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USAGE-BASED INSURANCE

Global Study



The reference report on telematics insurance

Uberising auto insurance

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FUNDAMENTALS OF THE UBI MARKET

ABOUT PTOLEMUS CONSULTING GROUP



from Ptolemy, the Egyptian savant who built the 1st map of the world in the 2nd century

PTOLEMUS is the first international strategy consulting firm specialised in the connected vehicle and the Internet of Things (IoT).

We help our clients apply strategic analysis to this fast-moving ecosystem, across all its industries (automotive, consumer electronics, insurance, mobile telecoms, etc.) and on an international basis.

PTOLEMUS, founded by Frederic Bruneteau, operates worldwide and is present in 6 countries: Belgium, France, Germany, Italy, the UK and the US.

PTOLEMUS has performed 35 consulting assignments related to insurance telematics.

For any enquiry, please send a message to <u>contact@ptolemus.com</u>

Our consulting services



Our fields of expertise

Car infotainment & navigation

Connected services (Traffic information, fuel prices, speed cameras, weather, parking, points of interest, social networking), driver monitoring, maps, smartphone integration, smartphone-, PND- or embedded navigation,

Usage-based charging

Connected insurance, road charging / electronic tolling, fleet leasing & rental, car sharing, Car As A Service, etc.

Telematics & Intelligent Transport Systems ADAS, connected vehicle, crowd-sourcing, fleet management, eCall, bCall, SVR, tracking, vehicle data analytics (OBD / CAN-bus), VRM, V2X, xFCD

Positioning / Location enablement

M2M & connectivity

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THE AUTHORS OF THIS REPORT

Frederic Bruneteau, Managing Director, Brussels (HEC Paris, CEMS Cologne)



Mr. Bruneteau has accumulated nearly 20 years of experience including 17 years of experience of the mobility domain and 8 years of strategic and financial advisory for companies such as **Arthur D. Little**, **BNP Paribas**, **SFR Vodafone** and **TomTom**.

He has become one of the world's foremost experts in the field of telematics, quoted by numerous publications such as *The Economist* and *Reuters*. He has spoken at more than 20 international conferences on the subject.

Within PTOLEMUS, he has participated to 60 assignments related to connected vehicle services, including **30 strategy, product development & sourcing projects related to insurance telematics**.

- He assisted one of the world's largest **insurance groups** in designing its **telematics strategy & business plan across Europe**;
- For one of the largest global car makers, he defined the insurance telematics and fleet management specifications of their future embedded device,
- He defined the 5-year device roadmap of a major insurance Telematics Service provider,
- He helped a global automotive tier-1 supplier in defining its strategy for the UBI market,
- He assisted a large insurance and data aggregation group in identifying the **future breakthroughs** in the connected car value chain and their impact on the auto insurance market.

Thomas Hallauer, Research Director, London (BA, International Business, Univ. of London)



Thomas Hallauer has gained 12 years of marketing experience in the domain of telematics and location-based services. He is an expert in new products and services notably in the telematics, motor insurance, electronic tolling and positioning industries.

Before PTOLEMUS, Thomas held management responsibilities with **Mobile Devices**, a leading provider of telematics technology platform and devices and with FC Business Intelligence (**Telematics Update**).

Thomas is the lead author of the <u>ETC Global Study</u>, the most thorough review of the Electronic Toll Collection and Road Charging market published in May 2015.

Mr. Hallauer co-wrote this and the **2013 UBI Global Study** and interviewing dozens of companies such as AAA, Admiral, Ageas, Allianz, Liberty Mutual, Mapfre USA and Zurich; and telematics suppliers such as Danlaw, DriveFactor, Geotab, Himex, IMS, The Floow and Verizon Telematics.

For this report, he led the research on the UBI market in over **30 countries** and interviewed more than **120 players** in UBI.

SECTION I

FUNDAMENTALS OF THE UBI MARKET

Matthieu Noël, Senior Consultant, Paris (MS Automotive Engineering & Project Management, ESTACA, Paris and MS Marketing, HEC, Paris)



Matthieu Noël has gained 6 years of experience in the automotive industry covering technical, strategy, marketing and business development, including more than 4 years in consulting.

Mr Noël has performed more than 20 assignments in the automotive and telematics industries. He understands the business and strategic implications of new technologies in the mobility eco-system and can adapt quickly to new industries and situations.

He has gained strong expertise in telematics, particularly in Usage-based Insurance (UBI), fleet management (FMS) and vehicle OBD data analytics for numerous applications such as vehicle remote diagnostics, eco-driving and driving behaviour analysis. He also recently contributed to the publication of the **Insurance Telematics Global Study** and **Electronic Toll collection Global Study**. He also regularly speaks at conferences.

