



Ensuring enduring insurers

How insurers are staying relevant, managing technology risk and handling the competition

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Executive summary

A paper by DXC Leading Edge on how major insurance organizations are taking action to ensure they will be able to endure in the future.

This includes what major insurers are doing to modernize their businesses to compete more effectively, and to stay relevant and healthy. We are particularly interested in how these insurers evaluate and manage risk and cost principles for their insurance technology investments, and how they are finding the right balance between maintaining their existing solutions, making investments to capture new opportunities and exploring the potential capabilities of insurance technology ecosystem partners.

Based on our interviews and research in insurance and other regulated industries, we have identified 10 practical and replicable provocations for insurers to focus on.



These 10 provocations are:

1. Investigating deep customer needs that have yet to be satisfied
2. Creating better alignment between IT and business operating models
3. Modernizing technology to build capabilities but also to achieve cost parity
4. Improving the ability to attract talent, especially people with insurance technology skills and expertise
5. Using core skills of understanding and balancing risk to transform technology and digitalize safely
6. Explicitly tying technology strategy to business strategy
7. Building an ecosystem and platform to support insurance by configuration
8. Mining for disruptive risk data
9. Showing transformational leadership behaviors
10. Using game play for determining the best ways to use technology to compete more effectively and differentiate the business

About DXC Leading Edge

DXC Leading Edge challenges conventional assumptions with original, future-focused thinking to help C-level leaders accelerate their organization's ever-expanding digital mandate.

Section 1. How to deal with unknown technology risk

Insurance leaders are trying to strike the right balance between maintaining their old income-generating assets and making new investments to modernize their businesses while maintaining their desired expense, loss and combined ratios. They are also trying to determine how fast they need to transform to manage competitive risk from possible new entrants.

A tweet from Erik Brynjolfsson of Stanford University summarizes their predicament:

“Change comes gradually, then suddenly.”

The global insurance industry continues to have healthy growth rates. Statista estimates that it is worth just over \$5 trillion per year, with an expected CAGR of 6 percent.¹ According to FinTech Global, \$6.4 billion was invested in insurance industry disruption in 2021. It’s a big number but is still dwarfed by the size of the overall industry. Insurance is also a change-resistant industry with high-entry barriers. A former insurance COO whom we spoke to put it like this: “Mindset and culture are the biggest barriers to innovation.”

Also, to compete with incumbent insurers, a commonly held industry view is that technology-dependent start-ups need to become licensed insurance firms. Licensed brokers get their risk-bearing capacity from insurers and reinsurers, or become licensed insurance firms themselves — particularly in major markets such as North America, Europe and Asia.

Customer service and claim service also depend on regulated direct or partner-based ecosystems. While there will be more automation, our conversations suggest that insurers aren’t focusing on a self-serve, digital-only model. Also, when insurance firms become predominantly digital in their operations, they will continue to depend on the digitization of their ecosystem partners, who will use a mix of digital artifacts and physical artifacts for some time to come.

The pressure to change is challenging insurers’ data, products and business models. There is an emerging opportunity for companies to monetize insights that can be gleaned from increasingly rich data ecosystems related to households and organizations, and then build complete digital representations of them. This data is drawn from various IoT sources, ranging from smart kitchen appliances to exercise equipment on the home front, and industrial instrumentation that’s in use in industries such as manufacturing. IoT-sourced data is the most critical because of its diversity, volume and potentially real-time nature.

¹<https://www.statista.com/statistics/1192960/forecast-global-insurance-market/>

Reimagining a home insurance experience using digitalization and data.

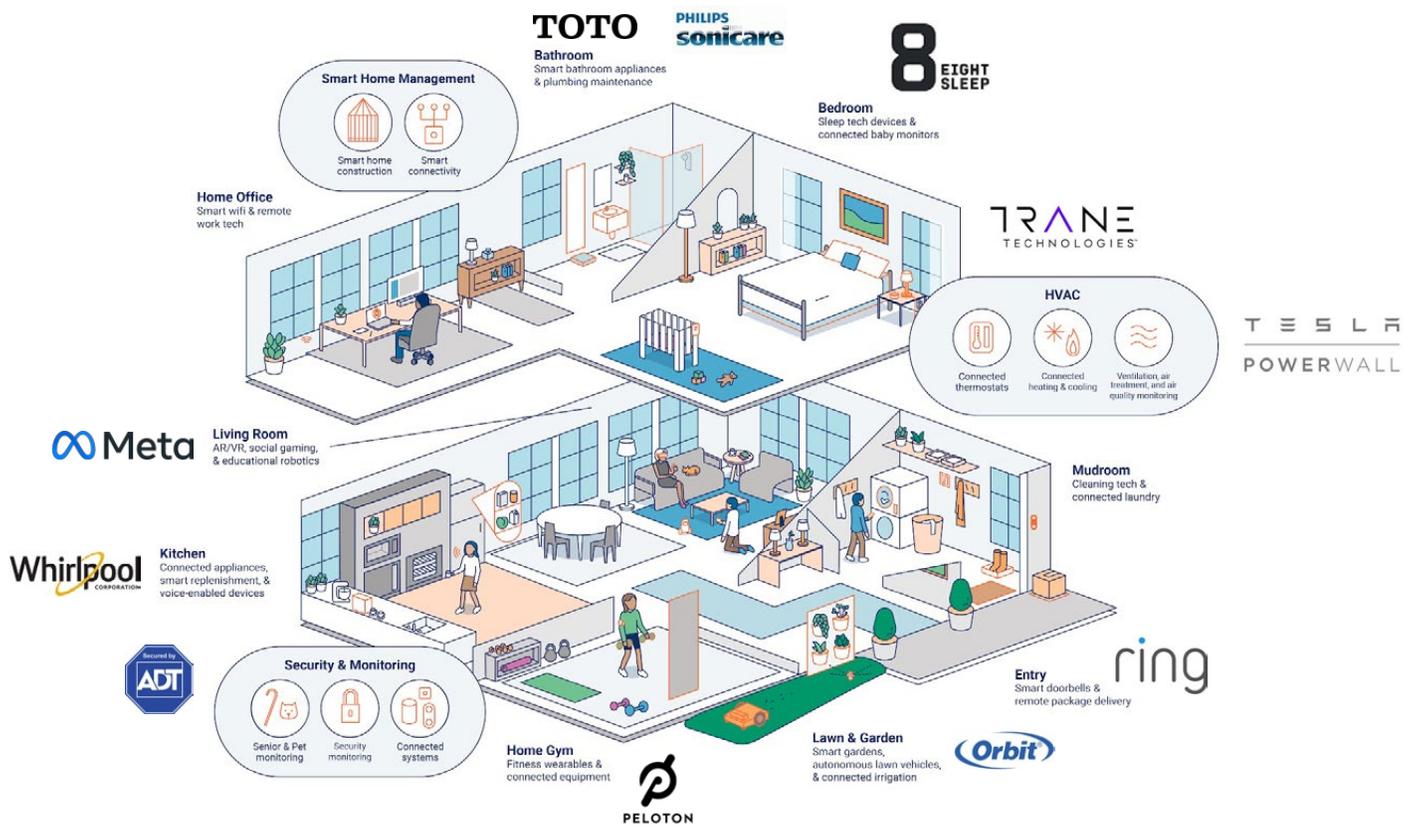


Figure 1. Using IoT data from smart consumer devices to reimagine the home insurance experience.

