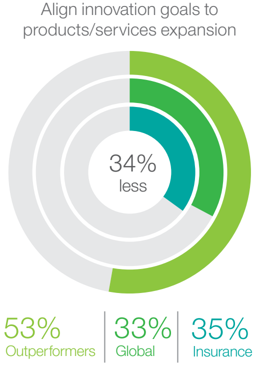
Underperformers

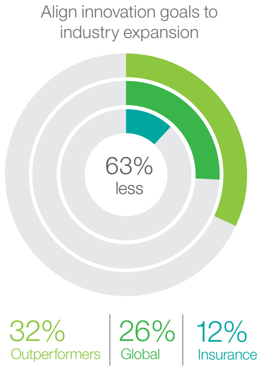
Organizations that achieved low revenue growth and profitability

Source: IBM Institute for Business Value Global Innovation Survey 2014, published 2015.

Figure 5

Insurers lag behind in considering innovation as key to business expansion





Source: IBM Institute for Business Value Global Innovation Survey 2014, published 2015.

Build an organization that encourages innovation

The most successful companies globally create innovation structures and functions that support and align with underlying business objectives.

1. *Align innovation with business goals* – Outperformers promote innovation targets that support and reinforce their business objectives. For example, outperformers align innovation goals to the development of products and services, and with industry expansion objectives.

   Insurance industry executives, however, fall behind those in other industries. For example, only 35 percent of insurers have innovation strategies that are aligned with products and services compared to 53 percent of outperformers, while insurers are 63 percent less likely to have innovation strategies aligned with growth objectives (see Figure 5).

2. *Structure open forms of innovation* – Outperformers build structures that promote open innovation behaviors, such as using internal and external ideas and crowdsourcing.

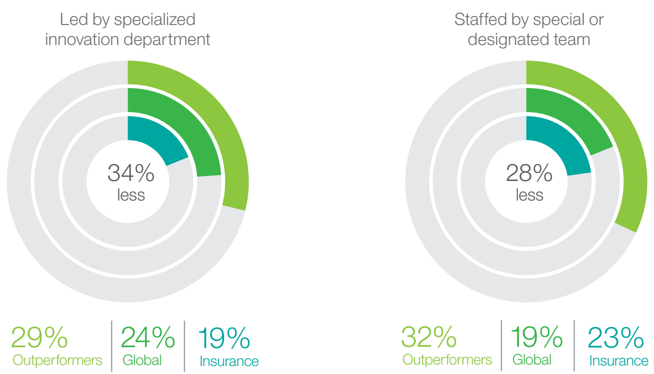
   Insurance executives report that they are committed to open innovation, but such openness tends to be limited to identifying new concepts. Across other dimensions of innovation, such as prototype development (39 percent fewer insurers than outperformers) and evaluation of innovation business cases (48 percent fewer), insurance companies lag behind.

3. *Create specialized teams* – Outperforming organizations are more likely to establish and maintain dedicated innovation teams, and those teams are more likely to be part of a specialized innovation department.

However insurers rank behind outperformers across both dimensions. Only 19 percent of insurance executives report that their organizations possess dedicated innovation departments compared to 29 percent of outperformers, and insurers are 28 percent less likely to have dedicated innovation personnel (see Figure 6).

Figure 6

Insurers are less likely to pursue innovation through specialized business units and teams



Source: IBM Institute for Business Value Global Innovation Survey 2014, published 2015.

Case study: AXA Lab [12]

In 2013, French all-lines insurer AXA, with 102 million customers globally, started its AXA Lab in Silicon Valley, California, as a digital innovation sourcing unit. AXA Lab has four main goals:

- Connect AXA to the world's top innovators, 80 percent of which are located in Silicon Valley.
- Detect the latest innovation trends by attending innovation conferences, initiating contacts with startups and connecting with universities.
- Train AXA employees to start fostering an innovation culture. AXA Lab does this through online training courses and training sessions on-site.
- Pilot and launch new initiatives with partners.

So far, AXA Lab has created more than 150 partnerships and has several pilots ongoing. The Lab is part of AXA's digital acceleration strategy, with a total investment of €800 million over three years.

