Capturing the Usage–Based Insurance Opportunity

Strategies to select integrated telematics solutions, deliver connected vehicle services and build sustainable UBI business models

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Auto insurance is undergoing a massive change. The underwriting model that's been used for decades—assessing risk, based on broad demographic characteristics like a driver's age, gender, or credit score—is giving way to a new model assessing the risk based on data generated by individual driving behavior.

New "usage-based insurance" (UBI) uses telematics to track real-world driving behavior. And it offers major benefits to both consumers and insurers. For drivers, it means your insurance costs are no longer dictated by the behavior of people with whom you share broad demographic attributes but little else. Your assessed risk (and insurance rates) will be based entirely on how, where, and when you drive. The safer you drive, the less you'll pay. For insurers, UBI allows for much more accuracy (and potentially, profitability) in issuing policies and setting premiums.

But UBI also represents a huge disruption in the industry. Insurers will have to answer important new questions: How can we get user buy-in for in-vehicle monitoring? How can we finance the deployment of UBI technology? What are the core requirements for designing and managing remote devices and collecting data? What are the most effective business models for bringing UBI services to market?

This paper describes the evolving UBI market, technology considerations for UBI solutions and the possibilities for insurers to participate in a new and lucrative value chain around connected-vehicle services. It also discusses the role that wireless telematics leaders like Sierra Wireless can play in helping insurers and OEMs build highly accurate and cost-efficient solutions, deploy these services to more markets faster, and take advantage of this growing industry paradigm-shift.

UBI Basics

UBI allows insurers to create risk profiles of customers based on real-world driving behavior. Speed, acceleration, night driving, average time and distance driven, and other parameters can all be collected by a small, reliable, and secure onboard unit (OBU). These metrics can then be used to price policies with a much higher degree of accuracy than demographic profiling (Figure 1), as well as to more effectively target marketing programs, gain more insight into customers, and support other business applications and services.