Source: Adapted from “The Future of the Smart Home,” CB Insights Research (<https://www.cbinsights.com/research/report/smart-home-future-trends/>)

Companies such as Amazon, Microsoft, Tesla, Apple, Google and Meta sit in the middle of these new data constellations created by the platforms they operate and their associated supplier ecosystems. In theory at least, there is a possibility that they could create automated, low-friction insurance products for consumers and businesses — one of their differentiators being live data monitoring versus historical monitoring (the traditional purview of insurers). The main message here is that the availability of new types of data (that is, disruptive risk data), new sensing and new data combinations will generate new possibilities.

The insurance industry must explore and experiment with these inputs to see if they lead to new monetizable opportunities. One insurance industry insider told us, “The insurtechs might not be a direct threat, but I believe the

threat is an insurtech uncovering an opportunity and then being bought up or that opportunity being leveraged by a big tech company. The real threat is Amazon or Google — that’s what the execs are worried about.”

Table 1 provides DXC Leading Edge’s view on the sorts of influences that we think are likely to create new insurance possibilities and some prerequisites for these possibilities to be realized.

Unlike technology companies, insurance companies must generate profit strictly at the intersection of three key stakeholders who are at different ends of the commercial spectrum — customers, regulators and shareholders. That enormously tough, perpetual balancing act has kept new entrants at bay.

Influences on new insurance products and services

Some emerging prerequisites

<ul style="list-style-type: none"> • Demand for event-based protection/usage-based insurance. Examples include per-car journey, per-unit pricing models (time, distance, life event, performance, etc.) 	<ul style="list-style-type: none"> • Well-understood feedback loops • Automation • Event/usage-based insurance demand • Modernization facilitated by exponentially different (e.g., 10x cheaper) technology capability — serverless, event-based compute, functions
<ul style="list-style-type: none"> • Wide availability of new types of data, with IoT-sourced data being the most critical 	<ul style="list-style-type: none"> • Capability to capture, ingest and monetize this data to identify the needs of new customers, channels and lines of business
<ul style="list-style-type: none"> • Climate change/natural disasters 	<ul style="list-style-type: none"> • Measurement of climate change/natural disaster event triggers • Standards (on monitoring, measurement, triggers, etc.) • Wider geospatial solutions (e.g., GIS/location intelligence) and their adoption by insurance firms • Appetite for climate change and ESG (Environmental, Social and Corporate Governance) insurances
<ul style="list-style-type: none"> • Autonomous systems 	<ul style="list-style-type: none"> • Model verification and auditability
<ul style="list-style-type: none"> • Healthcare assurance 	<ul style="list-style-type: none"> • Measurement of health event triggers • Regulatory validation and data sharing
<ul style="list-style-type: none"> • Political risk 	<ul style="list-style-type: none"> • Risk determinants and triggers • Hedging
<ul style="list-style-type: none"> • Buildings 	<ul style="list-style-type: none"> • Sensoring (e.g., building control monitoring), building information management (BIM) feeds, configuration change data
<ul style="list-style-type: none"> • New frontiers 	<ul style="list-style-type: none"> • Spatial data from air, space, sea, etc.

Table 1. Steps to the potential future of insurance

Insurtechs see the attractive cash flows of insurance lines such as property and casualty (P&C) as realizable commercial opportunities. They are working to remove cost and complexity from the experience for the insurer and ecosystem — and the customer. However, the frequently noted challenge is how to produce profitable combined ratios — particularly given that even with more standardized products such as P&C and life policies, there is always uncertainty in the insured risk (age, property type, illnesses, with COVID-19 being a recent example), which alters the risk, often unexpectedly. Core insurance capabilities such as actuarial knowledge, underwriting expertise and reinsurance capacity remain critical — even in these new firms.

While regulated industries such as insurance have been highly risk averse thus far (because of factors such as legal obligations, established ecosystems, balance sheet strength, leader risk aversion and customer inertia), what we are seeing is that transformation risk is reducing for regulated firms. We also see a trend toward greater proactivity in addressing industry change. Insurance carriers, regardless of sub-sector, express concern about being unprepared in the face of coming change or new entrants. Earlier adopters are identifying well-tested successful practices (from transformers in insurance and other industries) that progressively reduce execution risk for later adopters. We also see a wide cohort of regulated industries (such as pharmaceuticals, healthcare, energy, defense, banking and insurance) beginning to learn from each other.

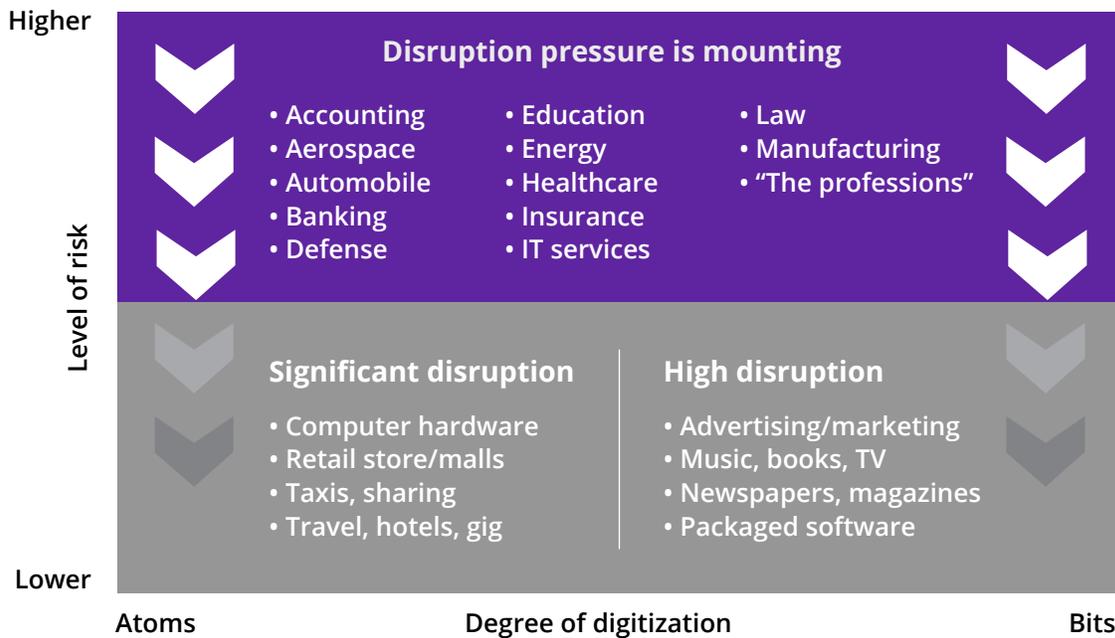


Figure 2. Digital mastery risk is reducing for regulated firms. (Inertias in all regulated industries are being overcome, and the level of transformation risk is falling.)

Taking this broader cross-industry perspective, the depictions shown in **Figures 2 and 3** have proven to be accurate regarding the progress of digitization and what we describe as digital mastery — the self-perpetuating capability of an organization to modernize. As disruption pressures and digitization forces grow, many inertias give way to transformation.

As we see in **Figure 3**, the same digitization concerns slow transformation in all industries. While we hear leaders repeating the same sorts of objections — such as, “We are regulated, so we aren’t allowed to...,” and “Our customers don’t want us to change,” and “Our shareholders depend on our consistent performance,” and “What other industries

do is not relevant” — we are seeing insurance transformation happen to address the inertias.

