

Direction for Agents and our IA distribution channel

Definition:

The Internet of Things (IoT) is very broad in scope and very pervasive in its nature. It isn't about any one technology, but the combining of technologies to provide information, access and solve problems which will eventually result in a connected world that few have imagined. Over time it will not only transform the insurance industry, but it will also have a profound impact on many aspects of our society, including governments, businesses, and our personal lives.

From Gartner: The Internet of Things (IoT) is the network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment.

Examples of physical objects that communicate in these ways are Alexa, Google Home, smart thermostats such as Nest and others, Smart door locks, [Trackr](#) or [Tile](#) keychain locators, and many others.

But what is it, really? In the simplest terms, the IoT is a connected system of interrelated devices, mechanical and digital machines, objects, animals/pets or people that have the ability to communicate, sense, or interact without human-to-human or human-to-computer interaction. There are currently already billions of IoT devices around our planet.

NOTE ON THIS DOCUMENT: *With this resource we endeavor to provide IoT insights as a point in time snapshot – however with the amazing speed of advancement of the IoT, new information will likely develop rapidly. The ACT 'Strategic Future Issues' and 'Changing Nature of Risk' work groups will continue to review and update this document when significant advances occur.*

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Research:

Through interviews and surveys, we will want to answer these questions:

- Is the industry responding to the trend? If so, how?
- Who is responding to the trend? Which entities – carriers, vendors, agents, other?
- To the extent possible, determine what is the future trajectory of this trend?
- Aggregate & consolidate current actions, use partners
- Clearly determine Impacts: Overall and to our distribution/segments (agents, carriers, vendors)
- Possibly use industry surveys – Internal and external
- Discuss with industry vendors at upcoming conferences.
- Need to determine devices that will have a P&C impact (*pro or con*).

Insurance Impacts and Deeper Definitions

IoT Ecosystem

The Internet of Things integrates four distinct layers of capabilities to enable revolutionary new capabilities.

Sensors communicate with the network to move the data to the computing platform where the business applications interact with the data to draw conclusions and make decisions.

Sensors

Sensors are at the remote end of the IoT stack. Appropriate sensors are deployed depending upon the monitoring need. Sensors have built in communication capabilities to connect to the network.

Geospatial Sensors - Report their location to the network, allowing the data to be linked to location (geospatial information). For example, a vehicle can report its location and other information to update the network on travel times, weather and other information.

Environmental Sensors - Report in situ data (e.g. onsite, local), enabling remote monitoring of systems and processes or early detection of severe weather events. Wave sensors in the ocean monitor and report on wave and storm activity.

Biosensors - such as smart watches, activity bands and rings, along with emerging implantable devices monitor and report status of humans and animals. They enable remote monitoring by either humans or machines, providing early detection of potential health concerns.

Equipment sensors - Embedded in standalone machinery, or as part of larger integrated systems and processes. Sensors detect and remediate issues to prevent equipment losses or maintain process/production quality and efficiencies.

Network

The network enables sensors to transmit data to the computing platform. The network consists of both short range and long-range communication protocols.

Short Range: For short range communications, low power technologies such as Bluetooth and Radio Frequency Identification (RFID) allow sensors to communicate between themselves and with the long-range network.

Long Range: Communication of data over longer ranges occurs either via cell services or non-cellular networks such as Z-Wave or Wi-Fi. New 5th-generation (5G) cellular networks bring faster speeds, lower latency and the ability to connect more devices such as phones or sensors.

Computing Platform

The computing platform performs multiple tasks, ranging from managing communications to analyzing data and either making autonomous decisions or alerting operators of situations requiring their intervention.

These platforms can be either located in dedicated data centers or as cloud services provided by third parties such as Amazon Web Services. The platforms perform low level processes such as communications and device management, but also provide sophisticated services such as application enablement, analytics and decisioning.

Business Applications

The final layer in the IoT stack is the business application layer. The business applications request or receive information from the computing platform to provide the services of the application. These applications can be consumer or business centric.

For example, a consumer centric application could be a smart speaker from Amazon or Google, or a home automation application like Philips Hue or Apple Home Kit.

Business applications could be industrial monitoring and automation such as environmental monitoring at a petroleum refinery, or a mechanical breakdown application deployed by an insurer.

Uses

Monitoring: The process of observation of variables with the intent of regulating those variables or reporting departures from normal ranges

Diagnostics - The output of monitoring is analyzed by the computing platform, allowing identification of trends and possible solutions.

