21st Century Insurance: Powered by Telematics

How to gain strategic advantage in an increasingly connected world.
Introduction

As the information age continues to accelerate, data has become many firms’ most valuable asset. It drives operational decisions and often becomes a key source of competitive differentiation. To extract its value, it needs to be collected and integrated with business models and corresponding processes/tools to enable informed, impactful decisions.

The process of making data actionable was relatively straightforward when most of it was stored in internal software systems. But as the number of data sources has exploded and companies struggle to build solutions that comply with both dynamic regulatory environments and rapidly changing customer needs, the task is much greater. Compounding this challenge is the steady flow of agile, disruptive entrants – from FinTech startups to tech giants such as Google and Amazon – that mean a failure to quickly innovate results in lost market share.

A key driver of this data explosion has been the emergence of the Internet of Things, which turns previously disconnected devices into vital sources of information. Today’s innovative solutions need to know what’s happening in real-time with tractors plowing fields, trucks heading down the highway and even cells moving through our bodies. To extract value from this information, industries are increasingly turning to telematics, a discipline that’s been with us for several decades but is now redefining itself.

As we’ll explore in this white paper, telematics is not only expanding its role as a connector of industry value chains, but also disrupting the insurance sector by fundamentally altering how risk is evaluated and premiums are set. In fact, as insurance companies leverage telematics insurance to get predictive real-time data, telematics is even challenging the traditional role of insurance as a passive participant in policy-holder outcomes by getting proactively involved in damage and loss prevention. The end result of these efforts are more accurate premiums and fewer payout events, both of which drive incremental margin for insurance companies.

What Is Telematics?

Telematics can be described as the collection, transmission and intelligent usage of data. From a high-level technical perspective, telematics collects data via sensors (e.g. on machines), sends it locally to a centralized hub and transmits it via Bluetooth or embedded cellular technology to a cloud platform. From there the data can be used to power a broad array of data-driven solutions.

History in Transport and Logistics

The discipline was first applied twenty years ago in the transportation and logistics industry with basic vehicle tracking. Essentially, trucks were monitored with remote sensors to provide a shipment tracking status. As the technology matured, this information was later fed via telemetry units into centralized software platforms, which used it to trigger detailed workflows, event-specific delivery reports and – when combined with barcode scanning of every shipment – accurately fed back into transport management systems.

As the technology developed further, accurate predictions of shipment delays for just-in-sequence deliveries to the production line became the essential backbone in automotive logistics. This was then paired with remote diagnostics to suggest preventative and predictive maintenance based on real-time vehicle health performance monitoring, greatly increasing the efficiency of fleets.

The Role of Telematics in Automotive Insurance

For many policyholders, when they think of auto insurance, they immediately think of semi-annual or annual premiums that are initially set based on statistic rating factors like age, car category, etc. This means that a very responsible driver who only occasionally uses a car is effectively subsidizing a frequent driver of similar age who likes to impersonate a Formula One driver.

Acknowledging this flaw, and spotting an opportunity, insurance companies got the idea of using feedback from new telematics advancements to shift the application of this data from real-time monitoring to predictive analytics that could be used to set premiums based on usage (a.k.a. Usage Based Premiums). In its simplest incarnation, usage based premiums employ a ‘Pay As You Drive’ approach where telematics devices track miles driven and premiums are higher for drivers covering greater distances.

These basic approaches have quickly been supplemented to leverage the vast array of telematics technologies to incorporate how a person drives – the way they accelerate, corner and brake, for example – to derive a more complete picture of the type of driver behind the wheel. This data is then paired with algorithms to determine the odds the individual will get in an accident in the future, and premiums are set accordingly.

With recent AI advancements in facial and emotional recognition being incorporated into vehicle operating systems, one can even imagine a world where the emotional state we are in while...
driving – something that certainly impacts how we drive – will be incorporated into how much we pay for the right to be insured. In essence, mechanical and human data can be merged to provide a more complete picture of risk.