Taking one such inertia, “real and imaginary regulatory concerns,” insurers have many real regulatory constraints such as Basel II, Solvency II, restrictions on what companies can offer insurance products, state and country-specific insurance regulations, data privacy and data sharing restrictions, etc. However, we also see some interesting experiments exploring the boundary of what’s possible with data and other capabilities to identify new ways of working while honoring the intent of regulation (such as protecting customer money, fair value and consumer duty).



Figure 3. Ten universal inertias to digital mastery

According to Evangelos Avramakis, the head of Digital Ecosystems R&D at the Swiss Re Institute, the insurance industry is going through a learning journey on how new types of data (e.g., AI- and ML-generated data) are going to be incorporated into their new products and business models.

“This is not data that you can simulate because it’s derived from AI models and machine learning,” he says. “This is not something you can throw some statistical generator at the data to say, oh, here is how a typical affluent customer will behave. Also, regulations continue to act as a market protector — but that won’t go on forever. It was very hard to get into insurance because of regulation, but competitors outside of the insurance industry are starting to enter the insurance industry indirectly, and this is something I think the insurance industry might be massively underestimating.”

Insurers need to determine how to price these products to generate profitable premiums and to rethink how a brokerage function can be accomplished through software and/or algorithms. Insurance regulators will also want to ascertain the adherence of broker activities to regulations in the geography where the product is being offered. Insurers do not see algorithms offering a free pass from insurance regulators and rating agencies, who will assess the claims-paying ability of insurance firms with algorithmic models (pricing coastal risks for home insurance, as an example) like every other form of insurer.

Regulators are exploring how to operate in a world of digital insurance business models. For example, The Geneva Association, an insurance member organization, has done some interesting work to frame the digital regulation problem.² However, we don’t think regulatory clarity is coming any time soon, which means that insurers will have to continue to deal with and experiment in an ambiguous regulatory environment.

Most of the insurtechs we looked at position and think of themselves as technology companies. But very few established insurers we spoke to and researched regard themselves in this way. While it may be an odd thought to consider, insurers were centuries ago regarded as leading-edge innovators and good at change and disruption. They were the Googles, Amazons and Microsofts of that era — and the concepts of algorithm, model, risk and data

would have been familiar to innovators then. However, our view is that while insurers haven’t exactly forgotten how to innovate, that organizational muscle needs to go to the gym. As one insurance industry professional we interviewed put it, “Nothing much has changed in the last 300 years, but a lot has changed in the last 10 years.”

There are experiments underway. For example, Guardian Life offers commercial technology products such as APIs and middleware. Liberty Mutual IT (a wholly owned subsidiary of Liberty Mutual) operates as a separate company and positions itself as a progressive, internal digital boutique. There isn’t a definitive model of how to organize, but what underlies these experiments is a recognition of the need to change behavior.

An insurance expert we spoke to said, “Insurers just avoid too much innovation due to the risks involved, compliance requirements on old data and the complexity of the existing estate. They know how to innovate, but tend to limit it, and many focus on innovation via small experiments.”

Cathryn Riley, former COO at Aviva and now a non-executive director, made the important point that “Insurers are often large, which makes it difficult to do big innovation. And their change budget is taken up with coping with the regulatory agenda, not true R&D ... an area where some industries have always done better.”

Our research suggests that insurers are starting to relearn innovation and transformation behaviors. They aren’t emulating all the behaviors of technology companies, but they are learning about some (e.g., becoming more customer-oriented, experimental and faster).

Many insurers are successful firms that are decades or hundreds of years old, with deep history and pride in what they have achieved. We don’t see the industry facing an apocalypse, but there are significant competitive forces arrayed against traditional insurers, and the insurers we spoke to believe they require attention. The rest of this paper presents 10 provocations, based on our conversations and behaviors we see from insurers. We hope these meet insurers where they are. They also provide food for thought on how insurers can better address their competitive challenges.

² https://www.genevaassociation.org/sites/default/files/research-topics-document-type/pdf_public/digitalinsurance_web.pdf

Section 2. Ten insurance behaviors predicting success

During our research we identified 10 behaviors that tend to predict success. The behaviors address significant industry drivers such as the need for customer focus, the profound change in IT cost structure, the role of transformational leadership and the potential of platforms and new risk data. Less obvious behaviors focus on alignment of technology strategy and the convergence of IT and business operating models.

Each behavior is illustrated by an example or quote from an insurance company executive. The tenth behavior discusses how insurers are combining business and technology to think about and create new game plays — ways of understanding their competitive environment and responding to that insight.

1. Satisfying deep customer needs.

“Our core belief is customer focus, it’s our number one topic.” Examples: MetLife, USAA

What insurers are doing. Many companies in the insurance industry have a quite fixed view of what customers need — for example, service-specific products for car, pet, life insurance, etc., delivered in specific ways (e.g., annual policies). However, customers are having their needs serviced in different ways in other parts of their lives (pay-per-use or via different subscription formats such as Spotify and bundled services such as Amazon Prime). This is causing them to question the value of existing product packaging (annual insurance contracts) and creating an appetite in them to buy new services such as pay-as-you-go (PAYG), which are becoming increasingly available. This suggests that insurers must learn to meet customers where they are, not where insurers would like customers to be.

One insurer we spoke to describes the prevailing problem as the “one-year mindset.” This refers to the way insurers have developed and priced products based on a one-year term and an annual fee. This annuity model of pricing, purchasing and serving customers has served insurers and customers well; predictable revenue creates financial stability and the ability to underwrite and serve customers in a consistent way. This model may be viewed as a sacred

cow that is increasingly problematic in a world of products with a short life span.

Some insurers are beginning to anticipate a world where new insurance for customers may be tied to a product (e.g., a car lease), a special occasion (such as a holiday) or an asset (e.g., an oil rig, a musician’s voice); or be in force for a different and much shorter duration (for example, an individual journey, a project, a concert). In the future, insurance can be very short-lived and ephemeral.

Certain insurers are at more risk of disruption than others. More competitive insurance markets (e.g., P&C) are more susceptible, because their products are seen as generic (product knowledge is replicable) and loaded with inefficient processes and friction for the customer. For example, according to the J.D. Power 2021 U.S. Insurance Shopping Study,³ nearly half (46 percent) of consumers made changes in how they managed their car insurance costs in 2020. Among those who made changes, 15 percent shopped for another car insurance company, and 12 percent switched to a new insurer. These relationships may also be shallow, and the customer relationship and product specialization highly superficial.

As one insurer describes it, the current industry cost structure is one-size fits all. The IT-related cost for each annual policy is broadly the same — \$50 — regardless of whether the policy is for \$50 or millions of dollars. This approach is not viable for the future; the cost structure needs to better reflect the value delivered to the customer.

Probably the clearest example we’ve found of organizing around emerging customer needs is USAA, which has specifically tied innovation to its core operations. According to its 2020 report to members, “Innovation at USAA is purpose driven. That purpose is our mission, facilitating the financial security of the military community while delivering excellent service. At USAA, we nurture a culture that supports member-focused innovation to help make their lives easier and ensure they remain resilient into the future.”

To support this mission, USAA created USAA Labs and is taking an eclectic approach to innovation, such as buying Noblr, Inc. to offer usage-based insurance, experimenting with firms such as State Farm, using blockchain to help with subrogation, collecting money between parties and developing an app called HOVER to capture exterior measurements and derive 3D models of a home from flat images to help loss adjusters, and possibly as a self-serve option for customers.