Case study: Progressive Business Innovation Garage

U.S.-based auto insurer Progressive Group of Insurance Companies has long been recognized for its innovative culture. For 16 consecutive years, the *InformationWeek* business technology community has featured Progressive in its Elite 100 list of top innovators in the U.S.[13]

Progressive's latest award-winning innovation tool is the Business Innovation Garage, a resource that is available to help employees test ideas. Progressive describes it as "a secure think tank to try things out, walled off from production systems, so we can take more risk."[14] Any employee can submit an experiment. As of September 2015, 145 experiments were running or completed.

The Business Innovation Garage is part of a series of tools that help Progressive engage employees in its innovation efforts. Others include the Edison program, an internal crowdsourcing project for innovation,[15] and the Action Factory, a series of one-day sessions to accelerate discussions of business problems.[16]

Build an organizational culture conducive to innovation

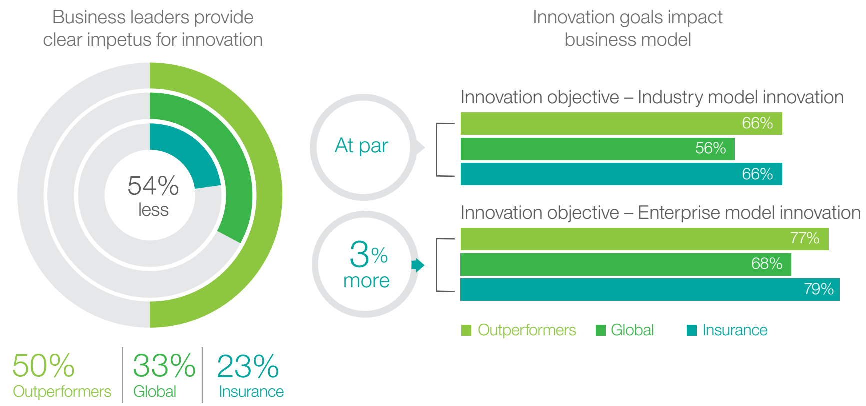
The most successful companies globally create working environments and cultures in which innovation can thrive.

1. *Lead with an innovation focus* – Outperforming organizations explicitly promote innovation as central to their businesses. And they are more likely to provide a clear direction and impetus for innovation. They are more open to industry and enterprise-model innovation, and are more likely to link innovation efforts with financial performance.

   The insurance executives surveyed are less likely to associate financial performance with their innovation strategies. However, they do recognize that business-model innovation ranks as a high priority in their innovation activities (see Figure 7).

Figure 7

Insurers are less open to creating disruptive new business models



Source: IBM Institute for Business Value Global Innovation Survey 2014, published 2015.

2. *Encourage innovative behaviors* – Outperforming organizations are more likely to actively encourage innovation among employees through specific incentives and rewards, and have a greater tolerance for failure than underperformers. And outperformers are more likely to engage employees directly in innovation processes.

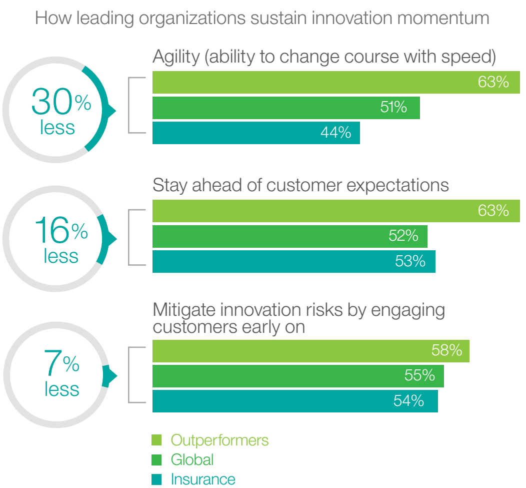
Insurance organizations fall below outperformers across all of these dimensions. Insurers are 31 percent less likely to engage employees in innovation processes, 14 percent less likely to incent employees with cash prizes or awards, and 9 percent less likely to use other non-cash innovation incentives.

3. *Sustain innovation momentum* – Outperforming organizations are better able to stay ahead of the market. They value agility, actively work to stay ahead of changing customer attitudes and expectations, and bring customers into innovation activities early to gain the benefit of unexpected insights and to mitigate risks.

Insurers again rank lower than outperformers. Insurance executives surveyed apply less focus on agility, are less inclined to stay ahead of customer expectations and are less inclined to work with customers to mitigate business risks (see Figure 8).