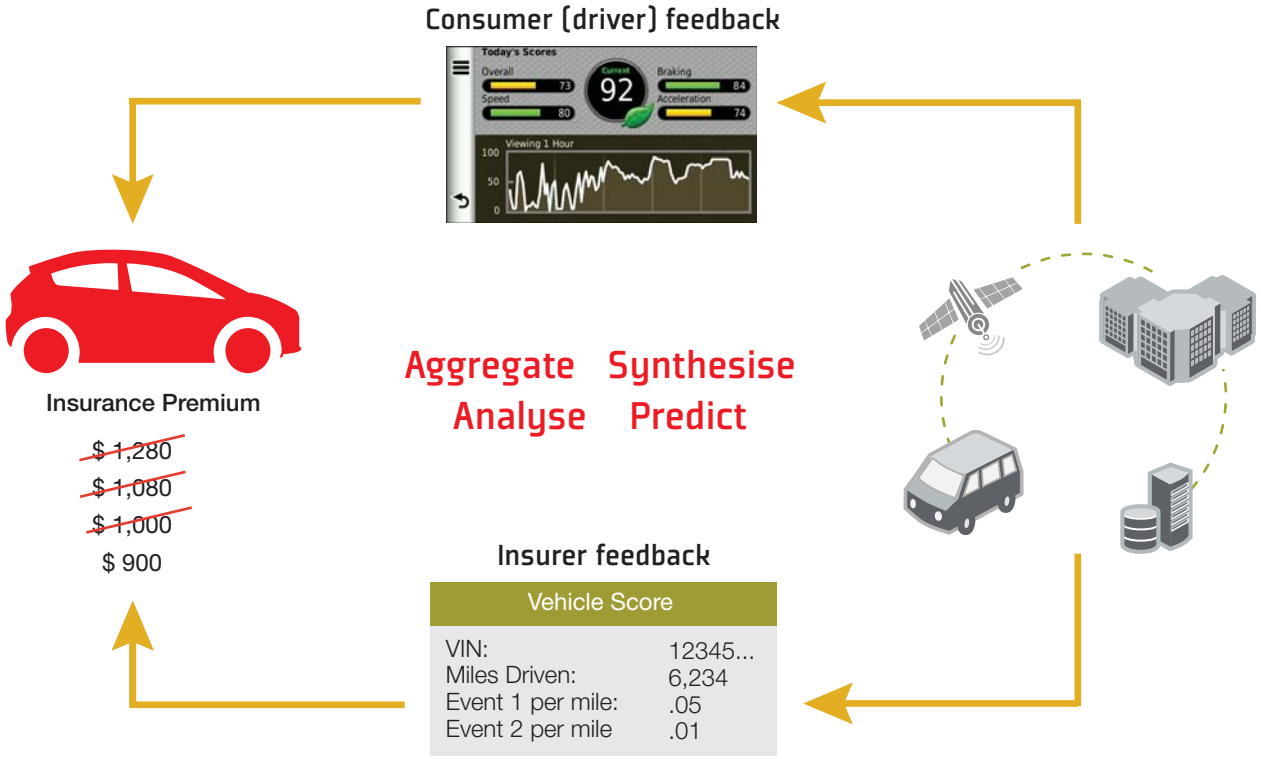

Figure 1. UBI Overview

This model represents a huge change to the insurance industry, and not just within underwriting departments. As UBI grows, insurers that don't use it will be at a competitive disadvantage compared to those who can accurately measure, assess, and price their customers' risk. This will have an enormous impact on the market.

Consider: When UBI policies are first introduced, they attract the best drivers—especially younger customers who know they drive safely and are happy to share their driving data in exchange for lower premiums. Over time, insurers offering UBI will likely gain the largest market share of those safer drivers—leaving insurers that don't support UBI to compete for a pool of customers who, on the whole, are less safe and more expensive to insure.

This competitive advantage is only one of the benefits insurers realize from UBI. Having a telematic link to the actual drivers you're insuring means:

- Reduced fraud as a result of having more and better data to use in assessing claims
- Lower losses through better driving behavior, as drivers are motivated to continually practice and improve their driving habits
- Deeper customer relationships, with opportunities to have more frequent and positive interactions with customers (e.g., communications after an accident, updates on driving behavior and premiums, even feedback after individual journeys if applicable), instead of just issuing bills and processing claims.

UBI technology can also serve as a platform for insurers to participate in a broader value chain built around in-vehicle services (Figure 2). By building or participating in an in-vehicle technology that can support a broad range of value-added services including UBI, they can increase customer retention and avoid commoditization (more on that later).

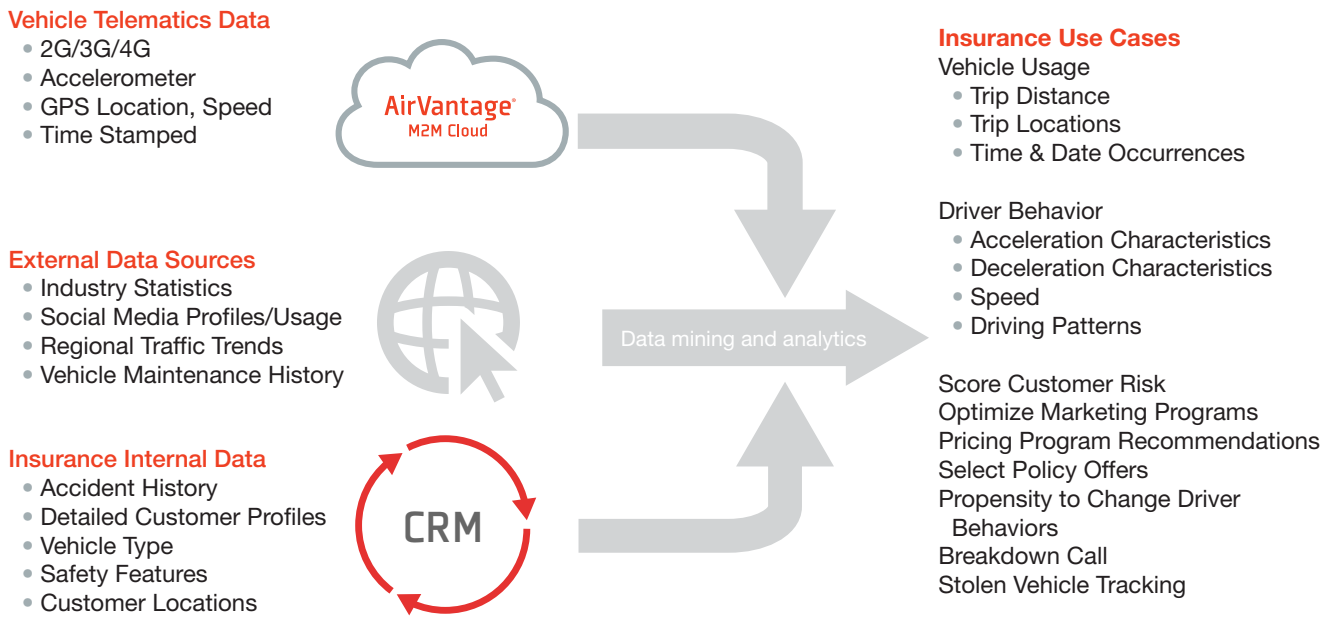

Figure 2.Broad UBI Use Cases

These benefits have not gone unnoticed by the industry. Six million customers subscribed to UBI policies in 2014, and analyst Ptolemeus forecasts the global market to grow to 100 million by 2020[1]. According to the same report, UBI policies are expected to grow from 2% penetration among total motor insurance policies in 2014 to 19% by 2020 in Europe and 26% in the United States (Figure 3).

