



Insurance Telematics Analytics

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“A car that drives itself is 90% software and 10% hardware. We’re about 70% software now, so you could say there are many opportunities out there for developers.”

— Liz Kerton, Autotech Council

Although the fully autonomous car is still a little way off for consumers, the related Internet of Things (IOT) technology, within the auto industry, is growing fast. Vehicles today are equipped with IOT devices that transmit vehicle location, speed, fuel consumption, location of filling stations, the need for air in the tires, impending breakdown and more. Thanks to the established field of auto telematics, insurers and customers are getting feedback that informs consumers on how to improve their behaviors, and practices. This provides more accurate driving behaviour, improved route planning, and information, such as when to use resting points to improve driver alertness and the most fuel-efficient speed for specific loads on specific road surfaces.

Gartner predicts that by 2020, a quarter billion Connected Vehicles will be on the roads, enabling new In-Vehicle services and automated driving capabilities, with the autonomous vehicle as the pinnacle.

Where are we today?

The standout example of IOT data within the automotive and insurance world today, is the application of telematics that rates driver performance or vehicle usage, in order to manage risk.

Today, there are in excess of:

- 4.8 m EU users (Italy being the highest progenitor with around 3.4 m users)
- 4.5 million US users
- 320,000 UK Telematics users
- Markets emerging in the Asia-Pac region - notably Australia

In terms of actual market penetration, they represent a drop in the ocean in terms of potential. For example, current telematics penetration for Auto Insurance represents:

- Italy – 10.5% of the market
- UK – 1% of the market
- US – 2.52% of the market

However, projections for expanded telematics user growth are strong:

- Globally – 89 million users expected by 2017
- EU – 44 million users by 2017
- US – 32.5 million users by 2019

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Within five years, telematics based or UBI (Usage Based Insurance) is expected to account for 20% of all vehicles insured in the US, which is a significant opportunity for insurers, given the current estimate of 250+ million. Globally, current market premiums are estimated at around 10Bn Euros and are expected to rise to 50Bn by 2020.

Use cases: Examples

- **Pay as you drive/when you drive** – This is a common US model for UBI – devices or smartphone applications that track exactly when and where the vehicle is being driven. Insurers are able to assess vehicle usage, accordingly, to create a suitable premium to reflect this. Often, discounts are available for more off-peak driving, for example drives between midnight and 7 am. Insurers may also track, and then suggest, the driving behavior but this does not generally affect the premium charged.
- **Pay how you drive** – This is the most sophisticated of the models, and common in the UK. Depending on the provider, it can track when you drive, where you drive (based on GPS data), how you brake and accelerate, how you take corners and whether you are prone to severe swerving. Typically, an Insurer will charge a monthly premium, which can then go up or down each month depending on the quality of your driving. Text and web portal alerts keep drivers informed of their performance and incentivize positive behaviors. Online training is also offered to hone skills and further reduce the risk of collisions.
- **Route optimization** – Assume a situation where many vehicles are telematics enabled. Analysts not only use the data to analyse the driver's behavior, or engine trouble, but can also re-route journeys in real time. It can identify the routes which have fewer turns, less traffic intersections and can calculate time consumed by traffic lights in real time to suggest alternate routes. Telematics uses not only the GPS information but traffic light data, driver's capabilities and road conditions to provide route optimization.
- **NextGen analytics** – Telematics data could provide Insurers with NextGen analytical insights through predictive analytics, such as incident propensity, based on known regular journeys, allowing route recommendations or avoidance advice to users. When combined with, say congestion alerts, real time advice to users could be supplied via SMS or via Mobile Apps, providing the safest known alternative route, (based on known data for the locations) or most fuel efficient options.
- **Alternative insurance models** – Telematics, combined with alternative insurance models such as the peer-to-peer risk pool, could produce a new model where a pool of drivers, possibly family or friends, insure as a pool with an Insurer, who uses the collective telematics data to rate the pool. Drivers then monitor and police their own behavior to ensure an optimum score at renewal. The collective is more likely to maintain a high standard for fear of adversely affecting the pool premium and offers gamification opportunities for best performance etc.
- **Fleet Management** – Insurers can provide Risk Management support through the analysis of telematics data from fleet operators, providing advice on usage, route optimization and fuel optimization. Analysis of data can also identify driver risk data, allowing operators to manage and educate drivers where performance is below expectations. Insurers often utilize telematics to support Risk Management programs, supplied to operators as a support package. This benefits the operator through usage and performance optimization, where adherence can support optimal renewal terms. Insurers also benefit through Risk minimization, and customer loyalty/brand support.



Challenges Facing the Insurance Industry

Although there are endless possibilities for the development of opportunities based around the levels of data available, there are also significant challenges to overcome. These challenges include, but are not limited to, consumer acceptance, cost, and security and privacy concerns.

Consumer acceptance – Insurers are already aware of the fact that for consumers, motor insurance in particular is an enforced requirement. Aligning that to telematics, where there is a clear requirement to demonstrate and thus influence the consumer's behavior, the question of acceptance soon arises. This can be easily expanded to the wider automotive industry as a whole, where the user is expected to give up a significant volume of data related to their driving behaviors, product usage and, to a certain extent, lifestyle.