³<https://www.jdpower.com/sites/default/files/file/2021-04/2021038%20U.S.%20Insurance%20Shopping.pdf>

In a similar vein, MetLife's Next Horizon strategy has distilled the company's goals into three customer-focused words: Focus. Simplify. Differentiate.

Based on what we heard, segments such as P&C will bear the brunt of competition, as they have business models and capabilities that are felt to be easier to improve upon and harder to differentiate. By contrast, our research indicates that some insurance specialties, e.g., reinsurance, are more protected. For example, brokers for specific types of reinsurance may be very large, have deep relationships with buyers and investors, and have unique knowledge and IP.

DXC Leading Edge's view. The ability to understand "outside-in" insurance customer needs and to model the customer experience in depth is becoming a key insurance skill, alongside underwriting and actuarial risk assessment, and pricing. This combination of skills is a prerequisite to build microinsurance or event-based insurance products.

2. Operating model.

Insurance business models and technology operating models have been treated as different things and they aren't any longer.

Examples: Allianz, Liberty Mutual

What insurers are doing. Insurers are beginning to align technology and business operating models. Technology operating model change will be a particular challenge due to the stovepipe nature of many insurance technology investments, the preponderance of centralized structures and conservatism about change in many insurers. However, Allianz and Liberty Mutual show that alignment of business and technology operating models fosters productivity. Allianz's five strategic pillars include two technology-related drivers: Boosting growth through scalable platforms and deepening global vertical integration of operating models. These feed into a new Allianz Customer Model (ACM) and what the company calls the Allianz Business Master Platform.

We see a distributed or mesh structure (see **Table 2** and **Figure 4**) becoming the future default model to replace highly centralized (slow, bureaucratic) and matrix (faster, over-coordinated structures). Increasingly, insurers are pursuing mesh models to accelerate and enable sufficient but not excessive coordination. The reason the mesh idea

is important is because of its flexibility to deal with change (e.g., to make global governance applicable and to enable new lines of business).

Centralized	Highly governed model offering limited flexibility and agility. Paid for by a central group (usually IT; stranded costs are rare, as costs are usually recharged). Centrally managed or governed resources.
Decentralized	Highly orchestrated. Little happens until everyone agrees. Paid for by individual nodes such as a technology group, LOB, geography, etc. Central resources (e.g., sourcing, architecture, etc.) may be offered, but decision making is decentralized. This model works and is common but can encourage "rogue" behavior, as resources and decision making are decentralized. Works better in a steady-state situation but not flexible/fast enough in times of change.
Distributed or mesh	Highly autonomous model. Leadership principles, ways of working and organizational mission are clearly expressed. Just enough (coordination, data, architecture). Rare because it requires changes to ways of working, budget allocation (e.g., quarterly vs. annual) and leadership decision rights, which may be unpalatable. This model provides clarity on guard rails and decision rights.

Table 2. Working IT models, compared

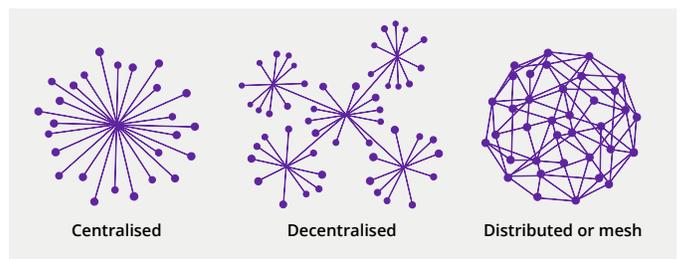


Figure 4. Insurance models will become more mesh-like.

DXC Leading Edge's view. We think a change to distributed or mesh structures is inevitable for successful carriers. Doing it another way maintains process inefficiency and friction (slowness) and involves extra cost and work for staff, partners and customers. This structure is practical.

3. Modernizing technology.

The stranded costs of insurance technology will choke future growth opportunities. Modernization creates cost parity, but more importantly agility. *Examples: DBS, Liberty Mutual, Resolution Life, State Farm*

The leaders we spoke to are modernizing for a future where the unit costs of technology fall dramatically and are more ephemeral (paying for IT capacity on demand for as long as it is needed). This is being informed by a deepening understanding that the current IT industry largely resembles that of automakers before the advent of production lines (e.g., Ford’s first moving assembly line pre-1913). Current systems are bespoke and non-replicable, and price and delivery are unpredictable. Also, lots of customization and investment may exist for components that are increasingly commoditized or undifferentiated (e.g., storage, compute and integration).

What insurers are doing. Most of the insurers we spoke to recognize that the unit costs of technology are falling dramatically. DBS, recognized by Euromoney as the best bank in the world, includes insurance businesses and achieves 10x cost reductions using serverless functions.

Liberty Mutual has reduced its computing costs per million transactions to \$6 using new cloud services, and its cost of customer service for some applications from \$20 a call down to four cents per interaction for a new build financial application. According to David Anderson, former CTO of Liberty IT, “There is no easy way to get a clean figure for

‘cost per transaction,’ but, there are many examples of reducing compute cost by over 90 percent (10x) by moving to modern cloud and serverless technologies.”

We have seen other similar examples replicated within Insurance and in other industries. **Figure 5** visualizes what is happening.

The trend shown in Figure 5 challenges the typical economic calculus in insurance (actually, in most industries) to leverage legacy as being cheaper (paid for, amortized, a known quantity), and thus representing less perceived risk. This logic has worked for over half a century. But it is now seen as flawed, as the focus on cost benefits misses opportunities.

There are two paradoxes at work here. The first paradox is that time extending the lifespan of technology will not always save the most money. It may, but it’s not a certainty. The second relies on Jevon’s Paradox and addresses how insurers support emerging and new needs. For example, a wealth customer may want to look at their portfolio daily rather than monthly, and this has associated extra costs and complexity for the insurer. As an idea, Jevon’s Paradox is nearly as important as Moore’s Law in IT planning, as it describes a situation where an organization uses higher amounts of cheaper-per-unit resources (e.g., cloud services), and therefore can afford to do more with the same unit amount of money. But to take advantage of Jevon’s Paradox, leaders need to reduce their technology debt.

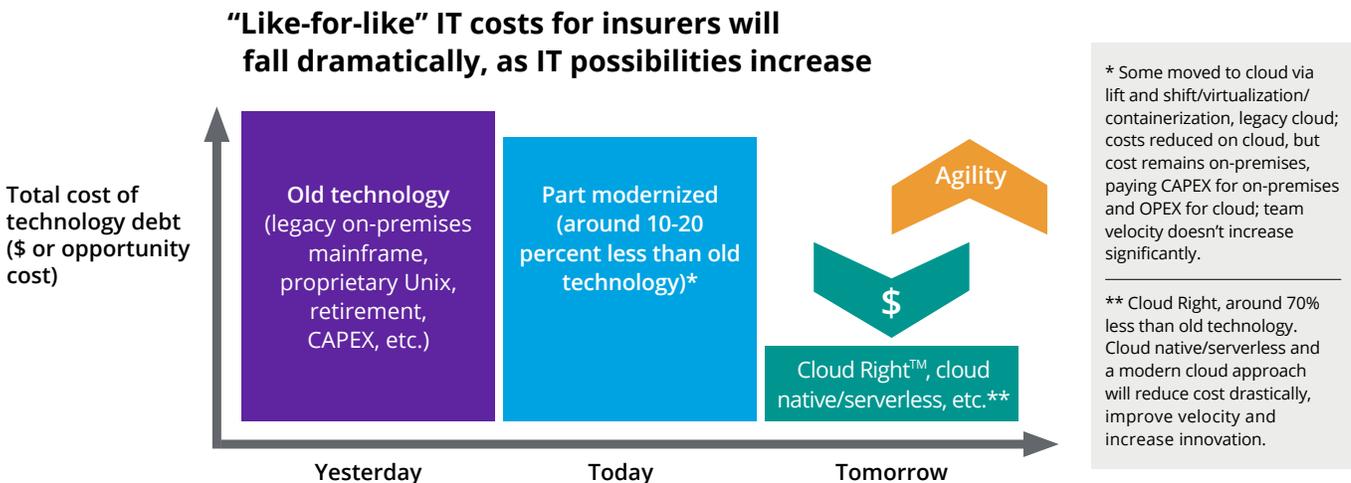


Figure 5. Like-for-like IT costs for insurers will fall dramatically as IT possibilities increase.