1 "UBI Global Study 2013," Ptolemus Consulting Group, http://www.ptolemus.com/ubi-study/

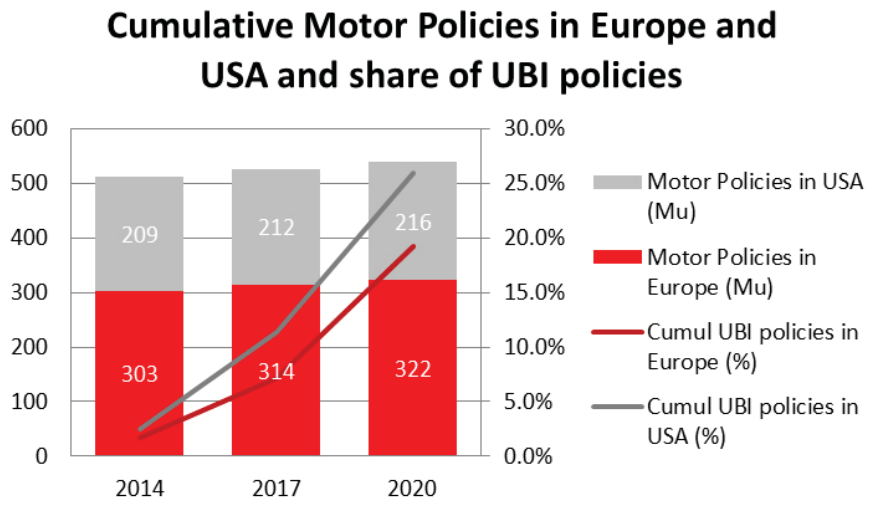

Figure 3. UBI Market Growth in Europe and North America, Ptolemeus Consulting 2013

Legal and regulatory changes are adding extra motivation to embrace UBI. In the United Kingdom and the European Union, new guidelines prohibit insurers from defining premiums based on gender. As they search for new criteria to assess risk, UBI is an data-driven solution.

But for now, the UBI market is still in the early stages, representing less than 4% of auto insurance customers in North America and Europe. Which means there is significant room to grow, and a window of opportunity for UBI innovators to gain a strong foothold.

Getting Started with UBI

The most immediate questions when launching a UBI service are how to get customer buy-in and how to finance the costs of building and deploying telematics technology.

To insured customers, UBI means allowing insurers to effectively look over their shoulder as they drive. For customers to accept this loss of privacy, they expect a significant discount. A 2013 consumer survey from LexisNexis suggests that the take rate for UBI policies would grow to 62% for a discount of 15%, and that more than one third of customers would consider changing carriers if they could save 10% by participating in a telematics program[2].

2 "LexisNexis 2013 Insurance Telematics Study,"
http://solutions.lexisnexis.com/forms/IP13TelPIIP2013Research11757?source=RS-pr&utm_campaign=telematics&utm_source=RS-pr

So the more difficult question is how to finance UBI technology. Customers are unlikely to pay for a dedicated telematics device just for a discounted insurance premium. Through positive self-selection (better drivers being more likely to opt into the service), improved driving behavior and reduced risk, most insurers can recover their initial UBI investment after three years, even if they finance the entire UBI system. However, three years is still a long time to break even, especially if insurers anticipate massive adoption. How can they defray those costs? The solution is to stop viewing UBI, and the many other connected in-vehicle services that consumers already use, as standalone services.

Building a Sustainable UBI Business Case with Value–Added Services

Many drivers today already have multiple connected devices in the vehicle: a telematics OBU for emergency assistance and stolen vehicle tracking, a cellular phone for communication and entertainment, a navigation system with real-time traffic avoidance and speed camera alerts, satellite radio, etc. (commercial fleet vehicles often have more). This means that drivers likely already subscribe to several telematics service provider (TSP) services, with multiple redundant devices and SIMs operating in the vehicle, often uploading the same kinds of data (such as location) to multiple TSP platforms.

If nothing else, this demonstrates that consumers are willing to pay for in-vehicle value-added services (VAS) that improve their driving experience with useful information and entertainment. But it also demonstrates the fragmentation in the marketplace. There is no reason that all of those services can't share a single network connection, delivered through a single onboard device. By bundling UBI services with these and other value-added services (WiFi hotspots, eco-driving tips, parental monitoring for teen drivers, etc.), insurers and their VAS partners can create a compelling package of in-vehicle services for which consumers are willing to pay.