Management: Using responses from the business application to affect systems or processes towards desired outcomes.

Safety: Systems improve safety through early warning leading to avoidance, or improving response time after the event.

Security: Sensors and business applications can be used to improve security through intrusion detection and reporting.

Examples

http://www.libelium.com/resources/top_50_iot_sensor_applications_ranking/

Consumer: Residential automation, autonomous vehicles, wearable health monitors

Industrial: Process monitoring, equipment breakdown

Agricultural: Animal husbandry, moisture monitoring for crops

Retail: Inventory control, automated checkout

Energy: Use monitoring, greater efficiency, improved load projections

Cities: Detection of trash levels in refuse containers, traffic flow monitoring

Insurance Implications/Impacts

Areas of Impact:

Personal Insurance Impacts:

As the result of IoT, carriers now have the ability to gather substantial amounts of data on potential customers allowing them to underwrite more effectively.

Accessing information available via social networking and crowdsourcing means carriers can underwrite for lifestyle while sensing devices such as those for autos or home appliances allows them to tell how you drive or even what maintenance has been done on your dishwasher. With public source and authorized private information, carriers can get values on property or driving records without requiring many questions be asked directly of the consumer.

Underwriting Impacts:

Carriers now have the ability to gather a lot of data on potential customers as the result of IoT. By leveraging the rapidly growing additional data, carriers can underwrite more effectively. Some of the additional sources are from social networking and crowdsourcing carriers can now underwrite for lifestyle. With sensing devices for both Auto and Home they can tell how you drive or what maintenance has been done on your dishwasher. With public source and authorized private information carriers can get values on property or driving records. Not many questions need to be asked of the consumer to get this information.

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Agents will need to adjust their processes of collecting information and understanding what additional information will be needed in the new environment. Understanding what sensing devices an insured has may have premium, deductible or coverage impacts. Collecting social media links may also have similar impact on coverage, premium or deductible. Where this information is stored and collected will present a challenge as more of these items find their way into the process.

The consumer experience will change as well. It will be more passing permissions allowing for more personal information to be pulled instead of having to provide a lengthy interrogation. They will also be able to leverage their investments in technology to gain preferred underwriting decision.

Claims Impacts:

Carriers will hope for a reduction in claims and better underwriting results. Our distribution channel will see more self-directed claims on the smaller claims to expedite and reduce expenses. Technologies exist today and are being offered to allow the consumer to communicate directly with adjusters will simultaneously zooming in on specific areas and measuring all at once. ~~There have also been efforts to reduce the Catastrophic cost lift from demand surge on much used supplies during rebuilds, all provided by IoT.~~

There should not be a great deal of change for Agents on claims. One aspect that will be easier and should be recommended is home inventory pictures/videos. Since these can now be easily stored in the cloud there is little chance of losing them in a catastrophic event. Agents need to be more aggressive in encouraging their customers to complete a thorough home inventory.

Overall, agents will need to be much more proactively engaged with customers to advise them in advance how these processes will work so that customers will not feel abandoned. The value-added benefit of independent agents is going to be redefined over time with these enhancements and consumers are likely to follow those who not only take advantage of the technology enhancements for efficiency, but also those who maintain/improve the degree of humanity in the claims process.

The consumer will notice a distinct improvement in the claim process. With the ability to process their own small claims and have them paid quicker.

Catastrophic events are also being handled more quickly and efficiently as a result of the inventory build-up and access to more information.

So what does this all really mean? A quick example to illustrate:

A couple is looking for new insurance, everything looks pretty good until a speeding ticket shows up on one of the drivers' licenses. The carrier's systems check that date across all of their data. What they find allows them to still offer the most preferred rate. They see that the customer's water flow monitors reported moisture that day.

In addition, they see a post on one of their Facebook feeds that reads: "Had a bad day, first our water flow sensor went off, while on my way home to check on the house my daughter's school called. She had hurt her leg at recess and they feared it was broken. Change of plans and on my way to pick her up I got my very first speeding ticket. Behind every dark cloud though...my daughter only sprained her ankle and our flow shut off valve worked perfectly, we had just a little water in the laundry room."

None of this should be a surprise when thinking about where we have come from. We had phones, now we have mobile devices that connect us to a universe of data and information. The uses will continue to grow and change more quickly than it has in the past.