Some of the insurers we spoke to describe this debt as a stranded cost. An analogy would be a nonremediated environmental cost (e.g., a mine that's yet to be decommissioned and cleaned up). This is seen as a risk. The scenario envisaged is that this technology debt gets addressed to some degree, but the debt is never wholly eliminated. This debt impedes transformation efforts, as the progressively greater stranded costs represent a direct inhibitor to growth (less money for new technology investment). And the debt also prevents the business from investing in newer, more productive initiatives. It's not exclusively an insurance industry problem but one that exists in many regulated industries (e.g., airlines, banks, pharmaceutical firms, energy companies, telecoms).

The most progressive leaders are addressing this legacy problem directly rather than letting it fester forever. Increasingly, insurers want to quantify this risk more accurately and get it off the balance sheet. Of all the insurers we looked at, Resolution Life is the clearest example of an insurer taking this approach. As it modernizes the operations of the businesses it takes on, it modernizes IT to reduce run costs and to reduce the technology risk to its ability to achieve its target financial returns. Technology debt is seen as a risk to the certainty of it achieving these returns.

Finally, insurers are placing a renewed emphasis on modern architecture skills. Cloud-native capabilities are much more atomized (many more smaller components), requiring less physical footprint/infrastructure (e.g., serverless functions) and running over shorter times. This atomization dissolves current application, infrastructure, operations, financing and development/deployment models.

To manage this world of different complexity, insurance technology leaders recognize that deep architecture expertise is required (e.g., cloud-to-cloud integration, service and microservice design, platform resilience, rapid evaluation methods, user requirement specification and testing).

Chris Lasky of State Farm puts it like this: "Platform building creates a much clearer mapping of processes to systems and technology and the complexity of the systems we're building means that we need to be really making sure that the underlying architecture to support these is sound."

In her view, modern architecture is built on the need to understand the big picture and what outcomes you are trying to achieve, and on being able to work successfully to connect each level of abstraction as you go to lower levels in the design. "Architects need to understand the user experience requirements, the detailed business processes underlying these requirements, as well as the technology stack that enables these processes," she says. "A multicloud or hybrid cloud environment can be incredibly complex, and as we design and redesign our applications to take advantage of cloud capabilities, we are connecting these levels to ensure that the end-to-end architecture is sound. We invest a lot of time to develop a clear understanding of the outcomes we are trying to achieve and to communicate that we are designing in a way to enable us to meet and exceed the expectations of our customers."

DXC Leading Edge's view. Future technology cost structures are so attractive they are impossible to ignore, and they come with potential customer experience benefits (speed, cost of change, etc.). Insurance firms cannot resist these economics, and legacy cost structures will be a competitive drag to expense and combined ratios and therefore untenable to sustain.



4. Insurance technology skills and ways of working.

The transition from old skills and ways of working to new ones is going to be tough. You can't tiptoe into this change, but there is hope. *Examples: Old Mutual, Mosaic, State Farm, MetLife, Westpac*

What insurers are doing. The insurers we researched are acutely aware of the problems of retaining and recruiting technology talent and are worried about it.

At Old Mutual, CIO Johnson Idesoh is addressing the issue by recognizing the importance and value of heritage systems, and bringing old and new skillsets together to improve both. He says, "If I were to bring a 25-year-old and tell them to work on a 30-year-old system, they're not going to stay for long. However, bringing them on to work on the initiatives that are transforming us from our heritage systems to cloud-based solutions, robotics and digital is going to excite them."

What is also valuable, he says, is that the "people who have been in the company for more than 30 years have a degree of intellectual property in understanding the business — and they are critical when it comes to skills development." Companies can extend these individuals' tenures, so they can play a significant role in helping new hires gain new skill sets in a smooth transition." We've seen this model work before in other industries, and it is successful.

With regard to talent diversity, Tom Wolf, former Global CIO of MetLife, used the terms "Scruffies" and "Neats" to describe his technology team. He notes that he has needed both types of people: "Neats are planners and executors. Scruffies are strategic thinkers. Of course, everyone does both as they become senior, but almost everyone is more comfortable as one type and will focus more on that. Scruffies usually know they need Neats to be able to execute. Neats usually don't think they need out-of-the-box strategic thinkers. In fact, they think they are not necessary. That's why you see many more Neats in insurance companies than Scruffies. The Scruffies are choked out of the system. When I build teams, I try to balance them out between the two types (that said, in the insurance culture,

teams have more Neats). I have found that teams create much more value having this balance. When teams have only one type, they inevitably fail."

In DXC Leading Edge language, the Scruffies are pioneers, the Neats are town planners, and the leader is the settler — the enabler who helps these groups to collaborate successfully and who can operate as a Neat and as a Scruffie.

Mosaic Insurance has created a seamless culture that shares ownership across organizational boundaries and operates a flat and empowered organization. According to Krishnan Ethirajan, COO of Mosaic, unlike legacy carriers, Mosaic started with a model that perfectly aligns its insurtech operations with the divisional objectives. "We have an agile and nimble organization that ensures we don't fall into the trap of building operational silos."

Although Westpac has reduced its captive insurance business, it is building an approach to talent that we think is valuable to consider. The firm is trying to create a real-time view of its talent, skills and demand, so that it can forecast and provision, retire and modernize for what it needs.

Skills that were formerly seen as valuable and differentiating are increasingly redundant (for example, generic technology, operations, deployment, and internal sourcing). However, insurers are increasing their formal programs to modernize technology skills, reskill workers and incorporate ways of working to aid retention and attract new talent. State Farm has run programs to reskill its people for many years. In part that's because bringing new talent in is harder than retention, but also because culturally that's compatible with the firm's ethos to grow people from within.

DXC Leading Edge's view. Insurers are showing imagination in how they retain legacy or heritage skills (old, established, out-of-fashion and focused on non-contemporary technology, methods and knowledge) to reduce the risk of losing deep, domain-specific business process, integration and relationship knowledge. Several insurers (e.g., State Farm) have long-standing programs to capture and transfer skills, reskill employees with longer tenure, grow new talent and change working practices. These practices are replicable.

5. Technology transformation risk.

The most successful insurance technology transformers are using their core skills of understanding and balancing risk to digitalize more safely. *Examples: Jackson, State Farm, Swiss Re*

What insurers are doing. Insurer focus has shifted from conserving and extending the life of existing technology assets to modernizing in order to support and create new capabilities. All the insurers we spoke to are moving away from investing in and emphasizing custom-made, stove-piped applications and moving toward using ready-made, off-the-shelf services. While insurance technology transformation is happening everywhere, it is very uneven. For example, P&C and life have heavier pressure, and areas such as reinsurance have greater inertia because of the power of relationships and networks. These deals tend to be customized.