Figure 8

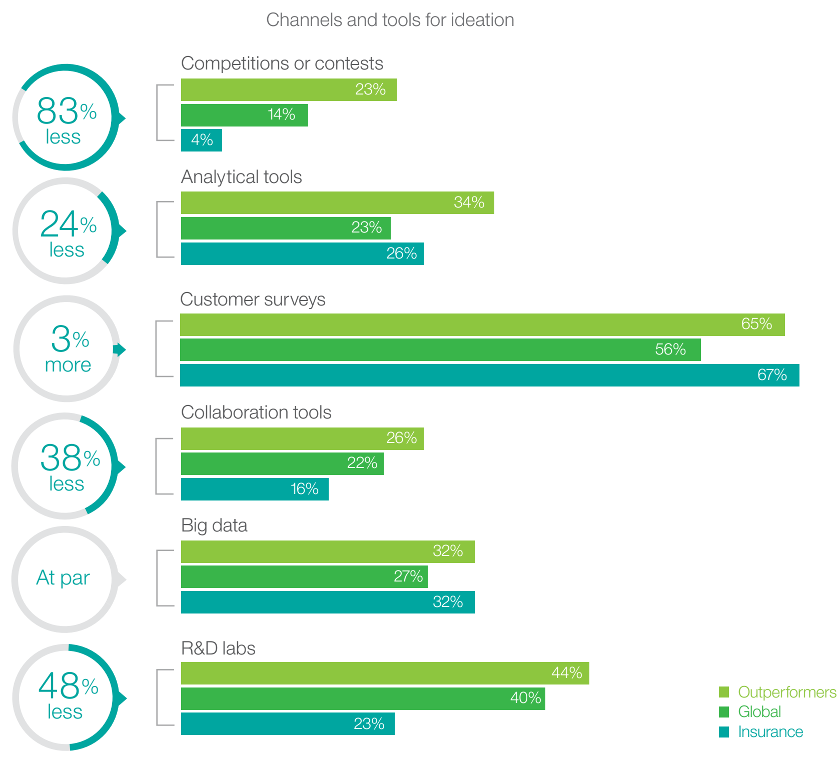
Insurers are less adept at staying ahead of the market



Source: IBM Institute for Business Value Global Innovation Survey 2014, published 2015.

Figure 9

Insurers use fewer channels across the board to source new ideas



Source: IBM Institute for Business Value Global Innovation Survey 2014, published 2015.

Build structures and processes that source, fund and measure innovation

The most successful organizations encourage innovation from a diverse range of sources. They directly fund new ideas and measure innovation effectiveness.

1. *Source new ideas from a wide range of sources* – Outperforming organizations use more channels and sources of input into ideation processes. They are more likely to use both big data and analytics to reveal new opportunities for their businesses.

   Insurance executives rate their organizations on par with outperformers in the use of big data and customer surveys to motivate innovations. However, they give their organizations significantly lower ratings in the use of analytical tools, collaboration tools and R&D lab-oriented environments (see Figure 9).

2. *Fund innovation* – Outperforming organizations are more likely to approach innovation with a financial discipline similar to that of any other business process. They are more likely to allocate dedicated funding to innovation and use business case methodologies to make go/no-go decisions on specific innovations, and are more likely to maintain consistent funding for innovation activities.

   Although insurance executives are only 7 percent less likely to dedicate separate funding for innovation than outperforming organizations, they are 44 percent more likely to report significant challenges in obtaining adequate funding for innovation activities. This creates a damper on the benefits of innovation and makes it less likely that insurers will build a self-funding model in which successful past innovations fund future innovations.

3. *Measure innovation outcomes* – Outperforming organizations hold innovation initiatives explicitly accountable to meeting clear financial objectives. They are more likely to explicitly measure innovation outcomes and to assess the impact of innovation on their markets.

