INSURANCE AND THE IoT

EXAMINING HOW INSURANCE COMPANIES ARE UTILIZING THE IoT TO CUT COSTS AND IMPROVE RISK ANALYSIS

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BI INTELLIGENCE

KEY POINTS

- **The advent of the Internet of Things (IoT) has the potential to transform the insurance industry.** As connected cars, fitness trackers, and smart home devices make their way to the mainstream, they're providing insurers with access to troves of data on their customers that can help more accurately price policies. In addition, by encouraging use of these devices, insurers stand to see lower claims and related costs.

- **Connectivity in the car has created an opportunity for insurers to monitor driving habits in real time, enabling them to provide usage-based insurance (UBI).** This means tracking how fast a person drives, how often they get behind the wheel, and in some cases, even whether they put on their seat belt. Insurers can then use that data to offer personalized insurance policies. Currently, we estimate that 27 million Americans have tried UBI — that's about 13% of all US drivers.

- **Meanwhile, health and life insurance companies are exploring the use of connected fitness trackers to collect targeted health data on their customers.** The most common way insurers are leveraging these devices is by offering rewards to customers who wear fitness trackers that sync with the insurer's app and then meet certain goals. However, a few companies, like John Hancock and French insurer AXA, are using fitness tracker data to actually adjust premiums — a trend we expect to see more of in the years ahead.

- **IoT solutions can also benefit home insurers in two primary ways: by helping to protect the assets they insure, and by enabling more efficient assessment of damages to conserve resources.** By monitoring assets in the home, IoT devices can lead to fewer negative incidents. For example, a connected smoke detector can alert a homeowner if a fire has started, so that it can be put out before any major damage is done. At the same time, home insurers can now leverage drone technology to better assess damages.

- **In addition, the proliferation of IoT devices is leading to new business opportunities for insurance companies,** as these solutions can be very expensive, and the equipment itself needs to be insured. Two of the best examples of IoT devices demanding insurance are consumer drones and smart home products, both of which promise to open up entirely new markets for insurance companies.

Download the charts and associated data in Excel »

INTRODUCTION

As the Internet of Things (IoT) continues to proliferate across industries, insurance is no exception. The advent of connected cars, fitness trackers, and smart home devices has the potential to fundamentally change the way insurance is priced and issued to consumers. This is especially important as insurers, still reeling from the 2008 financial crisis, look for ways to cut costs and lower insurance payouts.

IoT products can help insurers more accurately price policies. Insurance companies have traditionally gathered demographic information about their clients, and then plugged it into algorithms to determine the price of a policy. However, that model is fundamentally flawed as it relies on assumptions about certain demographic groups. IoT devices collect troves of specific customer data, which insurance companies can leverage to make their models and algorithms more precise.

Connected devices can also lower the number of payouts an insurance company is responsible for. By encouraging consumers to adopt devices that monitor their data, insurance companies can promote good behavior, and thereby reduce the risk of an incident that requires a claim. Auto insurers can deploy programs that encourage safe driving, for instance, while connected fitness trackers promise to whip health and life insurance customers into shape. In the smart home market, the use of devices like connected smoke detectors is helping to limit the number of damaging incidents in people's homes.

In this report, BI Intelligence explains how companies in the auto, health, and home insurance markets are using the data produced by IoT solutions to augment their existing policy pricing models and grow their customer bases. In addition, we examine areas where IoT devices have the potential to open up new insurance segments.