According to a 2014 Towers Watson market study, among 89% of U.S. drivers open to considering UBI, 72% would pay a significant subscription (61% in the range of $3.75-$7.50/month) for attractive VAS, such as vehicle theft tracking, breakdown calls, vehicle wellness reports, fuel efficiency tips and real-time driving feedback[3]. Insurers could play

3 "Usage-Based Insurance: US Consumer Survey," Towers Watson, Sep. 2013, http://www.towerswatson.com/en/Insights/Newsletters/Americas/americas-insights/2013/Usage-Based-Insurance-Consumer-Survey

the role of aggregators, collecting telematics data from their subscribers and re-selling the data to other TSPs. Or, they could form strategic partnerships with other TSPs, and collect UBI data through partner-delivered VAS offers.

In either case, bundling UBI with a broader VAS ecosystem allows insurers to cost-effectively finance UBI deployments, differentiate their service and participate in a new kind of TSP and infotainment ecosystem that generates new recurring revenues.

Building a Platform for Bundling UBI and VAS

Looking at today's marketplace dominated by services operating in silos, the concept of a unified in-vehicle TSP and infotainment platform may seem far-fetched. But while insurers and TSPs are just beginning to explore these new business models, the technology to enable them is already mature. Modern cellular-connected OBU devices can provide the following core elements.

Embedded Application Frameworks to Build Future-Proof Solutions

The purpose-built OBUs of the past are not applicable to bundled in-vehicle services (or to any UBI service that will be updated and expanded over time). Insurers, TSPs and OEMs require a flexible platform that can support a much wider range of applications. New OBU cellular solutions provide standards-based embedded application platforms, such as Legato™ from Sierra Wireless, that make it easy to run, build and connect in-vehicle applications. Legato, for example, provides a Linux-based embedded platform with broad support from the open-source community and a full sandbox to support the development of innovative new applications.

With application frameworks like these, insurers can more easily deploy and continually evolve UBI and other in-vehicle applications. Even for insurers starting with a more basic UBI service, they provide the flexibility to add more capabilities to the service—e.g., incorporating higher-frequency acquisition of accelerometer data to support more advanced driver improvement algorithms or crash reconstruction—over time. And, they allow insurers to support VAS and participate in broader VAS and TSP value chains in the future through software updates, instead of having to replace hardware deployed in the field.

Scalable OBU Hardware

Depending on the services, bandwidth requirements, and geographic market, a UBI service may require 2G, 3G, or 4G/LTE connectivity. Historically, an OBU would require a completely separate design, testing and certification process for each cellular network on which it operates. Today, vendors like Sierra Wireless can provide pin-to-pin compatible modules across all network types. So insurers and OEMs can design an OBU once and deploy it anywhere in the world, and simply swap the cellular module for different networks.

Secure Device Management and Data Collection

Driver scoring algorithms must be continuously refined, a linear process that can span years to achieve the most accurate assessment of a driver's risk. To accomplish this, insurers need to continually collect large volumes of granular data, which means they need an efficient platform to collect and manage that data, as well as to manage deployed UBI hardware and software.

Modern machine-to-machine (M2M) cloud platforms like Sierra Wireless' AirVantage® Cloud provide the tools to securely and cost-effectively collect UBI driver data, and manage the entire lifecycle for millions of deployed devices.

UBI Best Practice Design Considerations

In addition to scalable hardware, a flexible embedded application framework and a secure cloud management platform, insurers and OEMs designing UBI solutions should consider other industry best practices for telematics devices and back-end platforms.

In-vehicle telematics devices should include:

- **Core components:** Any OBU supporting a UBI service must include some fundamental capabilities. These include the cellular module to connect to the cellular network and Global Navigation Satellite System (GNSS) to support vehicle tracking and driver scoring. An accelerometer provides data for crash reconstruction and claim enforcement. And the OBU should have backup battery power to sustain service in the event that the main power supply fails after an accident. The device should use a modular architecture that makes it easier

to scale, such as when taking advantage of pin-to-pin compatibility in Sierra Wireless' AirPrime modules to operate across 2G, 3G and 4G networks. If a smaller footprint or simpler integration is required, insurers and OEMs can also use cellular modules with integrated GNSS.