Case study: Munich Re, Internet of Things accelerator[17]

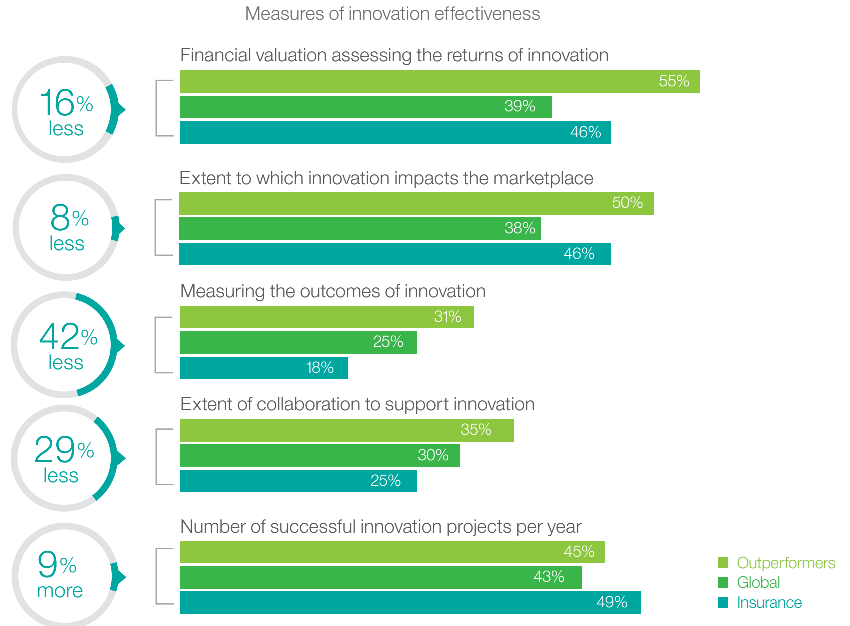
Munich Re, one of the world's leading reinsurers, and its equipment insurer affiliate Hartford Steam Boiler recently participated in sponsoring Plug and Play, a U.S.-based accelerator for the Internet of Things (IoT). Plug and Play IoT brings together promising startups with corporations, investors and experts to accelerate the startups' commercial development.

By funding IoT startups and technology, Munich Re hopes to gain an edge in understanding future risk and identifying new opportunities. In its press release, Munich Re states that "Internet of Things technologies will have usefulness in equipment reliability, smart connected homes and buildings, cyber security and robotics, among other applications. [...] Being actively engaged in the development of these technologies will fuel our product innovation and allow us to deliver unique benefits and service experiences for end-client users."

Insurance executives report that their organizations are less likely to apply financial metrics to innovation and to measure the impact of innovation on market outcomes. Indeed, they are 42 percent less likely to measure innovation outcomes at all (see Figure 10). This raises the question of how realistic their assessment of the success of innovation projects is.

Figure 10

Insurers are less likely to assess ROI or to market impact on new innovation



Source: IBM Institute for Business Value Global Innovation Survey 2014, published 2015.

Insurers can learn innovation lessons from the most successful performers

Financial outperformers have created organizations, cultures and processes that allow innovation to thrive. To follow suit, insurers should focus on:

Organization

Insurers need to make innovation part of their organizational cores. Insurance organizational design should be as much about innovation as it is about providing insurance products and services. Align innovation with business goals. Establish senior management support for innovation as a core mission of your organization. Orient operational models around open innovation, promoting conditions for the development of agile risk and insurance ecosystems. Form specialized innovation teams and formal structures. And establish robust innovation governance and capital guidelines.

Culture

A culture that fosters innovation and organizational agility is a necessity. To build this, insurers must place customer-centric innovation at their organizations' cores. Encourage disruptive business-model innovation. To stay ahead, position your organization at the vanguard of innovation. Empower and reward employees for open collaboration and innovation. Communications programs that manage expectations are vital, as are prioritized agility, speed and flexibility.

Processes

Rethinking processes to facilitate innovation is a fundamental step in the innovation journey. To be effective, executives need to tap into predictive analytics and big data to open up new ways of thinking about risk and insurance. Pursue R&D labs and ideation platforms to jumpstart thinking. Once innovation projects are in place, establish clearly defined governance approval processes to manage them. Secure dedicated funding for innovation, and measure innovation efforts based on quantitative financial metrics.

For more information

To learn more about this IBM Institute for Business Value study, please contact us at iibv@us.ibm.com. Follow @IBMIBV on Twitter, and for a full catalog of our research or to subscribe to our monthly newsletter, visit: **ibm.com**/iibv.

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IBM Institute for Business Value

The IBM Institute for Business Value, part of IBM Global Business Services, develops fact-based strategic insights for senior business executives around critical public and private sector issues.

Ready or not: Can you become an innovation outperformer?

To determine where you are in transforming organization, culture and processes to create an innovative organization that has the potential to join the ranks of financial outperformers, ask yourself the following questions:

Innovation organization

- How are you aligning your innovation strategy with your business strategy?
- How can you better organize innovation teams and responsibilities?
- How are you opening up your innovation processes?