THE AUTO INSURANCE MARKET

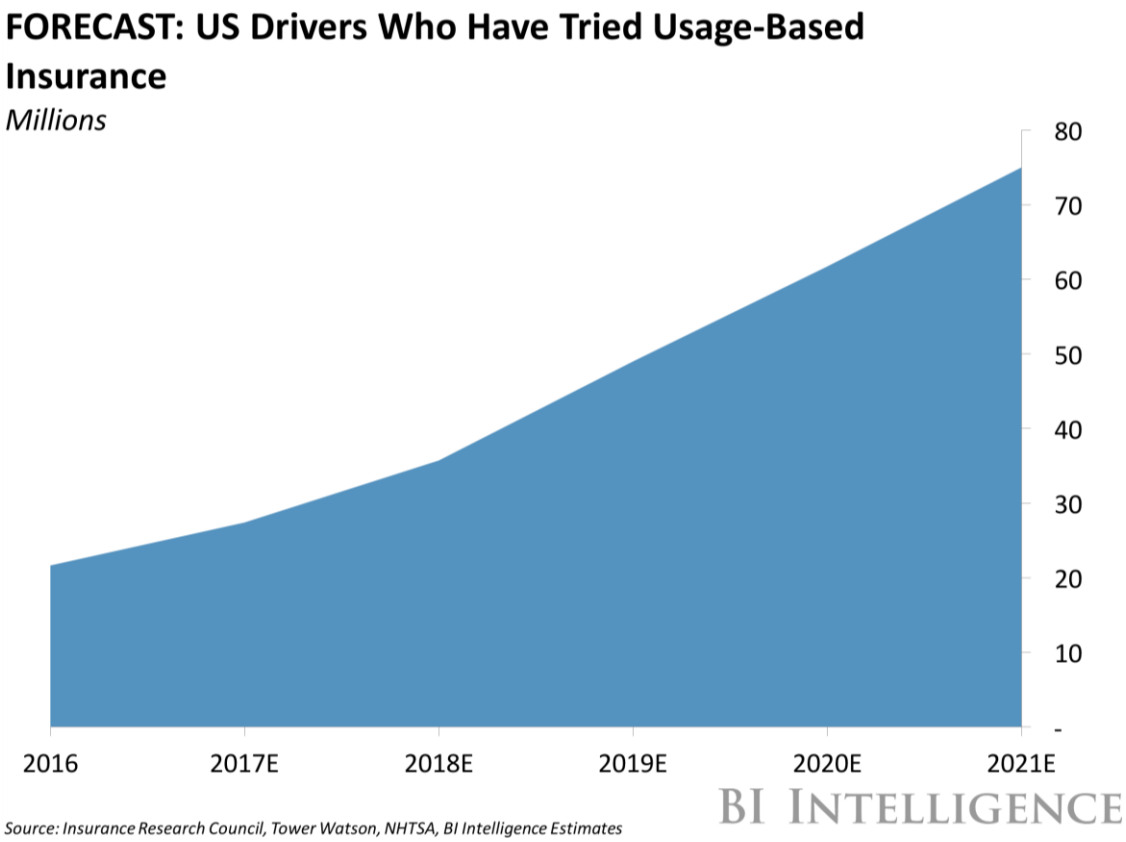
The advent of connectivity in the car has created an opportunity for insurers to monitor driving habits in real time. This means tracking how fast a person drives, how often they get behind the wheel, and in some cases, even whether they put on their seatbelt. And it provides a far more reliable approach to insurance pricing than relying on demographic data, which can prove inaccurate.

For instance, auto insurers traditionally charge higher premiums on families with teenage drivers based on the assumption that those drivers are more likely than older drivers to get into accidents. This approach is problematic because it relies on a broad assumption that may not be applicable to the entire demographic. By collecting data on individual drivers, insurance companies are able to build models that are specific to who is in the driver's seat, allowing them to actually *measure* that driver's safety.

This has led to the emergence of usage-based insurance (UBI), by which insurers price risk by collecting and analyzing vehicle usage data, and then issue policies based on that information. That means more accurately priced insurance policies for consumers and likely fewer claims for insurance companies.

It's already pretty common in the US:

- **Most major insurers including State Farm, Progressive, and Allstate offer UBI policies.**
- **Currently, we estimate that 27 million Americans have tried UBI — that's about 13% of all US drivers.**



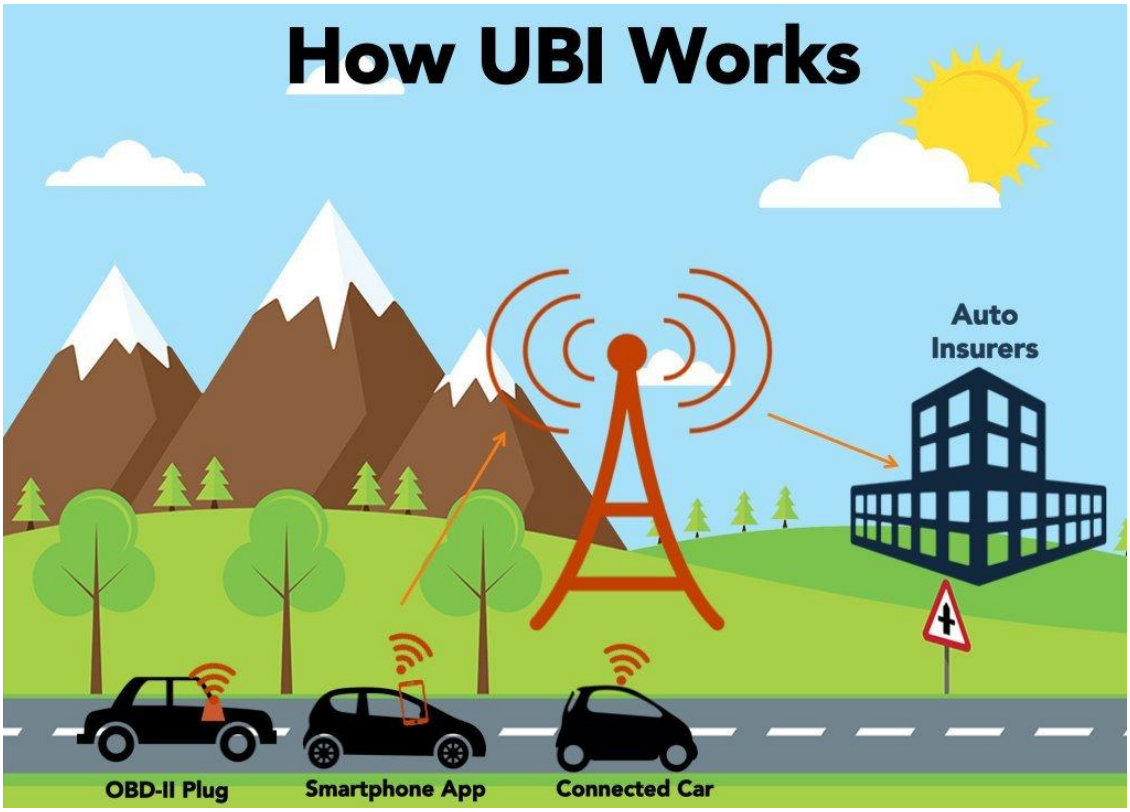
And it's likely to become even more prevalent — BI Intelligence forecasts that 75 million US drivers will have tried usage-based auto insurance by 2021. For context, that's about 35% of all US drivers. This is an updated forecast based on our original estimate, which has been adjusted upward to reflect greater consumer awareness, likely due to increased promotional campaigns from insurers and, consequently, higher uptake. We previously identified lack of consumer awareness as a major barrier to adoption.