Before PTOLEMUS, Matthieu acquired consulting experiences with **7M Consulting**, a strategy consulting firm specialised in the automotive industry and with **Deloitte Consulting**, within the Industry Strategy & Operation branch.

For this report, Matthieu analysed the **OEM position** and **OBD opportunities for UBI** and conducted interviews with companies such as Allianz, AXA, PSA, Renault-Nissan, Volvo and OBD solution providers.

Alberto Lodieu, Senior Consultant, Paris (MBA, HEC Paris - BSc Industrial Engineering, Instituto Tecnologico y de Estudios Superiores de Monterrey)



Alberto has more than 5 years of experience in strategy and operations consulting. He has specialised in the financial services, transport and professional services industries in projects related to corporate and competitive strategy, operations excellence and business analytics.

Alberto participated in 15 projects to help organisations identify, define and implement the initiatives needed to achieve or preserve their leadership position.

Alberto is a native speaker in Spanish, fluent in English and intermediate in French and Italian.

Before joining PTOLEMUS, Alberto worked for Deloitte Consulting in their strategy and operations practice. He participated as a strategy and financial advisor in investment projects both in **France and Mexico**. He also helped a transport company define its strategy and evaluate the benefits of telematics.

For one of the world's largest insurance companies, Alberto recently performed:

- An analysis of UBI market opportunities in numerous Asian countries,
- A global analysis of smartphone UBI apps.

Alberto wrote the ADAS / autonomous vehicle section of this report.

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Philippe Brousse, Business Analyst, Brussels (MSc Eng., ENSIMAG & MBA ESSEC, Paris)



Philippe has gained experience in strategy and market research for companies such as Altai Consulting, CGI Business Consulting and Safran Morpho.

He has performed multiple market research projects in the connected mobility domain such as:

- The assessment of the Benelux fleet telematics management market for a North American TSP,
- The evaluation of the European fleet telematics management market for a \$40 billion US hedge fund,
- The forecast of the European and North American UBI and fleet management markets for a smartphone Telematics Service Provider,
- The bottom-up sizing of the global UBI market for one of the largest TSPs,
- For a global insurance company, a **global analysis of smartphone apps** for UBI data collection and customer acquisition.

Philippe wrote the market sizing and smartphones sections of this report.

Justin Hamilton, Business Analyst, London (BA, Politics, Univ. of East Anglia and M.Litt. International Relations, Univ. of St Andrews)



Justin has more than 3 years of experience within the transportation, electronic tolling and road user charging markets, with a particular focus on national tolling projects and related policy development.

A native of the UK, Justin conducts quantitative and qualitative analysis of global trends and developments in electronic road pricing and intelligent transport solutions.

Before joining PTOLEMUS, Justin was editor of Road User Charging magazine and Head of Content for all road charging conferences and transport industry market research at Akabo Media.

His recent assignments include a comprehensive ranking of global ETC service providers, systems integrators and technology suppliers.

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Sergio Tusa, Associate Partner, Milan (MBA ISIDA Palermo)



Sergio Tusa has gained 25 years of strategic and commercial experience, primarily in telematics, automotive and navigation. He has been the **CEO of Tele Atlas Italy** and Geonext, an LBS and fleet management provider.

He is expert at designing, launching and selling products and operations for international players such as **Magneti Marelli and Philips Car Systems.**

For example, he led **Geonext** and notably launched the first LBS and map service in Italy on Vodafone Live in 2002. He also launched its fleet management service for Hera, one of the largest energy and environment management groups in Italy.

For **Cobra Automotive**, Sergio designed a low cost Stolen Vehicle Recovery solution for Fiat's Blue&Me navigation platform. He also led the development of Volvo/Renault Trucks anti-theft platform.

For **Magneti Marelli**, Mr. Tusa launched its automotive grade insurance telematics black box and supported the launch of its first container tracking device.

He recently reviewed the strategy of a major European Telematics Service Provider in the fields of fleet management, stolen vehicle recovery and UBI. Since March, Sergio is also the President of the Italian association of Telematics Service Providers.

Hartmut Albers, Associate Partner, Mobility Services and Process Management, Hannover (DB and DeCeTe Transport and Logistics, Hamburg University)



Hartmut Albers has gained 30 years of experience in the mobility services, transport and logistics industries from firms such as **Deutsche Bahn**, **DKV**, **Duisburger Container Terminal**, **Hannover Public Transport and Schenker**.

He has gained **world-class expertise in connected services**, notably in RFID, e-ticketing, capacity and fleet management.

At **DKV Euro Service, Europe's largest provider of fuel cards for fleets**, Hartmut co-headed the creation of the business unit in charge of tax refund services for transportation fleets of Heavy Goods Vehicles.