Some parts of the technology landscape will simplify (e.g., more focus on standard platforms, more standardization and simplification using industry standard components for compute, storage and analytics). But that won't remove the complexity of the insurance business itself, notes Mahesh Chandrappa, State Farm's vice president, Digital – Analytics, Transformation, Strategy and Marketing. "Because of the nature of the business there will be complexity," he says.

Insurers are increasingly focusing on how to relate technology strategy to business strategy and business risk. State Farm has created a board committee that includes experienced senior leaders from other technology and non-technology firms to support decision making.

It focuses on specific technology domains, such as platforms and infrastructure, future technology, and talent risk, and provides the board with a deeper evaluation of these areas so that the organization can better plan for its technology future. We think using external subject matter experts in highly targeted ways is an interesting approach.

Looking further out, Evangelos Avramakis of Swiss Re Institute says the insurance industry is moving to understand risks in real time. "Let us assume you have a car accident and then you might be asked by the insurance company to take some additional pictures complementing data being already captured and shared by the car itself," he says. "How would an insurer make sure that it has the best algorithms and models in place, i.e., by calculating and deriving approximate claims costs? What is the algorithm or model that does this best? My question is, do we have markets in the future where insurance companies can just take the best algorithms on demand from the open market. What if algorithms are going to be offered on a marketplace where the competition will be about best algorithms in place that would help corporations to choose the ones on demand that fit to their needs?"

DXC Leading Edge's view. According to Dr. Bhatt Vadlamani, Technology VP at Jackson, one of the largest providers of retirement products in the U.S., "Insurers want to own the risk, they understand risk incredibly well and they know how to hedge it." This risk orientation is becoming much more embedded in insurance technology organizations as well. For one interviewer, a key leadership requirement is to estimate "at what stage it flips" and what drivers of the flip are most important to focus on. But it's not just an IT decision; we see more efforts to engage boards on insurance technology risks, opportunities and the right response.



6. Technology strategy.

Technology strategy becomes business strategy, and therefore a boardroom topic.

Examples: DBS, Jackson, State Farm

What insurers are doing. The future of an insurer's technology capability is becoming a boardroom topic. A critical insurance technology role is to manage technology portfolios, ecosystems and partnerships and tie this back to the core goals of the firm.

We see some emerging patterns, such as deeper alignment of business strategy and technology strategy, and as discussed in provocation 2, combining IT and business operating models. Dr. Vadlamani of Jackson describes what they are doing to componentize product and technology services as the "North Star of its digital future."

Another approach to the problem is to simplify processes and the organization. As part of its reinvention, DBS stopped allowing shadow IT and instead focused on the reason why people felt they needed to create it. A key principle of this was to create ways to make IT work most effectively with a smaller set of controls and a clearer set

of decision rights. This eliminated many of the control and gatekeeper roles. One idea was to create BEANS (Behavior Enablers, Artifacts and Nudges). And DBS has mobilized a wide variety of tools and approaches to enable employees to create extraordinary results. It coined the phrase NODET (Normal Organization capable of Doing Extraordinary Things) to describe how it's aiming to create a higher performance organization.

State Farm has formalized how it brings technology and business capabilities together. Chris Lasky describes it as follows: "We have lots of training programs and development-type things that help grow our leaders across the organization. In building that technical savvy it has to be something that they're doing all the time."

DXC Leading Edge's view. Legacy technology and future capability are now boardroom topics in a way they've never been before. The pressure on IT moves from cost reduction, audit, and compliance and operations to capability delivery. That requires creativity in how you grow technology and business capability — leaders can't dip in and out of it. To grow digital mastery, leaders must be immersed in this world all the time.



7. Insurance platforms and ecosystems.

Simplification, consolidation and standardization lead to insurance by configuration. *Examples: Mosaic, the London Market/Lloyd's*

What insurers are doing. Insurers are natural platform businesses, but they may not recognize this. Historically, insurers have created platforms expensively, inflexibly and often using paper processes or highly customized individual systems.

In considering platform and ecosystem investments, the insurers we researched are looking at the areas shown in **Table 3**.

Lloyd's, with the London Market Association and the International Underwriting Association, is pursuing a joint venture digital transformation program, called Blueprint Two, to convert "largely paper and analog-based processes" to ones that are "data-focused, automated and cost-efficient," according to John Neal, CEO of Lloyd's. Beyond this cost and efficiency work, the partners are looking at platform building to enable Lloyd's to act as a more integrated international digital marketplace.

According to Krishnan Ethirajan, of Mosaic, "Picking the right policy and claims platform is important, but we did not want to be constrained by putting all of our eggs in one basket. So we built our data model and analytics and visualization platform as the centerpiece of our

technology infrastructure. For us, a single policy and claims platform enables the capture of all the data using common processes and workflow."

"We believe having the data captured consistently will help us build our IP quickly whether it's our AI tools for complex risk selection claims handling and pricing or sharing our analytics across our value chain with brokers, regulators and Syndicated Capital partners. This is why we're excited to have our insurtech assets aligned and leading the Lloyd's Blueprint Two vision on common data reporting standards."

DXC Leading Edge's view. There is a progressive move by insurers (some are moving faster, some much slower) to building platforms and ecosystems by creating reusable services. This will reduce application-specific stovepipes tailored to highly specialized, individual needs. However, this is a complex area, and we don't see the need for all insurers to go all in on one approach, at this stage.

Amazon's philosophy of limiting the number of one-way door decisions (creating and leaving open future options) is worth bearing in mind. Insurers should therefore experiment and explore to see what their optimal platform business position might be — such as an orchestrator, who creates a platform and an ecosystem around it; a provider, who participates in someone else's platform and is part of others' ecosystems; or a consumer, who focuses on using third-party platform capabilities.

Platform components	Component focus examples
The value exchanges that are taking place	Risk and opportunity data
The space for conducting platform business	Life, reinsurance, P&C
The players involved and necessary	The role of the actuary, underwriter, insurer, broker, technology enabler, customer
The rules by which platform business is conducted	Regulations, contracts, customs and practices such as underwriting processes
The tools which are available to those players	Older and newer paper and IT systems, new methods such as parametric insurance, non-canonical data models

Table 3. Platform and ecosystem components and focus areas

8. Sources of disruptive risk data.

Where are the killer use cases for and differentiators of new data? *Examples: Swiss Re, Prudential Financial, Airbnb, Wilton Re*

What insurers are doing. Mining for gold in data to characterize risk has been a core skill of insurers for over 300 years. But to find data nuggets, organizations will continue to sift through a lot of dirt and create a lot of waste. When gold is found, there is a natural preference to leverage this data. However, the challenge for insurers is that their data exploration investments are historically focused on creating efficiency (do the same things better) rather than experimentation (do new things differently).

This behavior is informed by a concern that without solid risk data, actuaries will not price new products correctly. It's reinforced by the fear that even with this data, it's still possible to get this wrong. For example, while long-term care (LTC) insurers have decades of data, loss experience, mortality and morbidity data, they are still paying the price for undercharging premiums for LTC.