There are three ways insurance providers are collecting real-time data for UBI polices:

- **On-board diagnostic dongles, also referred to as OBD-II plugs.** OBD-II plugs are installed in the OBD port, which is typically located below the steering wheel, and transmit data to insurers over a cellular connection.

- **Smartphone apps.** Some insurers provide apps that can collect data by connecting to a car's Bluetooth system. These apps also serve as a dashboard where customers can view their own driving analytics.

- **Connecting to a car directly.** This can be done by tapping into a vehicle's internet-connected dashboard.

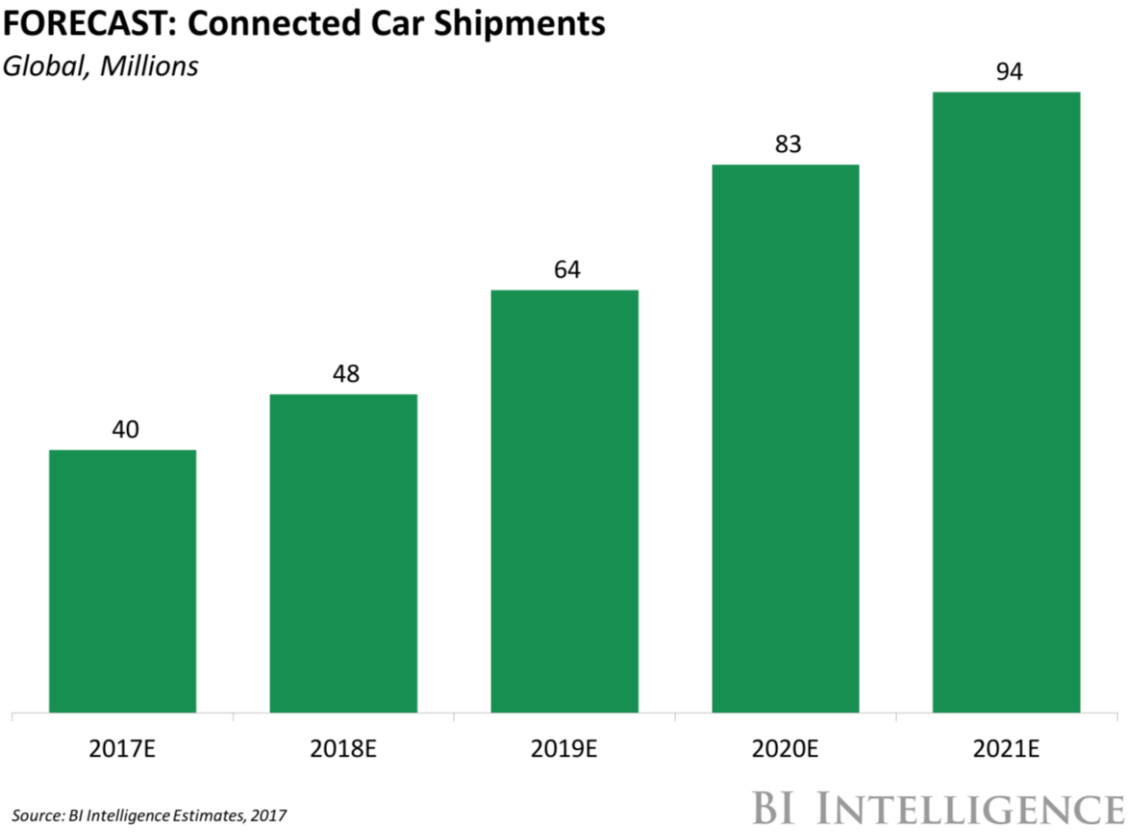


Currently, most UBI policies are priced using OBD-II plugs. That's because, while vehicles are only beginning to ship with built-in connectivity, all cars on the road made after 1996 have an OBD-II port. In addition, insurers typically cover the cost of the device and of the data transmission, which makes the proposition attractive to consumers and can be effective for onboarding.