Finally, Hartmut just performed two assignments in the field of telematics:

- For a \$140 billion hedge fund, he assessed the European market for connected fleet services,
- For a smartphone-based fleet telematics management supplier, he built 5-year forecasts of the European and North American UBI markets.

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Maria-Grazia Verardi, Senior Expert, New York (MS Physics, University of Bologna)



Maria Grazia Verardi has gained over 15 years of experience in R&D, product design, hardware- and software development in the domain of telematics and IT.

She has gained **telematics expertise** from leading technology and service providers such as **Cobra Automotive** and **Cesar Satellite**.

Within Cobra, she led numerous projects for the automotive industry. She notably defined services/ products for major **car makers** such as Audi, Nissan, Porsche, PSA, Renault and Volkswagen.

She has been actively involved in the CEN pan-European eCall working group, notably participating to the development of **eCall** requirements and associated standards. Ms. Verardi has also been involved in the development of telematic-related standards for ETSI and ISO.

Maria Grazia also managed the definition of services, the collection of business requirements and the implementation of trials for insurance companies such as **AXA**, **ABN Amro and Delta Lloyd**. She also managed the technical specifications of an insurer's PAYD telematics device addressed to the Russian market.

For **Cesar Satellite**, the leading Russian TSP, she performed the technical audit of its IT platform designed for telematics services management on both mobile units (MU) and stationary objects (SO). She also managed the technical specifications of an insurer's PAYD telematics device for the Russian market.

Finally, for **one of the global leaders of the UBI solution landscape**, she recently assessed the future evolution of the technology environment for its future device strategy and 5-year product roadmap.



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OUR PARTNER OSBORNE CLARKE

The legal and regulatory assessments of the European market for UBI as well as the changes in data privacy regulations were authored in partnership with Osborne Clarke.

About Osborne Clarke

As one of Europe's leading technology law firms with a highly regarded automotive practice, we are well placed to advise clients at the cutting edge of automotive developments such as telematics.



Our in-depth industry experience means that we have a track record of helping businesses in the insurance telematics arena to resolve the key issues affecting them.

We have over 700 lawyers working across 15 offices in Belgium, France, Germany, Italy, Spain, Italy, the UK and North America. Our size and reach means we have the knowledge and resources to deliver. In the last 3 years, we have helped 5,000 clients in 70 jurisdictions.

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OUR SINCERE THANKS

This report is the most complete report ever written on the subject of telematics, worldwide: it counts more than 200,000 words and 420 figures!

This richness is largely based on the willingness of the "ecosystem" to cooperate and give its time and knowledge for the benefit of the wider society and economy.



We would like to particularly thank

- Our 3 guest interviewees;
- The more than 200 industry executives we held discussions with A list of the companies we interviewed is available below;
- The 28 companies that responded to our survey of telematics and analytics solutions;
- Our families for their patience and understanding.

FUNDAMENTALS OF THE UBI MARKET

FOREWORD

Our second report was a resounding success. More than 6,000 insurers and other ecosystem executives across the world read the UBI Global Study abstract!

The whole PTOLEMUS team is pleased to bring you a complete analysis of the changes that have come in the last two years.

As always, we want this study to remain **the reference report on the subject**. This is reflected in its size, which we have tried to curtail for practical reasons but is still 20% bigger than the 2013 edition.



Insurers from all lines of business are entering the era of Big Data and moving away from outdated underwriting practices.

The last 2 years have seen UBI reach a **new level of maturity**:

- Progressive has again doubled its number of UBI customers to 2.8 million,
- There are now 14 insurers/brokers with more than 100,000 telematics customers (again, twice as many as in 2013),
- Insurers are now launching telematics programmes in China, Thailand, New Zealand, Columbia or Slovenia,
- Following on from Desjardins' first UBI programme in 2013, there are now 10 UBI programmes in Canada,
- The European Parliament has finally ratified the eCall mandate, now slated to start in 2018. Third Party eCall services are expressly allowed to coexist and, we suspect, will form the majority of the offering by then,
- Since Autoline's first step in mobile UBI in Northern Ireland, we now count 13 UBI programmes using smartphones globally and at least 20 Try-Before-You-Buy apps, demonstrating that the smartphone is clearly making steps into the UBI device market,
- After Renova purchased Octo Telematics, Telematics Service Providers (TSPs) became hot property: Wunelli was acquired by Lexis Nexis, Masternaut by FleetCor, Cobra by Vodafone, Enigma by Viasat, DriveFactor by CCC, MyDrive by Generali... and the list goes on,
- Numerous vehicle makers including BMW, Daimler, Ford, GM and PSA have launched UBI programmes with insurers or brokers.

So it was certainly high time for an update!

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In this study, we evaluate whether telematics will change the motor insurance market and **how profound the impact will be.**

We assess the present state of UBI globally and the challenges ahead.