All of this would suggest that insurers should stick with their conservative approach and avoid risk. But we see data experiments — albeit focused on data augmentation vs. data replacement. Prudential PruFast Track, for example, is a new accelerated underwriting process to allow application approval in 48 hours, using third-party data to supplement application data and thus eliminating the need for medical exams or bloodwork.

Jackie Chan, vice president and head of Decision Insights Group at Prudential Financial, said, "We do a lot of iterative testing and design, partnering closely with many of the teams that have the potential to do faster and smaller bits of insights that can help us take a more agile approach."

Cleaning up old data is also critical. For example, Wilton Re acquires insurance blocks from other insurers, and one of its first jobs is conversion. This is the process of moving insurance policies to a more modern IT platform and data structure, and modernizing and enriching the data (e.g., adding metadata) to enhance its value to clients. According to Enrico Treglia, Wilton Re COO, "Wilton Re's strategy requires us to adapt our core risk models and enrich the data supporting these models as new customer needs emerge."

New sources of risk data also make different risk mitigation options possible, particularly in the specialty insurance area. For example, there are emerging players (such as Virtual i Technologies) that make the bold claim to offer complete visibility of a risk prior to underwriting. While that claim still requires full validation, it's possible to imagine new forms of risk data (e.g., building sensors spotting and reporting possible issues) that would initiate either an earlier and potentially less costly claim for damage or a loss preventative action. We also think these new forms of risk data make new product forms possible (shorter duration, event-based or microinsurance), with better risk management (greater model accuracy and visibility of risk).

Some firms — Tesla, for example — claim to have a much better feedback loop than traditional insurers, based on the firms' own instrumentation (IoT sensors, remote telemetry, etc.). That's true for their own ecosystem, but we doubt the universal potential for these loops to replace existing insurer data flows and value chains. In part this is because of regulatory pressure, which remains considerable (and if anything, is increasing rather than decreasing); but more so, it is because of algorithm mistrust or lack of visibility into how the algorithm works.

Traditional insurers have the significant advantage of being seen to be one step removed from the insured products and therefore somewhat impartial. So, buyers may feel that a product they buy for journey insurance from a firm like Uber or Tesla may be less trustworthy than one from a traditional insurer.

Take an autonomous driving example: If the automaker offers a product, provides the data and provides the service, what is the external validation of the service, and where is the arbitration when there is a dispute or if things go wrong?

Rather than digital players winning and insurers losing, we see a middle course where newer digital players and older insurers cooperate based on shared data (where allowed). We think a better set of use cases is emerging that involves wider ecosystems rather than ones focused on single suppliers.

One example is on-the-fly drone insurance provided by specialty insurer Global Aerospace. With the increased use of drones, the insurer developed a new product to cover drone flights for the time the drones are airborne. Drones and their related imaging and logistics uses represent a big opportunity for risk management as well as claims, yet insurers have been very slow to explore these.

New forms of data will generate different risk models and opportunities, such as the ability to price car insurance based on sensor, behavior and other data, or the ability to offer specialized healthcare packaging based on activity and live health data. This mirrors what we see in other industries that are even more regulated than insurance, such as pharmaceuticals. In that industry, real-world evidence (RWE) collected outside of formal clinical trials — from sources such as electronic health records, insurance billing and claims, and other data sources — informs the development of new therapy products.

As with the pharmaceuticals industry and RWE opportunities, our research suggests that insurers must get better at developing non-canonical models and data for insurance products. Insurers have focused on canonical data (e.g., known data provenance and quality) and risk models based on this data. But with AI and ML data, it's harder to verify or even know what the data sources are and what the models do.

We'll use the example of Airbnb to illustrate this. Airbnb doesn't offer separate insurance, but it does offer bundled Host Liability Insurance within its AirCover protection for hosts in certain markets. This skirts the edge of home insurance and public liability insurance, but insurers don't know exactly how to cover for this new product. Airbnb also uses non-admitted insurers (insurance companies not licensed to do business in certain states or countries). These aren't necessarily bad (Lloyd's falls into this category, as it operates an insurance market rather than an insurance company), and they may have more experience of higher-risk insurance lines or less well-characterized risks. New entrants such as Pikl are developing new insurance lines focused on home and vehicle-sharing. Cathryn Riley, former Aviva COO, put it like this: "The new guys are finding ways!"

The only way organizations can find out enough about how these new products could work well is by experimentation. That's problematic because insurers' models are based on well-known canonical data (i.e., they know how the data is derived, and they know or have an estimate of the error between cause and effect). But a lot of new data is not canonical, and its provenance is not pristine. It has value, but it doesn't come with the same quality assurance that insurers are used to. The data volumes are also much greater and much more diverse. It's a solvable problem, but it requires experimentation.

DXC Leading Edge's view. As one of our interviewees put it, "Management says we have tons of information. We've got petabytes of information, but management asks, 'where is the money?'" Insurers are learning new data types and new models and their capabilities, and we see the only way to build insight on these is to test and learn. We think that in much the same way office automation increased rather than decreased the demand for paper, it is likely that insurers will play a significant part in digital insurance product underwriting because they add trust to the process and potentially create new customer demand.

9. Transformational leadership behaviors.

Examples: Allianz, DBS, the London Market/ Lloyd's, Jackson, Liberty Mutual, MetLife, Mosaic, Old Mutual, Prudential Financial, Swiss Re, State Farm, USAA, Westpac

All the firms we researched acknowledge the need for leadership to signal and act to change their organizations. It's a key success factor in all the transformations we've ever seen in insurance and other industries. One interviewee vividly put it like this: "Where is the magic wand to eliminate turf wars? Executives with power tend to want to keep that power. It's sort of a Law of Thermodynamics."

Table 3 highlights the fact that with transformational leadership, ownership and politics are complex but that all the examples in this paper show ways in which leaders have been able to address the ownership and politics issues with significant success.

All the provocations provided in this paper illustrate a leader taking a position and working from that point to a goal. The insurance examples we've included here also started with some form of intrinsic motivation from the leader — not a wait for the data to be perfect, nor for all the permissions to be provided. They all started taking a risk with an uncertain outcome because they felt it's the right thing to do. This also signals to the team that it's safe to work in a new way.

Amy Edmondson in her book *The Fearless Organization* describes behaviors that create safety and high performance, and this includes enabling team members to experiment and make mistakes, open communication, and a process to make that happen (for example, DBS' idea of BEANS). One insurance leader was described by one of his team as displaying critical skills.

"He kept at it, you know, and I thought it took great leadership for him to do that. And I think that's probably where I have the most hope, because you do see some examples of leaders who've just stepped up." We use this example because it illustrates the qualities of taking a position, of persistence, of being a role model, and of showing a behavior others feel they can emulate.

DXC Leading Edge's view. While we recognize that showing transformational leadership is difficult, it is happening in insurance and in other industries. Taking action is becoming less risky. It's still messy, but it is feasible, and execution risk is falling.

10. Competing more effectively.

With every technology deployed, there's a strategy to exploit it competitively.

Examples: Jackson, Liberty Mutual

What insurers are doing. Insurance technologists are beginning to develop their own strategic game plays to identify how they can enable their organizations to compete more effectively. Insurance technology leaders are creating competitive playbooks to help their functions and their firms better understand and react to market pressures.

We are beginning to see insurance IT organizations adopting more strategic approaches to how they identify where they should play and where they can win. As a result, the map of what technologists are proposing to do provides clarity to the organization on the role and value of IT.

As a discussion aid, we are showcasing two different approaches that we've seen in use at insurers.