- Home monitoring and management: Environmental controls, safety (cameras, motion sensors, smoke and water leak detectors, etc.)
- Social media monitoring: to understand lifestyle and life events.
- Self-handling claims tools: Allowing the consumer to communicate, measure and photo/video their own losses to speed up payment and repair
- Sensing devices: Both on Auto and Home to reduce claims and be efficient.
- Vehicles: Navigation, sensors (both partially-, and fully-autonomous), reducing frequency & severity of accidents - however increasing repair costs in the short-term due to high repair/replacement cost of sensor technology after accidents.

Commercial Insurance Impacts:

The impacts of IoT on commercial insurance can be as varied as the many types of businesses that purchase commercial insurance. All businesses, including insurance carriers and agents should benefit in three broad categories. These include improvement in internal operations and productivity, new opportunities for bringing value to customers and potential new business

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models and sources of revenue. Let's discuss how these broad categories might apply specifically to the underwriting and claims process.

Underwriting Impacts:

Because of IoT, insurers now have more data than ever before. Leveraging this data will enable insurers to reward clients with better pricing when claims can be reduced, or even eliminated.

As agents and brokers, the need to understand your client's risk or exposure to loss has never been greater, or more challenging. Not only does new IoT technology offer many ways to reduce exposures and provide new opportunities to improve safety and loss control, it may also introduce new risk for your client. How secure are the IoT devices used by your client and have you discussed potential cyber risk? Does your client manufacture, sell or distribute IoT devices? IoT technology is rapidly evolving and regulations concerning the protection of the data gathered by these devices is growing. A thorough understanding of your client's exposure to risk is critical.

As a consumer of commercial insurance, are there ways that I can leverage IoT devices to improve operational efficiency or reduce the exposure to risk or the possibility of a claim? Does my insurance carrier or broker offer Loss Control Services specifically designed to help maximize operational efficiency while reducing the exposure to new risk?

Claims Impacts:

More and more consumers and businesses are using technology routinely in the normal course of a day and they expect their insurance carriers to do the same. Using technology to facilitate the claims process and make the entire process easier, as well as more efficient is good for all involved.

There is no doubt that IoT technology should reduce claims, but processing and paying claims will always be a core service provided by the carrier. How can carriers use IoT to improve the customer experience? Could sensors actually notify the carrier of loss directly? Technology is evolving rapidly. How can it be used to keep clients happy and increase retention of business?

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As representatives of the carrier and the consumer, agents and brokers will need to understand the ramifications of self-service claims, communication issues with the appraisers, and the technology being used to service these claims. There will also be additional remote servicing technologies coming for inspection and loss control as well.

As a commercial consumer, am I utilizing all available technology to facilitate prompt and accurate claims reporting? Have I given feedback to my agent/broker and carrier about how specific technology has helped (or not helped) my organization?

Examples of IoT devices in Commercial Insurance:

- Equipment sensors (to detect issues and remediate them, prevent losses)
- Environmental controls and sensors (manage heat and lighting, monitor workplace safety, smoke, fire, leak detection, etc.)
- Fleet management (where vehicles are located, telematics to monitor and improve driving behavior, monitoring of transported perishables, etc.)
- Smart Cities, such as gas & electric utilities, water/wastewater, transportation, waste management, emergency response, building automation, traffic/infrastructure.
- Smart Agriculture (Farming) - monitoring moisture, temperature, controlling irrigation, cold storage, automated planting/spraying/harvesting.

Life & Health Insurance Impacts:

For both Life and Health sectors, IoT and wearable biosensors offer the potential to provide more information, better insights, improved efficacy and preferable outcomes of better health and longer life.

Underwriting Impacts:

Wearable devices and the data they provide offer the potential for insurance companies to improve the underwriting of life and health insurance policies.

The data provided enables more accurate assessment of client health via lifestyle choices and biometric assessment. This provides insurance companies with the ability to more accurately segment and price insurance products.

A number of insurance companies have developed IoT supported policies. For example, a dental insurer provides policyholders with an IoT toothbrush and provides policy discounts based upon brushing frequency and duration. Life insurers are deploying mobile apps that connect to smartwatches and activity

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trackers. They then provide incentives to the policyholder for engaging in healthy activities.

Agents will be able to offer more competitively priced options to prospects and clients, but may need to educate themselves on the new underwriting and pricing methods in order to adequately explain them. Additionally, agents may need to actively seek out IoT enabled insurance products in order to provide options when savvy customers request options.

Consumers will benefit by having incentive to positively impact their risk and thereby saving money and getting more favorable outcomes.