We also identify problems and **propose solutions** to overcome them.

Last not but not least, we analyse the continuing evolution of the industry value chain and attempt to detect the winners and losers.



Haney, Lisa. NY Times. (2012).

This report will provide **insights to insurers' management teams**, notably CEOs, CMOs, CIOs, Business Unit Directors and Directors in charge of risk management and claims management.

It will also interest assistance providers, automotive manufacturers, their tier-1 and tier-2 suppliers, telematics service providers (TSPs) and technology providers (TTPs), mobile network operators (MNOs), regulators and governments.

Our investigation also brings responses to the following questions:

- What do insurers have to gain from giving away discounts to their most valuable customers?
- Is UBI a model all automobile insurers must follow and what are its driving factors?
- What are the key challenges to expect when building a UBI programme and what actions must be taken by each party to face them?
- How to increase customer acceptance for UBI depending on segments and geographies?
- How to choose from the various technology solutions available and what are the criteria to compare them against each other?
- Which are the best suppliers for each type of solution and commercial target?
- How will the industry value chain evolve based on the actions of the principal agents?
- What is the business case for the mass introduction of PAYD/PHYD insurance?
- What is the expected market size for these products and services in the next 5 years?
- What will be the impact of autonomous vehicles on the insurance industry and UBI?

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To conduct what is the most comprehensive study ever written on insurance telematics, we have relied on:

- Interviews with 200 executives from all sides of the industry, from Allianz to Zurich,
- 7 years of primary research, including a survey of available technology solutions,
- Updating our motor insurer's business model for 6 markets, i.e. France, Germany, Italy, Russia, the UK and the US,
- Building a 15-year market model of all the primary and secondary markets by country and region in order to combine strategic and technology analysis with hard figures,
- A review of applicable patents worldwide and the legal frameworks in key markets,
- The insights from more than 35 consulting assignments in the field of insurance telematics.

This report provides **a "one-stop-shop" analysis** of this complex emerging market across all regions of the globe. In our view, it is an **important read** for all insurers because:

- Numerous auto insurance markets are facing structural losses due to heavy price competition and rising claims costs,
- Auto insurance will be affected directly and in the long-term by the advances in autonomous vehicle safety functions,
- This analysis will help insurers learn from pioneers, overcome challenges, better understand how to place the value proposition and make informed decisions,
- An examination of the present business models and value chain is needed to prepare the market for the next phase of growth,
- It compares the leading telematics and analytics solutions available to insurers.

It has been a pleasure for us to write this report. We hope that you will enjoy reading it. If your company plays a role in this business and has not been mentioned in our report, please let us know so that we can update it in the coming months. Please send your comments to <u>insurance@ptolemus.com</u>

Sincerely,

Frederic Bruneteau Managing Director

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EXECUTIVE SUMMARY

UBI is becoming a mainstream offer in auto insurance

- Insurance companies have launched nearly **230 telematics programmes** worldwide, in twice as many countries as two years ago.
- UBI is becoming mainstream in the US and Italy and now represents 25-33% of new business among insurance companies that have made telematics a priority.
- The US will become the leading UBI market in the world. In Europe, growth will be driven by Italy but the UK, Germany and France will see UBI subscriptions take off in the next 5 years. New major markets will emerge, including China and Russia.
- By 2020, nearly 100 million vehicles globally will be insured with telematics policies. This will grow to nearly 50% of the world's vehicles by 2030, generating more than €250 billion in premiums for insurers!

How will it happen?

- In the US and Europe, most car makers will have adopted UBI by 2020. The most successful model will use a central data hub provided by a Telematics Service Provider (TSP) connected to insurance companies. In North America, embedded devices will become the third most used data source for UBI policies as early as 2017.
- **OBD dongles will become the leading UBI device**, reaching all the continents. Aftermarket black boxes will continue to grow, specifically in high premium markets and for high value cars.
- With **22 mobile-only PHYD programmes** in activity today, smartphone apps are set to become one of the key devices to collect driving data, with or without a Bluetooth beacon. However, **they will not replace dongles or black boxes**, which will still make up the majority of devices used in 2020.
- For TSPs, the UBI opportunity will be **worth €3 billion globally by 2020**, with more than 50% of that revenue coming from the US, despite the number of insurers going direct.

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• Due to the lack of supply, the **commercial line segment** will not pick up the pace and is forecast to only represent an **estimated 4% of the total active UBI policies** by 2020.

Autonomous vehicles are the next transformative factor

- The number of autonomous vehicles (AVs), whether **semi**, **highly or fully autonomous**, **will reach 380 million worldwide in 2030**.
- Autonomous functions / Advanced Driving Assistance Systems (ADAS) will have the **ability to reduce accidents by 30-40%.** Overall, the evolution towards AVs will impact losses noticeably in mature markets from 2023 onwards.
- In the most advanced countries, such as Germany, **premiums will decrease by 40%** between 2020 and 2030.