Innovation culture

- In what ways do you promote innovation as a core business activity?
- How are you encouraging your employees to innovate?
- How do you sustain the innovation momentum created?

Innovation processes

- How can you expand the sources for new ideas?
- How can you improve allocation of funds for innovation?
- How do you measure innovation performance?

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Rachna Handa, Raj Teer, Steve Ballou, Kathleen Martin, Kristin Fern Johnson, Kristin L. Biron

Notes and sources

1 Lehrer, Eli. "Optional Federal Charter for Insurers: FAQ." *CEI OnPoint*. October 2, 2007. http://cei.org/pdf/6170.pdf

2 Bieck, Christian and Lee-Han Tjioe. "Capturing hearts, minds and market share: How connected insurers are improving customer retention." IBM Institute for Business Value. May 2015. http://www.ibm.com/services/us/gbs/thoughtleadership/insuranceretention/

3 Ikeda, Kazuaki, Anthony Marshall and Abjihit Majumdar. "More than magic: How the most successful organizations innovate." IBM Institute for Business Value. December 2014. http://www-935.ibm.com/services/us/gbs/thoughtleadership/morethanmagic/

4 Previously unpublished quote from research for "Redefining Boundaries: IBM Global C-suite Study." IBM Institute for Business Value. 2015. http://www.ibm.com/services/c-suite/study/study/

5 "ICTA Nomination: The Co-operators En-Route UBI Program Uses Telematics." http://www.insurance-canada.ca/telematics/news/2015/ICTA-Co-operators-En-Route-telematics-program-1501.php. Accessed on February 29, 2016.

6 Tongjubao Web site. http://www.tongjubao.com/en. Accessed on February 29, 2016.

7 "ICTA Nomination: Intact Puts Risks in Their (Proper) Place." http://www.insurance-canada.ca/poladmin/canada/2014/ICTA-Intact-Underwriting-Risk-1412.php. Accessed on February 29, 2016.

8 Fromme, Herbert. "Kundenverärgerung besser verstehen." Fromme Versicherungsmonitor. December 1, 2015.

9 Popper, Ben. "FAA gives insurance giant AIG approval to replace human inspectors with drones." *The Verge*. April 9, 2015. http://www.theverge.com/2015/4/9/8377035/aig-drones-uav-faa-replace-inspectors; "AIG Announces FAA Approval for Commercial Use of Unmanned Aerial Vehicles." AIG press release. April 8, 2015. http://phx.corporate-ir.net/phoenix.zhtml?c=76115&p=irol-newsArticle&ID=2033102

10 “Redefining Boundaries: The Global C-suite Study.” IBM Institute for Business Value. November 2015. http://www.ibm.com/services/c-suite/study/study/

11 Drury, Nicholas, Anthony Lipp and Anthony Marshall. “Innovating banking: Lessons from the world’s leading innovators.” IBM Institute for Business Value. September 2015. http://www-935.ibm.com/services/us/gbs/thoughtleadership/innovatingbanking/

12 “All About AXA Lab.” BlueDun Web site. February 6, 2015. http://blue-dun.com/2015/02/06/axa-lab/

13 “2015 InformationWeek Elite 100 Winners.” *InformationWeek*. Accessed Febuary 16, 2016. http://www.informationweek.com/2015-informationweek-elite-100-winners/d/d-id/1319767

14 Overby, Stephanie. “Progressive Insurance revs up IT-enabled innovation.” *CIO Magazine*. September 20, 2015. http://www.cio.com/article/2982438/innovation/progressive-insurance-revs-up-it-enabled-innovation.html

15 Boulton, Clint. “Progressive crowdsources its way to business, IT innovation.” *CIO Magazine*. December 4, 2015. http://www.cio.com/article/3011743/it-strategy/progressive-crowdsources-its-way-to-business-it-innovation.html

16 Overby, Stephanie. “Progressive Insurance revs up IT-enabled innovation.” *CIO Magazine*. September 20, 2015. http://www.cio.com/article/2982438/innovation/progressive-insurance-revs-up-it-enabled-innovation.html

17 “Munich Re Sponsors Plug and Play Accelerator for the Internet of Things.” Munich Re Web site. May 20, 2015. http://www.munichre.com/HSB/hsb-sponsors-iot-accelerator

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