Example of IoT in Life Insurance

The life insurance company underwrites prospect with standard mortality tables supplemented by data from prospect's biosensor (activity tracker). After the policy is issued, the policyholder downloads the insurer's mobile app and connects it to their activity tracker.

The insurance company now tracks policyholder exercise and health data. Analytical tools run against individual and aggregated policyholders, identifying trends and anomalies.

The resulting information allows the insurance company to make policyholder specific recommendations which are communicated back to the mobile app and ultimately to the sensor, changing goals and offering incentives for appropriate performance.

Claims Impacts:

IoT will have positive impact on claims in both health and life policies.

Early detection of symptoms will provide carriers with opportunities to mitigate or eliminate health crises, and rapid delivery of pertinent historical health information at time of loss will provide for better diagnosis and treatment. Case management will improve after events due to frequent monitoring of vital signs.

One item which should not be overlooked would be for carrier applications to include connection points to health services providers.

Although agents and brokers aren't normally involved in the claims process in A&H, the additional information available and claims expense from biometric sensors will impact renewal negotiations and pricing.

Consumers stand to benefit dramatically from IoT enabled life and health products. Gamification will encourage healthy behaviors which reduce adverse health issues and promote long life.

Statistics indicate that employers can save three dollars for every dollar invested in biometric monitoring.

Resources:

ACT 2017 Risk Advisory on IoT

- o Sets mid-level understanding of the IoT, a precursor to the Deep Dive

How will the IoT Impact Insurance?

- o Jan 2018 article on the opportunities and challenges with connected devices
- o Dissects opportunities for IoT insurance coverage itself.

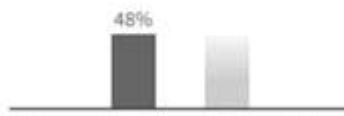
Deloitte: Using IoT to Drive Differentiation

- o How insurers can use IoT for growth
- o Focusing on IoT thru the lens of insurance
- o Recommended steps insurers can take

LexisNexis: 2018 IoT & the State of Insurance

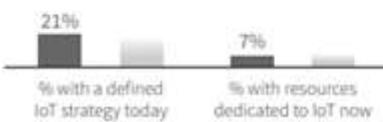
- o Stat-based white paper on industry progress/challenges of IoT
- o Many opportunities from positive consumer willingness
- o However, industry adoption is slow and many carriers to not have an IoT strategy - yet.

Carriers think IoT data collection and usage will shape the direction of the insurance industry:



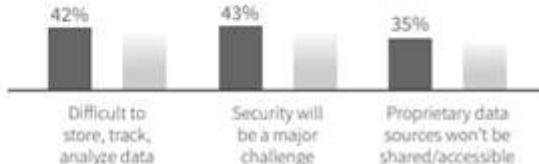
% who agree collecting and using IoT data sources will define the industry leaders

With a minority having a defined IoT strategy, even fewer have resources dedicated to IoT today:



% with a defined IoT strategy today % with resources dedicated to IoT now

... But perceived barriers (difficulties in data governance, security concerns, proprietary issues) hold many back:



Difficult to store, track, analyze data Security will be a major challenge Proprietary data sources won't be shared/accessible

Coverager

- o Tracks new platforms/insuretechs/companies emerging in our space across many sectors, this result selected for IoT.

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IBM: IoT Governance

- o This gets into more detail on the Governance aspects. IoT solutions are complex - Integrating connected devices and IT services poses major challenges across many areas, as detailed here.

EY: The IoT In Insurance

- o This article speaks to not only impacts to but also in the future. It draws from solid polling sources to detail impacts in sensors, as well as Underwriting, Claims, Commercial & Personal Lines, and even Life.

Additional Key Ongoing Conference Resources

the Agents Council for Technology

- o Holds two in-person meetings per year, with focus on future trend impacts as well as sessions on how to move existing implementations forward in concert with future trends.

InsureTech Connect

- o Largest tech-forward industry gathering, now around 3,000 attendees
- o Many insurers with tech investment/partnership divisions
- o Usually held in Las Vegas, NV - early October timeframe

Dig-In

- o Focused on a wide array of digital insurance discussion
- o Doubled in attendance past two years, now around 700
- o Mixed attendee base of insurers, emerging vendors, tech-forward agents
- o Usually held in Austin, TX – May timeframe

InsuranceNexus: Connected Insurance USA Summit

- o 500 attendees, 90 speakers
 - o Focuses on the Connected Consumer, and implications/opportunities
 - o 12+ carriers speakers sharing their insights & strategies
 - o Annually, November timeframe in Chicago, IL
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