What motor insurance companies need to know

- Auto insurance companies competing without telematics offerings will be hurt by negative customer selection and growing imbalances in their portfolio.
- While UBI success has initially relied on **attractive**, **end-to-end value propositions**, the new differentiator will be the ability to effectively predict **actual** driving risks using **"Big Datanalytics"**.
- The paradigm of insurance will evolve from cure to care. Protection will become the goal as insurers seek to avoid accidents altogether through tariff incentives, driver feedback and ADAS functions.
- Insurers will increasingly seize the loss reduction potential of telematics by **connecting it tightly with their claims management systems**. Automatic crash detection, eFNOL and bCall will become the norm in the next 5 years.
- Decreasing ARPU prospects will force all insurers to create **connected services offerings.** Applications such as vehicle real-time diagnostics, bCall, eCall, stolen vehicle recovery, eco-driving and fleet management will generate €500 million worldwide by 2020.
- Telematics extension to new insurance lines Home, Health and Life will push smartphones to the centre of cross-line strategies. Insurance companies will integrate telematics data collection into a single, customer-centric app.

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FOOD FOR THOUGHT



SECTION I

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SECTION I

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There are only 2 types of companies: those that have been hacked and those that will be.

Our industry is already working intensively on

autonomous cars.

We are committed to binding inspection and

testing procedures for automated vehicles.

We want to promote Europe-wide standards for data formats and for data availability, which are necessary for autonomous driving. Above all, should highly automated vehicle arrive, we will ensure accident victims are fully

protected by their insurance.



The next step for TSPs? Get a real pay / km tariff

> Daniele Tortora **Octo Telematics**



Chris Urmson Google Self-Driving Car Project

> The better the technology gets, the less reliable the driver is going to get.

Whilst we see autonomous vehicles as a massive step forward in terms of road safety, motor vehicle accidents will still happen.

We will need to be able to determine who or what was at fault - the driver or the car.



David Williams, AXA UK

Non-autonomous cars will be like owning a horse: for sentimental reasons.



Elon Musk Tesla Motors



Jörg von Fürstenwerth

GDV (Germany's insurance association)

Nicolas Weng Kan Google Compare

We are not becoming an auto insurer, nor an insurance agency.

Our expertise is understanding where the customers are and linking them back to the people who know how to service them.

Our vision is that no one should be killed or seriously injured in a new Volvo by 2020.

> When we come on with an autonomous vehicle, we want to make sure it is accessible and affordable



to the masses.

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BIG (DRIVING) DATA

In our view, this chart summarises well why it is important for insurers to move early. The size of driving datasets will be one the key ingredients to obtain highly predictive risk models.

It also indicates that not all technologies and models lead to the same amount of data collected.

Last but not least, it shows how leading TSPs / analytics suppliers have accumulated as much data as large insurance companies in a few years.





Of course, all datasets are not equal and it is very clear that the larger databases are not necessarily the most predictive of risks.

Source: PTOLEMUS Consulting Group, suppliers

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LIST OF COMPANIES INTERVIEWED AND MENTIONED IN THIS REPORT

As part of our research, we **held discussions with 205 organisations in 18 countries** including:

- 82 insurers and brokers,
- 45 Telematics Service Providers (TSPs),
- 21 Telematics Technology Providers (TTPs),
- 19 automotive Original Equipment Manufacturers (OEMs) and tier-1 suppliers,
- 8 Mobile Network Operators (MNOs),
- 9 analytics and data management suppliers,
- 5 financial investors.

We would like to **thank these organisations** for their precious contributions to this report. They are listed hereafter and will benefit from a discount on the <u>UBI Global Study</u>.

We have also indicated the 431 companies mentioned in this report.

Company name	Country	Sector	Discussion	Mentioned
AA	UK	Automobile club		~
AAA Club Partners	USA	Automobile club	v	 ✓
AAA Data	France	Data analytics	v	 ✓
Accutek Ind.	USA	ODM		 ✓
Achmea	Netherlands	General insurance	v	 ✓
Accenture	USA	Systems integrator	v	 ✓
ACI	Italy	Automobile club		 ✓
ACT Concepts	France	TSP		 ✓
ACTA	France	Roadside assistance provider		 ✓
ADAC	Germany	Automobile club	v	 ✓
Admiral France - L'Olivier	France	Motor insurance	v	
Admiral Insurance Group	UK	General insurance	v	 ✓
Ageas	Belgium	General insurance	~	~
Agero	USA	Automobile club / TSP	v	~
Agnik	USA	Data management	v	~
Al Insurance	UK	General insurance	~	~