- **Embedded SIM**: For a solution that can operate in a harsh "under-the-hood" environment for many years, insurers and OEMs will likely want the longevity and reliability of an embedded SIM. However, embedded SIMs can potentially hamper business flexibility, locking the insurer into one mobile network operator for the life of the device. Now, new embedded Universal Integrated Circuit Card (eUICC) technology can address this issue. eUICC is a solder-down chip on the device motherboard that provides the same functionality as a SIM. But unlike traditional SIMs, it allows insurers to switch mobile network operators with a simple over-the-air (OTA) update. Insurers and OEMs should look for cellular vendors like Sierra Wireless that provide cellular modules that comply with the eUICC standard, as well as device management platforms that can support multiple operators worldwide.

- **Embedded Analytics**: Insurers and OEMs should also seek out solutions that can integrate analytics intelligence to filter out noise and irrelevant data from the OBU. By transmitting only relevant data, such solutions minimize data traffic to the back-end platform and keep connectivity costs low.

In addition to the OBU, insurers need a cloud platform to manage and update deployed devices and collect their data for back-end applications. Insurers should look for cloud platforms that are:

- **Scalable**: Insurers should be able to scale UBI services very quickly as they grow. They need a platform that can address the entire lifecycle of device activation, ongoing monitoring, software updates, and other critical functions for millions of deployed devices simultaneously. They should seek out proven cloud platforms like Sierra Wireless' AirVantage Cloud, which is widely used by major automotive customers.

- **Secure**: The cornerstone of any UBI program is the customer's confidence that driving data is confidential. Insurers should seek out vendors that can provide

a secure end-to-end solution, from the device to the cloud. That includes using standards-based security measures to communicate with OBUs, and mature cloud platforms like AirVantage Cloud that are widely used in security-sensitive environments, and comply with stringent security standards.

- **Open**: Any cloud platform for UBI should make it easy to collect raw telematics data, either through a web interface (such as AirVantage Management Services) or through open, standard web APIs.

Conclusion

In many ways, the current telematics market looks very similar to the mobile phone industry in the mid-2000s, before new software innovations and app ecosystems created the open mobile platforms we have today. Now, the smartphone has become a gateway to an enormous variety of applications, services and business models, all developed in an open and standards-based environment, and all using the same hardware and connectivity to reach the user.

With future-proof OBU devices, secure cloud management platforms and shared data plans, modern telematics systems hold the potential to unleash that same level of innovation for in-vehicle services. Soon, drivers will be able to download apps and continually expand the possibilities for automotive VAS over the life of their vehicles, and subscribe to new services without paying for redundant data collection systems.

With the strong market drive toward UBI, insurers can play a central role in this industry transformation. And in doing so, they can capture a larger share of the market for the best drivers, increase profitability and create long-term customer loyalty.

Why Sierra Wireless

Sierra Wireless is ideally positioned to help insurers, TSPs, OEMs and developers capitalize on the UBI opportunity. We can provide a complete device-to-cloud solution for UBI, including embedded modules, an open application framework, wireless services, and an industry-leading cloud platform. With a comprehensive set of technology building blocks, insurance companies have everything they need to both collect telematics for highly

accurate UBI systems, and to support new value-added services and business models over time.

Sierra Wireless provides:

- A proven track record of leadership in the automotive industry, with major auto manufacturers and tier-1 suppliers relying on AirPrime modules in hundreds of thousands of vehicles worldwide
- The industry's most mature embedded application platform to deliver new in-vehicle services, based on standard Linux and embraced by the open-source community, with dedicated APIs and interfaces for automotive applications
- AirVantage, a proven cloud platform to collect the telematics data and manage the devices in the field during their entire lifecycle, supporting a complete device-to-cloud security, and used already by many customers to manage more than a million devices in the field
- Unparalleled scalability, with solutions that make it easy to expand UBI services to any market or cellular network, and close relationships with major MNOs around the globe to streamline development and certification
- A deep knowledge of the UBI ecosystem, and a wide range of reliable partners to deploy telematics services worldwide.

Sierra Wireless can help insurers and OEMs build highly accurate and cost-efficient UBI solutions, deploy them to more markets faster, and capitalize on this growing paradigm-shift in insurance and automotive services.

To learn more, visit sierrawireless.com

About Sierra Wireless

Sierra Wireless is building the Internet of Things with intelligent wireless solutions that enable organizations to innovate in the connected world. We offer the industry's most comprehensive portfolio of 2G, 3G and 4G embedded modules and gateways, seamlessly integrated with our secure cloud and connectivity services. OEMs and enterprises worldwide trust our innovative solutions to get their connected products and services to market faster. Sierra Wireless has more than 900 employees globally and operates R&D centers in North America, Europe and Asia.

For further company and product information, please visit www.sierrawireless.com.