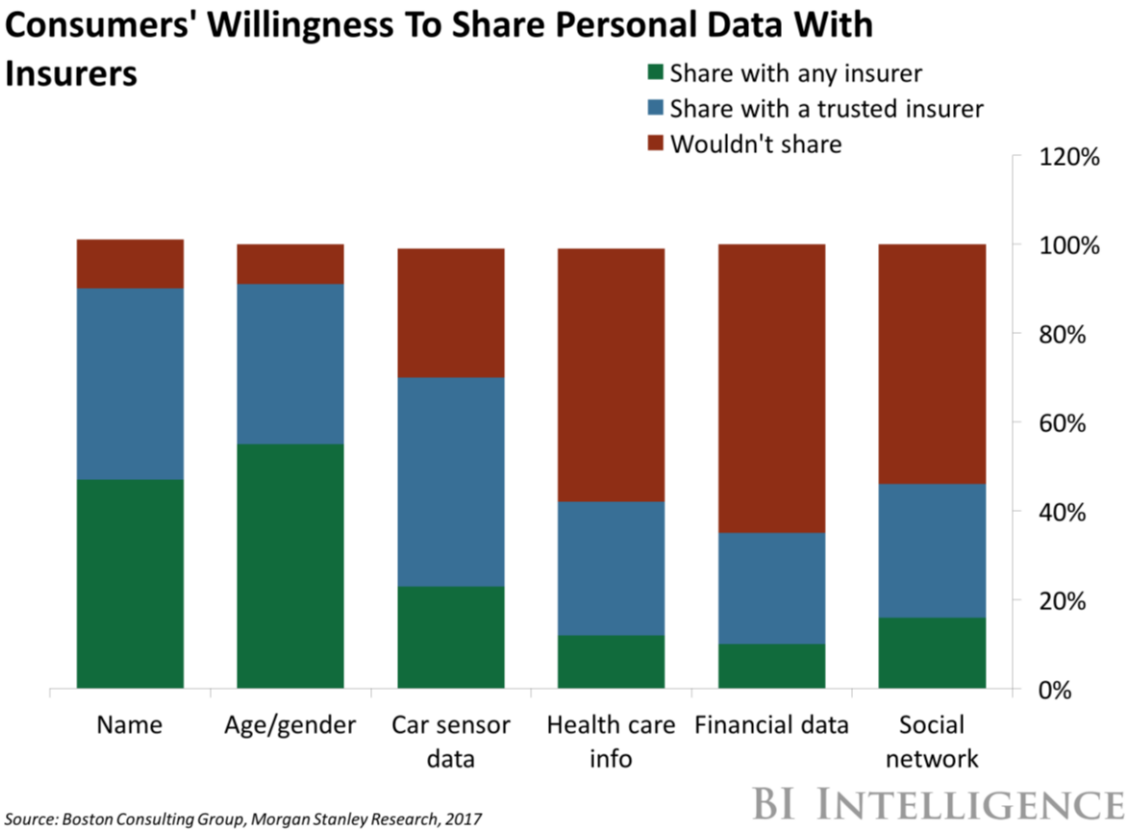
However, insurers have begun looking for ways to bypass OBD-II plugs, and the related costs, as uptake increases. For example, Progressive's Snapshot UBI program, which launched in 2011 and initially required the use of OBD-II plugs, can now be accessed via a Bluetooth-capable Snapshot app. The app uses software that can track data on vehicle usage including time of day, vehicle speed, and location. This approach is cheaper in the long run, but requires significant initial outlays. That’s because building an app capable of accurately monitoring vehicle usage is far more complex and time-consuming than developing companion software. State Farm is so far the only other major insurer to have taken the leap.

Eventually, OBD-II plugs will be rendered obsolete as more cars are equipped with built-in connectivity. We estimate that 381 million cars with embedded connectivity will be deployed by 2021 — amounting to more than half of all cars on the road. Leveraging these built-in systems can allow insurers to lower costs by removing the need to provide OBD-II hardware and pay for connectivity, while providing a seamless pathway through which to collect data. As more connected vehicles are deployed, insurers will be able to increasingly forego OBD-II plugs, turning the connected dashboard into the primary channel through which UBI policies are priced.

State Farm is one insurer already connecting directly to users' vehicles. It offers a program called Drive Safe and Save for current customers who also subscribe to Ford's Sync or GM's OnStar infotainment center packages. This allows the company to bypass the OBD-II plug to collect driving data directly from the car itself. Customers who don't subscribe to the Sync or OnStar programs can instead use the Drive Safe and Save mobile application to transmit driving data while they're in the car.