High-Level Benefits To Auto Insurance Companies

In addition to benefiting society through a reduction in accidents, insurance companies benefit in a few important ways:

1. By pricing risk more accurately, insurance companies are better able to set premiums in adherence to their economic models and therefore generate more predictable financial profits.

2. The increased attention drivers give to how often and how aggressively they drive reduces the number of accidents, which ultimately reduces the number of payout events insurance companies need to cover.

3. By establishing a form of interactive dialogue with drivers via telematics models, insurance companies are able to cross-sell additional offerings.

Positive Impacts on Safety

Given the personal risk one assumes from reckless driving, one wouldn’t think individuals would need small financial incentives to drive more safely. But according to a recent survey of US-based drivers on ‘Pay As You Drive’ programs by insurance industry-supported IRC, 36 percent of respondents said they have made small changes in how they drive and 18 percent said they have made significant changes.¹

Fortunately, these security benefits should continue to mount as user-based insurance (UBI) programs continue to expand. Insurance companies have launched nearly 230 telematics programs worldwide, and UBI programs in the US and Italy now represent roughly 30% of new business among insurance companies that have made telematics a priority.²

In addition to positively impacting the way humans operate their vehicles, telematics additionally enables vehicles to communicate directly with each other, opening the door to autonomous responses that can proactively prevent accidents from ever occurring.

From a geography perspective, it seems the US will likely become the leading UBI market in the world, followed closely by Europe and, in the near future, China and Russia³. By 2020, nearly 100 million vehicles globally will be insured with telematics policies, a number that is projected to grow to nearly 50% of the world’s vehicles by 2030, generating a massive €250+ billion in premiums for insurers.⁴

How Has The Way You Drive Changed Since Having A Telematics Device Installed In Your Vehicle?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>I've made significant changes.</td>
<td>18%</td>
</tr>
<tr>
<td>I've made small changes.</td>
<td>38%</td>
</tr>
<tr>
<td>I haven't changed the way I drive</td>
<td>38%</td>
</tr>
<tr>
<td>Refused</td>
<td>6%</td>
</tr>
</tbody>
</table>

Base: Have a telematics device in primary vehicle.

Source: Insurance Research Council (IRC)⁵

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¹ Source: Insurance Research Council (IRC)
² Source: Insurance Research Council (IRC)
³ Source: Insurance Research Council (IRC)
⁴ Source: Insurance Research Council (IRC)
⁵ Source: Insurance Research Council (IRC)
How Will It Happen?

In the US and Europe, most car makers will embed hardware and software to fully support UBI by 2020. The corresponding usage data will be collected and transported locally via “OBDdongles” (on-board diagnostic connectors), which will then leverage a central data hub provided by a Telematics Service Provider (TSP) connected to insurance companies. Aftermarket black boxes will continue to grow, specifically in high premium markets and for high value cars.

Supplementing in-vehicle data collection, smartphone apps will continue to expand their role, a fact reinforced by the dozens of mobile-only Pay-How-You-Drive insurance programs already being offered today.

Security Concerns

As telematics-enabled insurance plans continue to expand, privacy advocates are beginning to question if the exchange of personalized data for behavior-driven discounts is in the best interest of consumers. What, exactly, will companies do with the individualized data they’re collecting, and will consumers have a way to control how their information is used?

As we move forward in the digital age, a balance will continue to be forged between valid uses of personal information and reasonable consumer protections.

Despite ongoing concerns about privacy and the potential uses of telematics-powered personal data, the allure of accurately calibrating personalized risk is charging forward into new sectors of the insurance industry, such as health care, real estate and construction.
The Role of Telematics in Health Care Insurance

Within the health care space, many of us who have purchased life insurance are familiar with medical questionnaires and physical tests intended to enable personalized premiums. But historically, health insurance has either been the product of a national, one size fits all insurance program or an area where premiums are based initially on a simplistic categorization such as age combined with a questionnaire to consider the state of health for individual premium supplements. As we all know despite these premium supplements, the variance within a band of citizens is vast, an important reality that forms the foundation of large health plans: people who don’t heavily use their insurance pay for those who do.