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This is one reason that in the UK, at least, telematics has not really taken off. Insurers are currently mainly targeting younger drivers, who are prone to higher claims, volumes and costs, and, who therefore, pay significantly more for Insurance. Telematics based Insurance, therefore, has a clear benefit in cost, provided you are prepared to make the effort to modify your driving behavior.

Security/Privacy Issues

Data security and privacy is a growing concern in consumers' minds, with many recent examples of data breaches globally; for example Talk Talk and Premera BlueCross BlueShield last year.

In a recent US study, by the Insurance Research Council, they suggest a worrying 81% cited concerns over the potential misuse or sharing of their driving behavior data. Overcoming these concerns must therefore be a priority, if the market is to expand significantly

Security is as always a huge concern in the light of the ever increasing threat of cyber hacking and data breaches. Given that the average vehicle can generate 2.6 MB of data per week, for a book of say 50,000 vehicles, it's a healthy 6.8 TB per year an Insurer or data provider must process and protect.

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Legal challenges in the US are also making Insurers sit up, as Regulators push for a more disciplined approach to Underwriting, with less reliance on Big Data, and in particular, individual data. Many Insurance commissioners are not approving or supporting, and cite Consumer Protectionism in order to limit price optimization.

Cost – Data providers will charge for the provision of data. It is therefore far better to be the owner of that data rather than a user. Also, if the ultimate source of that data is a connected device, it stands to reason that, being the owner or supplier of that device, you are firmly in control of not only its output, but the ability to control the consequences of what the data is telling you.

Bulk telematics data is currently in the hands of a small number of leading data telematics analytics providers, globally within the insurance space, such as Octo, Progressive, ATG, Allstate and Wunelli / Nexis Lexis.

Insurers must again be transparent in the way the data is protected, in order to provide a level of assurance such that naysayers do not have any ammunition with which to shoot.

Social media regularly cites erroneous references to Big Brother, and telematics data being used to punish speeding drivers. It is up to the industries involved to see that transparency and honesty ensures the education of those who are less well informed.

Data needs to be strictly controlled and transparent to all, in order to allay unfounded fears. Insurers are actually under no obligation to divulge information unless subpoenaed to do so, and are bound by regulations, such as the UK's Data Protection Act 1998.

A Timely Reminder

It stands to reason that early adopters of telematics products are likely to be safer drivers; these drivers have prepared themselves to expose their driving habits to their insurer, in full knowledge of the consequences of adverse behavior. Therefore, the early insurance adopters are going to potentially create for themselves a pool of low risk drivers, which, even if shared around through price, will present a lower risk exposure overall. They will also be more likely to remain with telematics products.

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Conversely, the identified poorer drivers will be penalized and potentially, the worst offenders, will be driven out of the schemes (Even Progressive have now begun to penalize very poor drivers, through increased premiums - a step they had not considered taking, at the outset of their model). Late adopters will be left with a pool of either riskier drivers, or at worst unknown performers, significantly increasing their risk exposure levels and placing reliance on outdated demographic models. The longer Insurers leave it before considering Telematics, the worse their potential exposure will be, as others acquire the remaining drivers prepared to take the plunge.

For the UK in particular, as Lloyd's chief executive Inga Beale mentioned recently, insurance could become "Uber-ized" by other big data companies, with no previous insurance experience but a lot more experience in rewarding value propositions. One only has to look to Google or Facebook, for such aspirations.

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Telematics gives Insurers an unprecedented level of insight and comfort with regard to risk control, while delivering benefits as lower premiums to consumers who are prepared to take the step. Since it ideally targets the millennial drivers, who will in turn be the mature drivers of tomorrow, it makes sense to nurture and support these drivers, and incentivize them to stay with this technology, whilst addressing the many challenges and concerns that inevitably arise with the new technologies.

While Telematics has clearly been the lead success story in the IoT space, across almost every industry and not just automotive, radical new models will appear, where, for instance, Insurers may become suppliers, installing devices as part of their coverage, benefitting from the advance warning such devices might provide. This can even provide maintenance, or servicing through partnerships or even owned services, with the benefit of advance knowledge of requirements based on the analytics of the data that IoT devices provide.

Look for our next paper, as we explore the brave new world, which is the Internet of Things.



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Shivani is advanced analytics expert with Mphasis Next Labs, the innovation center of Mphasis. She has more than 15 years of experience in advanced analytics, statistical research, delivery, presales, consulting, and teaching. She has worked in all major verticals and holds a PhD in design of experiment from Indore University in association with Hiroshima University.



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Ian Jones is an Insurance domain expert with Mphasis UK. He has over 30 years experience in the Insurance industry within Claims, and PAS, having previously worked with several Tier 1 Insurers and providers. He is a Telematics SME having led Product delivery and improvements for a number of leading UK Telematics Insurers.

About Mphasis

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