Consumer willingness to opt into UBI schemes will be key to their long-term success. Insurers have been making serious efforts to win over drivers on this front, marketing their UBI policies as options that will save consumers money, not punish bad drivers. A good example is Progressive's ad campaign for Snapshot, which emphasizes how much consumers can save by signing up for the policy. Targeted ads like these are helping to awaken consumers to the benefits of usage-based policies and promote adoption — in fact, a recent survey by Morgan Stanley and Boston Consulting Group (BCG) found that 23% of global consumers were willing to share their car sensor data with any insurer, and 47% were willing to share the data with a trusted insurer. Consumers were far less likely to be willing to share their health, financial, and social media data.



Source: Boston Consulting Group, Morgan Stanley Research, 2017

As more drivers adopt UBI policies, and data analytics tools improve, pricing premiums will become even more exact and specific to each individual customer. That will not only incentivize existing customers to driver safer, but it may also attract new customers looking for tailored policies.

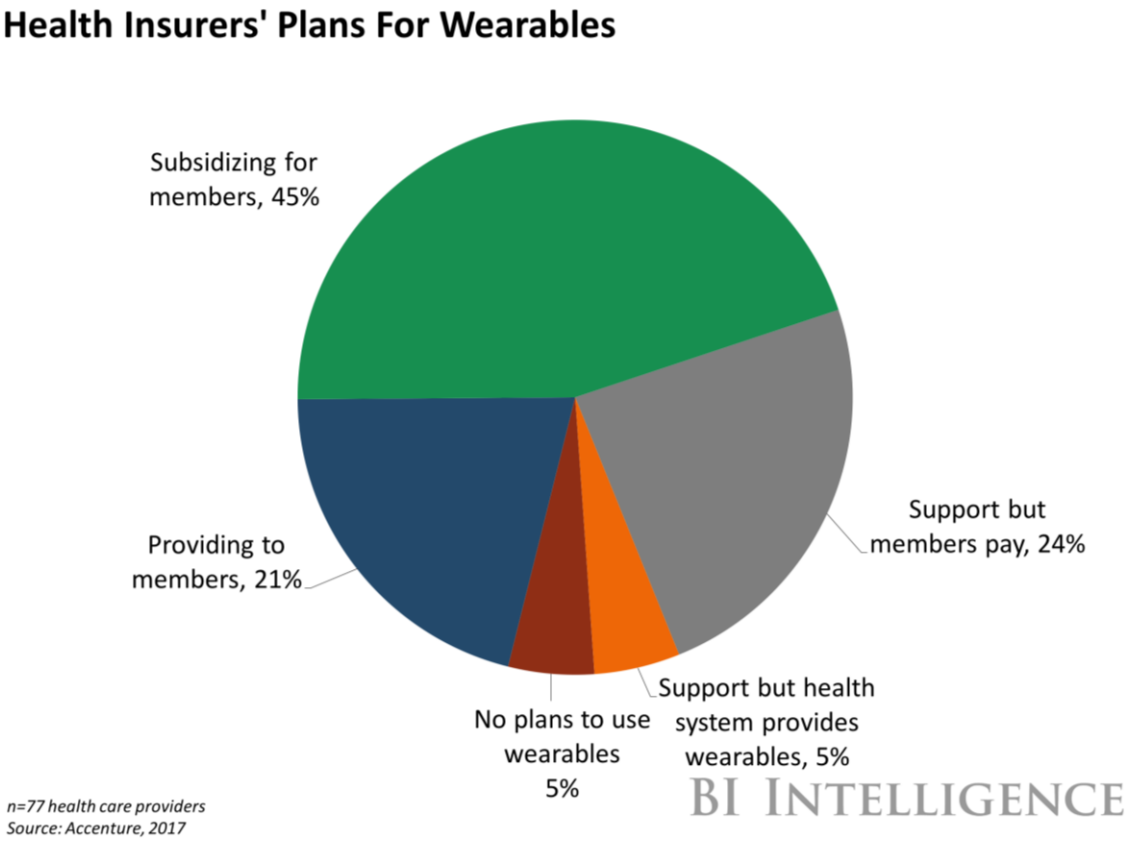
THE HEALTH AND LIFE INSURANCE MARKETS

Although slightly behind the auto insurance market, the health and life insurance sectors also stand to reap considerable benefits from connected devices. For decades, these insurers had only demographic information and health data reported by physicians and consumers to gain a picture of a customer's health — but that's changing with the proliferation of connected fitness trackers, which allow insurers to collect and analyze real-time health data on their customers.

Market leader Fitbit was founded about a decade ago, and since then, fitness trackers have slowly made their way to the mainstream — about 12% of US consumers own a fitness tracker, according to a study by Kantar. These devices connect to the internet and allow users to track metrics like their own daily steps and heart rate.