Telematics-based health insurance enables insurers to proactively determine who will likely be the biggest consumers of costly health services. The data to power these algorithms comes from wearables such as FitBit, Jawbone and Apple’s iWatch, which collect detailed information about people’s activity levels and heart rate. And simple smartphone-compatible devices, such as the Withings Wireless Blood Pressure Monitor, can provide more granular personal data.

From a rollout perspective, the German government has recently taken a leadership position through gematik, an electronic health insurance card company set up by the German healthcare industry to trial its secure telematics infrastructure. Partnering with a large German corporation, the program is enrolling roughly 500 care givers in Bavaria and Saxony to exchange telematics healthcare data as a dress rehearsal for its launch throughout Germany. If successful, this would provide a blueprint for how to solve one of the most important pre-requisites of scaling the initiative: how to build ecosystems – and the requisite underlying data platforms – that support the exchange of the various data needed to appropriately price patient risk.

Interestingly, while fancy data such as FitBit-enabled step counts get much of the glitz, providing the insurance industry a full picture also relies on fundamental data such as vital signs at doctor visits. To bring all of this information into one place, robust IT systems are required to accurately route and secure the data to the locations where decisions need to be made.

Looking to the future, the introduction of telematics into health insurance has the potential to disrupt the core economic models upon which national systems are based. Given the incredibly wide variance between health costs between citizens – in the US, for example, 1% of patients account for 23% of total costs – simple math suggests that if enough healthy people take advantage of these plans, costs to high-risk patients will need to go up, raising important questions that will need to be worked through on a local and national level.

From an insurer’s perspective, the benefits of telematics in this space look very similar to those in auto insurance: an increased ability to accurately price risk, a reduction in payouts thanks to insured parties taking a more proactive role in their health, and an increased ability to cross-sell additional products via a more interactive customer relationship.
The Role of Telematics in Real Estate and Construction Insurance

Thus far, we have primarily spoken about how telematics data can use historical and real-time data to more accurately price risk in the future, something that also applies to the real estate insurance sector. But in real estate, we also see additional examples of how telematics can enable the insurance industry to take an active role in shaping real-time outcomes, not only pricing risk but reducing it.

When we speak of real estate insurance, we’re specifically talking about insurance that guards against catastrophic incidents, such as earthquakes and floods, as well as homeowner’s insurance guarding against more common incidents such as non-catastrophic water damage, fire or theft for example.

From a passive data collection perspective, insurance companies can provide personalized discounts for occupants that install networked smoke alarms, sump pumps and security systems, all of which statistically reduce the chance that a costly insurance incident occurs.

We move into new territory, however, when insurance companies evaluate the full feedback loop of the systems in play. There is, for example, a big difference between a smoke alarm that simply sends an intermittent signal to an insurance company saying it’s powered up and an alarm that notifies a homeowner’s smartphone that a fire has been detected. By incentivizing full feedback loops – and measuring the corresponding reduction of costly claims – insurance companies begin to play a deeper role in shifting the math related to negative outcomes.

We can find parallel examples in the construction industry, which, as we noted earlier, has long struggled with theft in some markets. To combat this, construction operators can install advanced telematics systems offering geo-fencing and unauthorized use/movement alerts. In a sector where only 23% of stolen equipment is successfully recovered, proactive prevention is crucial, and is something insurance companies are willing to provide financial incentives to install. Additionally, to reduce costly water damage, sensors can be installed in homes to notify owners when water is present, a piece of information that can enable a situation to be addressed before it becomes a major issue. Similar to other insurance verticals, this direct client communication gives insurance companies more opportunities to suggest adjacent products that apply to that individual’s needs.