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Company name	Country	Sector	Discussion	Mentioned
AIG	UK	General insurance	~	~
Aioi Nissay Dowa Insurance	Worldwide	General insurance	~	~
Alcatel-Lucent	France	Telecom equipment vendor		~
ALD Automotive	France	Leasing company	~	 ✓
Allianz	Europe	General insurance	~	 ✓
Allianz Global Assistance	Europe	RSA	 	 ✓
Allstate Insurance	USA	General insurance	~	~
Alo@Assurances	France	Consumer insurance		~
Alpine	Japan	In-car audio equipment		v
Altea	Italy	TSP		~
Altech Netstar	South Africa	TSP		~
Altima Assurances	France	General insurance	~	~
Amadeus Capital Partners	UK	Private equity fund	~	~
Amaguiz (Groupama)	France	Consumer insurance	~	~
American Family	USA	General insurance	~	~
Amodo	Slovenia	TSP	~	
ANIA	Italy	Insurance trade association		~
ANWB	Netherlands	Automobile club		~
AnyDATA Corporation	USA	TTP	~	~
Aplicom	Finland	TSP/TTP	~	~
Apple	USA	Consumer electronics vendor		~
ARM Holdings	UK	Processor design vendor		~
Arval	France	Leasing company	~	~
ASFA	France	Insurance trade association		~
Assercar	France	Repair centres		~
Assicurazioni Navale	Italy	General insurance		~
Association of British Insurers	UK	General insurance	~	~
Assurland.com	France	Online comparison site		~
Atmel	USA	Semi-conductors vendor		~
Atos	France	IT integrator	\checkmark	~
ATrack Technology	Taiwan	TTP	\checkmark	~
Audatex	USA	Solutions provider		~
Audi	Germany	Automotive OEM		~
Audiovox	USA	TTP	\checkmark	~
AutoDirect Insurance	UK	Consumer insurance		~
Autoline	UK	Broker	~	~
Autoliv	Europe	ADAS - MVCM		~
Automatic	USA	Connected services provider	~	~
Automile	Sweden	Connected services provider	~	~
Autosaint (Fresh! Insurance)	UK	Broker	✓	 ✓

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Company name	Country	Sector	Discussion	Mentioned
Aviva (formerly Norwich Union)	UK	General insurance	~	~
Axa Assistance	France	Roadside assistance provider	v	
AXA Direct	Europe	General insurance	v	v
Axa Global P&C	Worldwide	General insurance	v	v
B&Q	UK	Restaurant chain		v
Baloise Assurances	Switzerland	General insurance	v	
Barnes & Noble	USA	Book distribution chain		~
Baseline Telematics	Canada	TSP	v	~
BDI (Bundesbeauftragte für den Datenschutz und die Informationsfreiheit)	Germany	Data protection authority		~
Best Buy	USA	Electronics retail chain		~
BGL Group Ltd	UK	General insurance	v	~
Bird & Bird	France	Law firm	v	
BlaBlaCar	UK	Car sharing firm	v	~
Blockbuster	USA	Video rental chain		~
BluO Fund	Luxembourg	Private equity fund	v	~
BMW	Germany	Automotive OEM	~	~
BMW Financial Services		Automotive OEM		~
BNP Paribas Cardif	Chile	General insurance	✓	
BNV Mobility	Europe	TSP	✓	
Bouygues Telecom	France	Mobile operator	 Image: A start of the start of	~
British Airways	South Africa	Airlines		~
BT Software & Research	USA	Telecommunications operator		~
Budget Insurance	UK	Personal line insurance		~
Bull	France	IT integrator		~
CalAmp	Worldwide	TTP	~	~
Cambridge Mobile Telematics	USA	TTP	✓	
CANgo	Europe	TSP	 Image: A start of the start of	
Cap Gemini	France	IT integrator		~
Carrot Insurance	UK	General insurance	 ✓ 	~
CATAPULT	Europe	AV-OEM		~
CCC (Drivefactor)	USA	Claims management	 ✓ 	
CDL	UK	Software provider	 ✓ 	
Cellocator (Pointer Telocation)	Israel	TTP / TSP	~	~
CEN (European Committee for Standardisation)	Belgium	Standardisation organisation		~
Censio	USA	TSP	~	~
CertEurope	France	Trusted third party services		~
Cesar Satellite	Russia	TSP	~	~