Approach 1. Jackson's Digital Execution Framework

Jackson National, a major U.S. provider of retirement planning products, has created a Digital Execution Framework to track its digital execution maturity. The framework comprises five dimensions:

- Migrate from on-premises
- Digital workforce
- Digital analytics
- Digital interactions modernization
- Digital pipes to counterparties

It also comprises four maturity levels:

- Digital optimization
- Digital customer relationship
- Traditional product through new channel
- Work with ecosystem players to execute emerging business operating models

Approach 2. Liberty Mutual uses Wardley Mapping to create its Execution Flywheel.

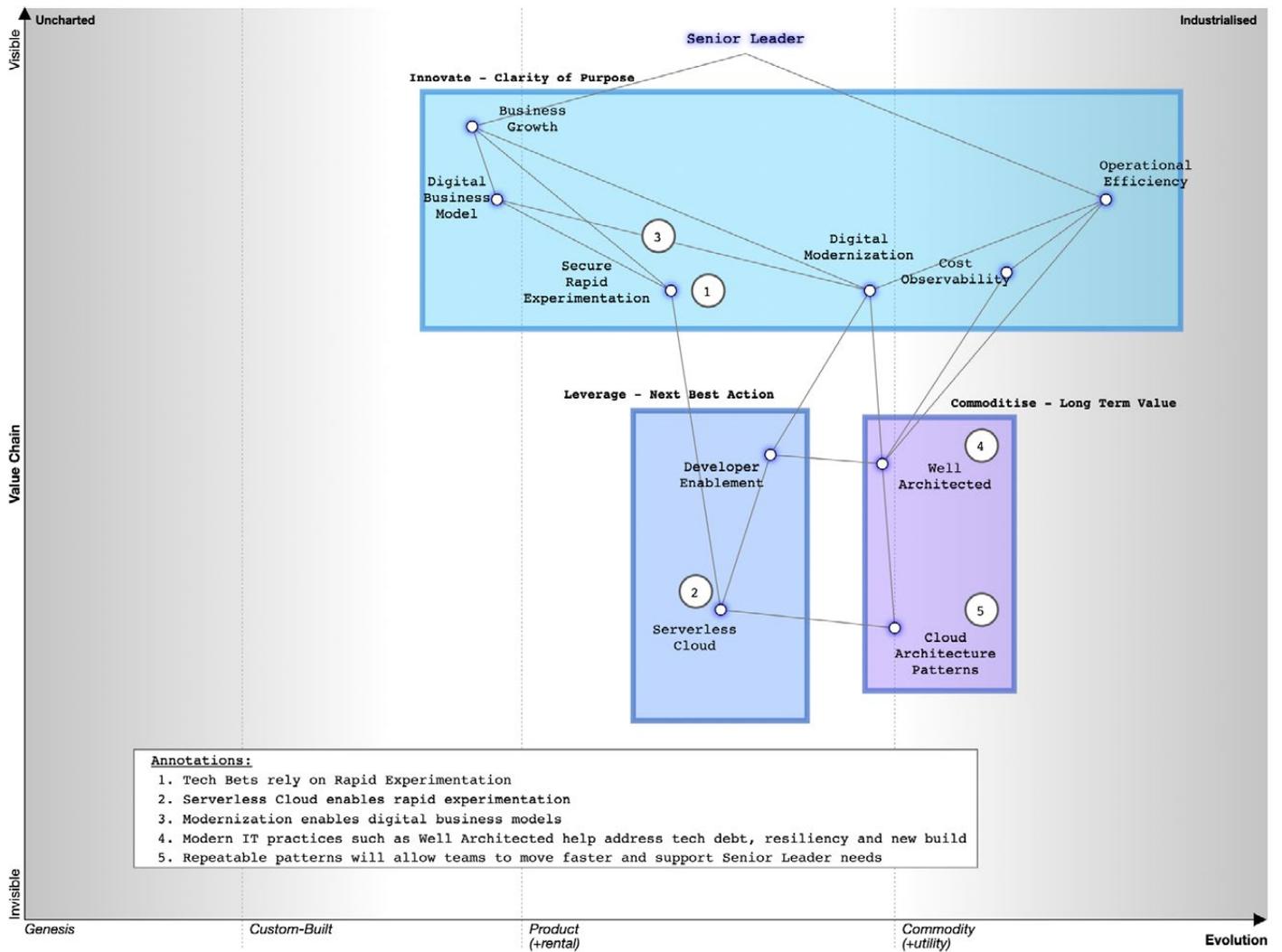
Wardley Mapping is a technique used for game play and was developed by DXC Leading Edge researcher Simon Wardley. It is used around the world to help assess industry disruption, technology strategy and maturity, and therefore to identify differentiating game plays that organizations can develop.

Wardley Maps describe how a user need is addressed using a combination of visible and invisible components. They can be very simple or more complex. Simple maps are better to become familiar with the technique, and to expose and test the core assumptions behind why specific business models, projects and technology approaches are being pursued. They are exceptionally valuable in making a complex technology topic intelligible to C-suite leaders.

David Anderson of Liberty told us, "I am a big fan of maps. We were a little group in Belfast, and we were thinking about how we could make an impact. Mapping was new to us, but it allowed us to predict future movement, make sense of things and communicate technical strategy. We mapped the business and technology flywheel to see how we could move faster, get closer to the customer and be a better business partner."

DXC Leading Edge's view. IT organizations have by and large been strategically incompetent in developing technology strategies to help de-position and defeat their firms' competitors. They need to improve their external sensing and synthesis skills to assess competitive risk and improve situational awareness. To be most effective, companies will also need to own their game play rather than react to someone else's or copy and paste another firm's strategy.

Using Wardley Mapping to drive the Value Flywheel and make space for Innovation.



Section 3. Call to action

We encourage insurance leaders to complete **Table 4** to identify priority areas to focus on next.

Provocation	Step 1. Describe the primary problem your group is facing	Step 2. Rate the problems 1 – 10 (where 1 is most important to you, 10 is least important to you)	Step 3. What are you doing now, and what could you do next (focus on the most important problems for you)?
1. Satisfying deep customer needs			
2. Operating model			
3. Cost of technology			
4. Insurance technology skills and ways of working			
5. Technology transformation risk			
6. Technology strategy			
7. Insurance platforms and ecosystems			
8. Sources of disruptive risk data			
9. Showing transformational leadership			
10. Competing more effectively			

Table 4. Priority areas to focus on

A closing thought

There are enough good insurance industry examples of large companies working at scale to show that successfully transforming insurance technology and aligning it to core insurance business activities is possible. There are tools, methods and experts available to help you modernize, reduce risk and bridge the old with the new. These are generally tried and tested. While we've found that there is no one-size-fits-all approach, all our examples offer a way to be successful.

There are plenty of insurance examples to choose from, and we'd encourage insurers to look at examples from other regulated industries — what is working there is likely to work for insurers, too. However, as one insurance interviewee told us, "There are insurance companies that have progressed, but most have not, and they have wasted vast amounts of money on poor technology choices."

The next step is up to you.

About the authors



Ash Pal works with leaders on large transformations, primarily in regulated industries. Clients engage him to help them successfully improve their organizations through digitization of leadership practices. His progressive thinking and practicality help modernize what are often well-established, conservative, change resistant firms. His regulated experience covers a wide variety of the world's largest insurers as well as firms in other regulated industries such as banking, energy, pharmaceuticals and healthcare.



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