Enabling a Complete Solution

As we have shown, the number of ways companies can source data from disparate locations and people continues to rapidly expand. And this data will increasingly enable firms to both streamline operations and obtain meaningful breaks on insurance premiums.

To capitalize on this opportunity, however, companies need a comprehensive IT strategy in place to support it with three key layers:

Data Collection: Seeding the process is an architecture layer that enables flexible data collection. The sources of data will continue to change as a company’s operations evolve, so a firm’s IT strategy should be designed in a scalable hub and spoke configuration that allows new end points to be added over time to respond to these changing needs.

Data Staging: From a connectivity perspective, companies should assume that the telematics “black boxes” they are receiving data from will not all be in consistent formats, which leads us to the second layer: a standardized data hub supported by translation middleware. The middleware layer enables incoming data via APIs, XML and other digital formats to be broken down to their fundamental data elements and loaded into a data hub with a common format that accommodates data to be adequately tagged and categorized.

THE THREE LAYERS OF A TELMATICS INFRASTRUCTURE

Source: Infosys Consulting
Data Network: The third layer, which is where the value is ultimately extracted, is the external communication network. In simple terms, the data that’s been collected from machines, devices and people and brought into a standardized format needs to be shared with internal partners (e.g. operational ERP systems, core legacy, CRM and sales systems) and external partners (e.g. care garage for car telematics, house protection firms for real estate telematics) in a way that accommodates their unique data needs. By architecting a system with a common data hub that allows for differentiation on either end, organizations can ensure they’re able to plug in new data sources and partners as their business evolves.

Our Approach

Infosys Consulting will help you define the right telematics business case and then develop integrated software solutions and support your roll-out. Our team of experts provides you with an individualized and customized telematics maturity approach. This allows you a transparent and time-efficient analysis of your current state and identifies gaps where opportunities can be derived. In a first step, your organization maturity level will be analyzed during a set of workshop and deep-dive session. Based on the outcomes, we provide you with recommendations that address these opportunities in alignment with your business goals.

Depending on the maturity level of your organization, we will support you with a customized telematics solution:

Level 1 ‘Market Introduction’: Initial technical implementation including the integration of the Policy Management and sales system as well as go-to-market of telematics solution for a specific division. This allows you to position yourself in the telematics market, strengthen your brand and reach new customers.

Level 2 ‘Optimization and further roll-out’: Focus on technology and process optimization. This includes full-integration of telematics solutions across different divisions with a strong customer-oriented focus. With an enhanced telematics data usage the existing risk management as well as the sales-approach can be optimized.

A Data-Driven Future

As we’ve seen, telematics has the potential to serve as a catalyst for massive change in insurance markets across several industries. In addition to dramatically improving a firm’s ability to personalize and more accurately price risk, it can additionally provide a new channel for an interactive dialogue with consumers. This new relationship can serve as a powerful foundation to both influence customer behavior – therefore reducing payouts – and also provide important cross-sell opportunities for newly imagined products.

To position your company to capitalize on these exciting developments, it’s vital to architect an IT infrastructure that enables an extensible telematics infrastructure capable of collecting an ever-changing roster of information and seamlessly sharing that data with third parties. Companies who fail to do this will become increasingly isolated in an increasingly connected world, but those that build platforms that enable them to be nimble will earn an enduring strategic advantage.

Our proven expertise in the areas of customer-, sales- and core legacy systems along with real-world insurance experiences, help us bring the right value to you and your organization in the smartest way possible.

TELEMATICS ROADMAP

Source: Infosys Consulting
Ralf Küfner is as Associate Partner at Infosys Consulting responsible for the Insurance practice in Germany and therefore for the Digitization offerings for the German insurance market. In his 20 years of consulting experience he was focusing mainly on the optimization of core insurance processes and the corresponding IT systems. Based on his deep knowledge of insurance products, processes and IT environments, he supports his insurance clients by managing their current challenges in the area of Digitalization and Artificial Intelligence.

Sources