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Company name	Country	Sector	Discussion	Mentioned
Cinterion	Germany	Connectivity module provider		v
Cinven	UK	Private equity firm	~	
CLAL Insurance	Israel	General insurance		✓
Clarion	Japan	In-car audio equipment		✓
CMA Claims	UK	Claims adjuster	~	
CNIL (Commission Nationale de l'Information et des Libertés)	France	Data protection authority	~	~
Co-operative Insurance	UK	General insurance	v	✓
Cobra Automotive Tech.	Italy	TSP / TTP	~	
Cognizant	USA	Enterprise resource software	~	
Compagnie Générale d'Automatisme (CGA HBS)	France	Engineering firm		~
Comparethemarket.com	UK	Online comparison site		
Confused.com	UK	Online comparison site	~	~
Continental	France	Tier-1 supplier	~	~
Corona Direct	Belgium	Broker	~	~
Corporate Vehicle Observatory	France	Research institution	~	
Covea Group	France	General insurance	~	
Coverbox	UK	Consumer insurance	~	
Coverhound	USA	General insurance	~	~
Coyote	Europe	TTP	~	
Crédit Mutuel Arkea	France	Consumer insurance	~	
cTrack (Digicore)	South Africa	TSP	~	v
Cybit Masternaut	UK	TSP	~	v
Daimler Fleetboard	Germany	TSP		v
Daimler Insurance Services	Germany	OEM	<i>v</i>	v
Danlaw	USA	TTP	<i>v</i>	V
Dash	USA	Connected services provider	~	~
Data Tec Co Ltd	Japan	ODM		~
Davis Instruments	USA	TTP	~	~
DBV Winterthur	Germany	General insurance		~
Delphi	USA	Tier-1 supplier		~
Denso	Germany	Tier-1 supplier	~	~
Department of Transportation	USA	Government		~
Detector	Spain	TSP	~	~
Deutsche Telekom	Germany	MNO	~	~
Diamonds	UK	Insurance broker		~
Direct Line Germany	Germany	Consumer insurance		~
Discovery Insure	South Africa	Consumer insurance	~	~
Disruptive Capital Partners	UK	Private equity firm	 	 ✓

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Company name	Country	Sector	Discussion	Mentioned
Diva	UK	Insurance broker		~
Dixon's	UK	Consumer electronics retail chain		~
Drive Power	USA	Data management provider		~
Drive Service	Italy	Repair & maintenance services	~	~
DriveCam	USA	TTP	~	~
DriveFactor	USA	General insurance	v	v
DriveProfiler	Global	TSP	~	v
Driveway Software	USA	TSP	~	~
Drust	France	Connected services provider	~	~
Earnix	USA	Data management provider	~	~
Easy Mile	Europe	AV-OEM		~
Eliocity	France	TSP	~	~
Elmic Systems	USA	Embedded software		~
Equity Red Star	UK	General insurance	~	~
ERTICO - ITS Europe	Belgium	Trade association	~	~
Euromaster	France	Installation network	\checkmark	
Europcar	South Africa	Vehicle rental		~
European Commission	Belgium	Government	\checkmark	~
European Court of Justice	Belgium	Government		~
European Data Protection Supervisor (EDPS)	Belgium	Data protection authority	~	~
Exigen	USA	Insurance software provider		~
F&I	USA	Magazine		~
Farmers Insurance	USA	General insurance	~	~
Faurecia	France	Automotive supplier	~	
Fédération Internationale de l'Automobile (FIA)	Belgium	Trade association	~	
Fiat Chrysler Automobiles (FCA)	Italy	Automotive OEM		•
Fiat UK	UK	Automotive OEM		~
Financial Times	UK	Newspaper		~
Fleet Logistics	UK	TSP		~
Fleetmatics / Sagequest	USA	TSP		~
Fleetminder	Australia	TSP	~	
FMG	UK	TSP	v	~
FMSCA (Federal Motor Carrier Safety Administration)	USA	Government		~
Focus	Germany	Magazine		~
Foley & Lardner	USA	Law firm		~
Ford	USA	Automotive OEM		~
Fujitsu Ten	Japan	Automotive supplier		~