The most common way insurers are leveraging these devices is by offering rewards to customers who wear fitness trackers that sync with the insurer's app and then meet certain goals. For example, startup Oscar Insurance allows customers to earn up to $250 in Amazon rewards by wearing Misfit fitness trackers and meeting daily step goals for a string of consecutive days. Often, insurers with such programs will provide discounted, or even complimentary, fitness trackers to customers to encourage them to opt in. Oscar provides the Misfit trackers to its customers for free, for instance. Meanwhile, UnitedHealthcare offers free Fitbit devices to its health insurance customers, allowing them to earn up to $1,500 worth of credits for using the device, while Cigna offers customers discounts of 25-50% on Fitbit and Misfit fitness trackers.

About 21% of global health insurers provide wearables, including fitness trackers, directly to their customers, and another 45% provide some sort of subsidy customers can use to buy their own device, according to a new Accenture report. Only about 5% have no plans currently to use wearables. In addition to equipping insurance companies with information on their customers' health, these schemes encourage positive, healthy behavior, which can reduce insurance claims.



Using fitness tracker data to adjust premiums is less common, but there are a few companies dappling with this approach. For example, John Hancock partnered with Vitality to create a plan where customers could earn points if they hit certain health goals. These points can be cashed in for discounts amounting up to 15% off their premiums, as well as for reporting preventative medical procedures or logging workouts. And French insurance provider AXA offers customers a $1,000 credit they can use toward their premiums for meeting fitness goals prescribed by the insurer. Going forward, more insurers will likely begin to deploy UBI policies — a 2015 EY report argued that the health insurance market was next for UBI, and many of the firm's clients were actively exploring such a product.

However, health and life insurers still face one major problem — getting consumers to opt in. According to Morgan Stanley and BCG, 57% of consumers would not be willing to share their health data, such as that obtained from a wearable device, with any insurer. This is no small barrier to adoption — if consumers can't trust their insurers with their health data, there's little chance they would opt into a usage-based policy. As a result, it will take a while before premiums priced using health data are widespread. In the meantime, insurers must work to not only secure this data, but also to prove to their customers that they're capable of doing so.

Meanwhile, tech companies are working on new tools to monitor the health data of patients in real time. For example, CNBC reported in April that Apple had a team of researchers dedicated to developing noninvasive blood sugar monitoring technology that could be embedded in a wearable or smartwatch. This could be game-changing for diabetics who need to check their blood glucose levels every day and, in turn, benefit insurers if diabetic patients were to have fewer emergencies that resulted in hospital visits. Further, these devices would give insurers more and better data on their customers, which they could analyze to predict when a patient might need to go to the doctor. There's likely a decent-sized market for such a device — there are 29 million diabetics in the US alone, representing about 9% of the population.

More narrowly tailored fitness wearables could offer the most potential for the health insurance industry. That's because patients with distinct needs, like diabetics, may be more willing to share their data as the benefits aren't just monetary.

THE HOME INSURANCE MARKET

IoT solutions can benefit home insurers in two primary ways: by helping to protect the assets they insure, and by enabling more efficient assessment of damages to conserve resources.

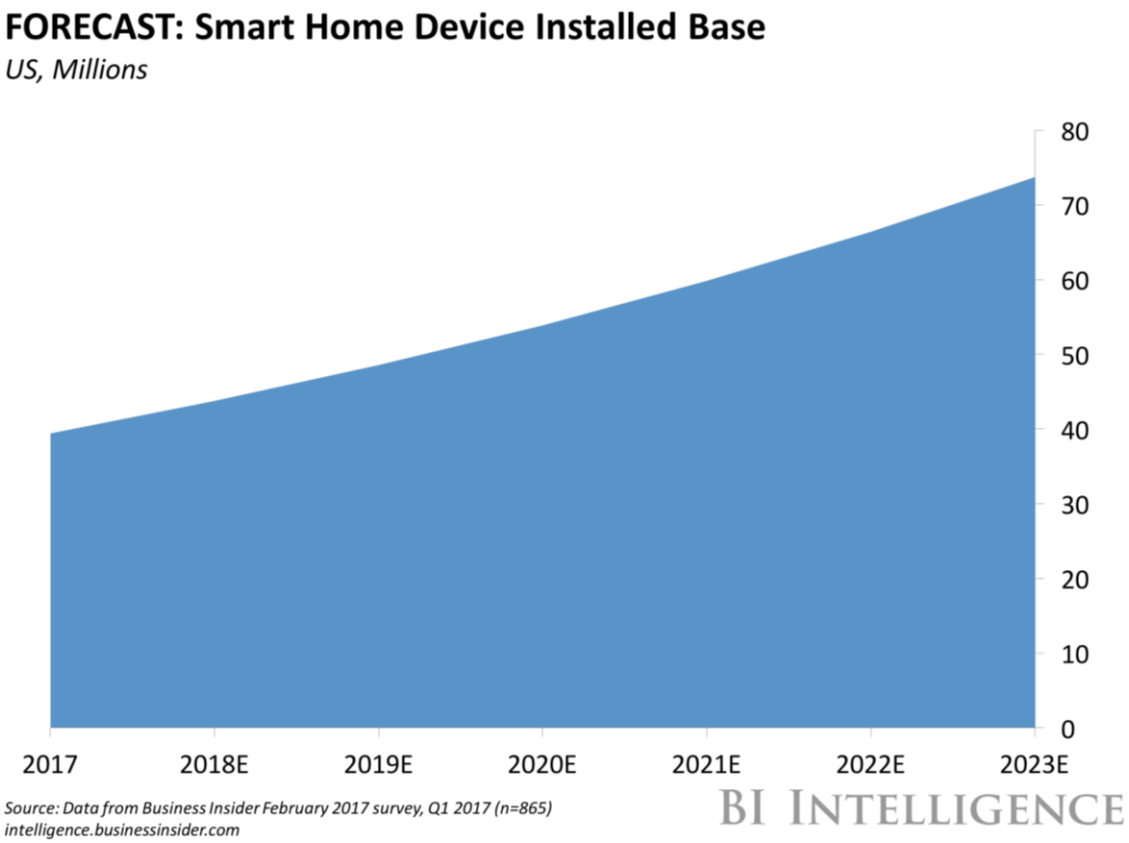
By monitoring assets in the home, IoT devices can lead to fewer negative incidents. For example, a connected smoke detector can alert a homeowner if a fire has started, so that it can be put out before any major damage is done. Meanwhile, smart home security systems, such as those offered by Alarm.com or Vivint, can protect against a robbery.

This has created two new trends in the home insurance space:

- **Home insurers are incentivizing their existing customers to purchase smart home devices through partnerships with service providers.** For example, State Farm offers its current customers exclusive deals on ADT Pulse and Canary smart home systems.

- **Additionally, insurers are offering free connected home devices to entice potential new customers.** Insurance providers are betting that by providing these products, which are otherwise very pricey, they can expand their stagnating customer bases. For instance, Liberty Mutual gives new customers a Nest smoke detector at no extra cost.

Putting these devices in customers' homes can decrease the number of claims they file with their insurers. In addition, by offering these incentives, insurers are helping to fuel overall adoption of smart home devices — BI Intelligence forecasts that 73 million smart home devices will be installed in US households by 2023.



Meanwhile, home insurers can now leverage drone technology to better assess damages. Most large insurers already do this — Allstate used drones in the fall of 2016 to assess home damage from Hurricane Matthew, and is now using them in a handful of states in the Southeast and Midwest. These drones fly around a damaged property and take pictures that insurers use to more accurately determine the damage and the payout needed to cover it. About 20% of property and causality insurance companies are already using drones to assess property damages, according to Novarica.

Using drones to inspect properties helps insurers cut costs on two fronts:

- **Labor costs.** Most insurance companies don't use drones to replace an entire crew of human inspectors. Instead, the drones assist humans on the ground, taking aerial images and videos as inspectors go about their work. Drones are unlikely to eliminate the need for human workers completely, but they can enhance efficiency and shorten the time it takes to complete an inspection. This reduces the number of inspectors required on-site and, therefore, the cost of labor.

- **Insurance on that labor.** Insurance companies need to insure each of their workers on-site, which can be pricey in high-risk areas. By replacing some of these employees with drones, companies can reduce the number of hefty premiums they pay to insure them. In addition, drones enable insurance companies to keep employees out of particularly unstable areas, such as after a natural disaster, which increases safety, minimizes risk, and thus can lead to lower premiums.

In mid-2016, the US Federal Aviation Administration (FAA) estimated that 15% of all commercial drone use was for insurance purposes. And we expect the use of drones to become even more common among insurers as the technology is more widely deployed. Drones are particularly helpful when assessing the damage of large home and commercial properties. That's because the payout for these properties is usually higher, meaning the insurer needs the assessment to be as accurate as possible. In addition, there's usually considerable land and property to survey, which drones can tackle much faster than a team of humans alone would be able to.

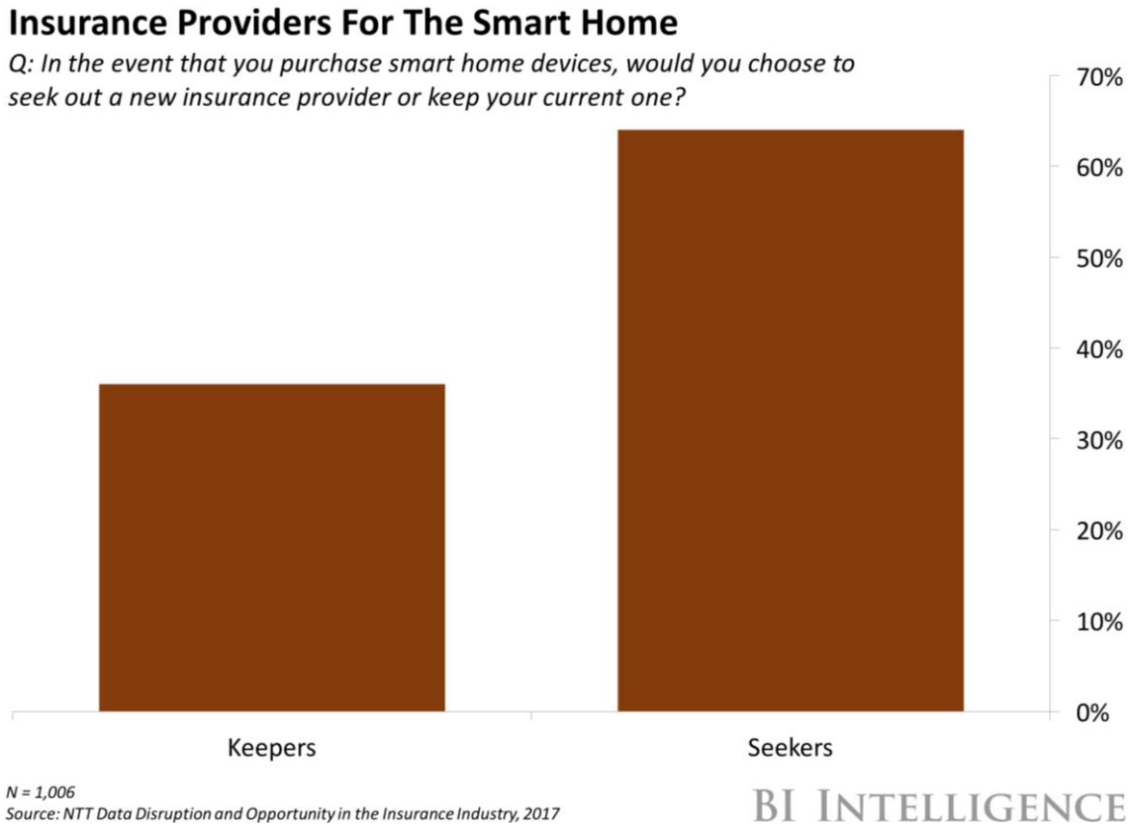
NEW INSURANCE OPPORTUNITIES

The proliferation of IoT devices is also leading to new business opportunities for insurance companies, as these solutions can be very expensive, and the equipment itself needs to be insured. While IoT insurance products are available on the enterprise side, two of the best examples of IoT devices demanding insurance are actually on the consumer side of the market. These are consumer drones and smart home products.

Consumer drones can cost thousands of dollars, pushing customers to seek out policies from their legacy home or car insurance providers — State Farm, for example, already offers a number of policies on DJI drones. Drone insurance could be a particularly large, lucrative market moving forward, because of the high number of drones that will populate the skies in the coming years — BI Intelligence forecasts that 107 million consumer drones will be in the air globally in 2021.

Smart home devices also come with substantial financial commitments for their owners. For instance, Samsung's smart fridges retail for about $5,500, more than double the price of comparable nonsmart models. Meanwhile, Nest's smart learning thermostats are $250, while a basic Honeywell thermostat can retail for as low as $20. Like any expensive asset a consumer purchases, these devices need to be insured against any potential breakdown or malfunction, as the cost to replace them is steep.

This might prove to be a lucrative opportunity for large tech companies like Google and Amazon. That's because consumers trust smart home ecosystem providers, like Google or Amazon, over legacy insurance carriers, according to a recent NTT Data survey. NTT asked US consumers who didn't yet own smart home devices whether they would seek out a new insurance provider or keep their current insurer in the event that they did make such a purchase. Only 36% of respondents said they'd stick with their current insurer, while 64% said they'd opt to seek out another insurance carrier — such as Amazon or Apple. These firms couldn't underwrite their own insurance policies, however, meaning they'd need to partner with insurance companies.



There are no obvious indications that DIY smart home ecosystem providers will begin to offer insurance on their offerings. However, consumers appear to be very open to such a policy, and with 126 million households in the US, the market opportunity is considerable. That's particularly true as smart home products move from nice-to-have devices to standard fare, with more households boasting a full smart home ecosystem that needs to be insured.

THE BOTTOM LINE

- The advent of the IoT has the potential to transform the insurance industry.
- Connectivity in the car has created an opportunity for insurers to monitor driving habits in real time, enabling them to provide usage-based policies.
- Meanwhile, health and life insurance companies are exploring the use of connected fitness trackers to collect targeted health data on their customers.
- IoT solutions can also benefit home insurers in two primary ways: by helping to protect the assets they insure, and by enabling more efficient assessment of damages to conserve resources.
- In addition, the proliferation of IoT devices is leading to new business opportunities for insurance companies. Two of the best examples of IoT devices demanding insurance are consumer drones and smart home products.

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