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Company name	Country	Sector	Discussion	Mentioned
Garmin	USA	Electronics supplier	v	v
GE Equipment Services	USA	Fleet management company		~
General Motors	USA	Automotive OEM		~
Generali France	France	General insurance	~	v
Generali Group	Italy	General insurance	~	v
Genertel (Generali Group)	Italy	Consumer insurance	~	v
Geotab	USA	TSP	~	~
GirlMotor	UK	Insurance broker		v
GMAC Insurance	USA	Consumer insurance		<i>v</i>
gocompare.com	UK	Financial services comparison website	~	V
Golo (Launch Tech)	China	Connected services provider	~	<i>v</i>
Good Technology	USA	Mobile handset vendor		v
Google	USA	Search engine		~
Greenroad Technologies	USA	TSP	~	v
Groupama	UK	General insurance	~	<i>v</i>
Grupo Nacional Provincial	Mexico	General insurance		<i>v</i>
Hannover re	Worldwide	Re insurance	~	
Harman	USA	Tier-1 supplier		~
Hastings Direct	UK	General insurance	~	~
HDI Gerling	Global	General insurance	~	
HERE (formerly Navteq)	Worldwide	Maps & LBS supplier	✓	~
High Point Auto Insurance	USA	Personal line insurance		v
Himex (Evogi Group)	USA	TSP	✓	v
Hitachi	Japan	Conglomerate		~
Hollard Insurance	South Africa	General insurance	~	v
Honda	Japan	Automotive OEM		v
HopeRun Technology	USA	Software development	~	
HUK-Coburg	Germany	General insurance		v
Hyundai	South Korea	Automotive OEM		v
IBM	USA	IT integrator	~	~
ID Macif	France	Consumer insurance		~
IDM Trucking	USA	Transportation		v
If Insurance	Sweden	Insurance	~	
iGate	UK	Software development	~	
iGo4	UK	General insurance	~	
iKube	UK	Consumer insurance		v
IMA	France	Roadside assistance provider	✓	~
iMetrik Global	USA	TTP	~	v
IMS	Canada	TSP	✓	✓

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Company name	Country	Sector	Discussion	Mentioned
Industrial Alliance	Canada	General insurance	v	✓
ICO (Information Commissioner's Office)	UK	Data protection authority		~
Infrasure	UK	TSP	 	~
ING	Netherlands	Consumer insurance	 	
Ingenie	UK	Broker	~	~
Innosurance	Australia	Commercial insurance		~
Insurance Europe	Belgium	Insurance trade association		~
Insurethebox	UK	Consumer insurance	 	~
Intellimec IMS	Canada	TSP	 	~
Interactive Driving Systems	USA	Risk management solutions		~
International Road Union	Switzerland	Trade association		~
Intesa San Paolo Assicuri	Italy	General insurance		~
Iron Mountain	UK	Storage services		~
ISACA (Information Systems Audit & Control Association)	Worldwide	Trade association		~
ITB Telematics Solutions	UK	TSP		v
lveco	Italy	Automotive OEM		v
Ινοχ	USA	Risk management solutions	✓	v
Ixonos	Finland	Software developer		v
Jaguar Land Rover	Worldwide	OEM		v
Jambit	Germany	IT integrator		v
Jooycar	Chile	Connected services provider	✓	v
KDDI	Japan	Mobile operator		v
Kia Motors	South Korea	Automotive OEM		v
KKR	UK	Private equity fund	✓	
KPN	Netherlands	Mobile operator	✓	v
Kuantic	France	TTP		~
Ladybird	UK	Insurance broker		~
Launch Tech	China	TTP	✓	
Leaseplan	Netherlands	Leasing company	 	~
Lexis-Nexis	USA	Enterprise resource software	✓	v
LG Electronics	South Korea	Consumer electronics vendor		v
Liberty Mutual	USA	General insurance	✓	v
LinkedIn	USA	Social networking		~
LocX	USA	TSP	~	~
Lysanda	UK	TTP/TSP	~	~
MAAF Assurances	France	General insurance		~
MACIF Assurances	France	General insurance	~	~
Magneti Marelli	Worldwide	Tier-1 supplier	~	~

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Company name	Country	Sector	Discussion	Mentioned
MAIF Assurances	France	General insurance	~	~
Mapfre	Spain	General insurance	~	~
Mapfre US	US	General insurance	~	
Markerstudy Group	UK	Consumer insurance	~	~
Market IP	Belgium	Software developer	v	
Marks & Spencer	UK	Retail		 ✓
Marmalade Group	UK	General insurance	~	 ✓
Masternaut	Europe	TSP	~	 ✓
Matmut Assurances	France	General insurance		 ✓
Mercedes Benz	Germany	Automotive OEM		 ✓
Meta System	Italy	TTP	~	v
Michelin	France	Tyre manufacturer	~	
Mitsubishi Electric	Japan	Conglomerate		v
Mix Telematics	South Africa	TSP	~	 ✓
Mobile Devices	France	TTP	v	 ✓
Mobileye	Israel	TTP		 ✓
Modus	USA	TSP	~	 ✓
Mojio	USA	Connected services provider	~	 ✓
Money Super Market	UK	Comparison website	~	 ✓
Montezemolo & Partners	Italy	Private equity fund	~	v
Moody's	USA	Rating agency		v
MORE TH>N	UK	Consumer insurance	~	~
Motaquote	UK	Consumer insurance		~
Movelo	Sweden	TTP, TSP	~	~
MyDrive Solutions	UK	TTP, TSP, Data management	~	~
Nationwide Insurance	USA	General insurance	~	~
Navteq / HERE	France	Map provider	~	~
navya	France	AV-OEM		~
ND a Islandi Ehf	Island	n.a.		~
NIS Glonass	Russia	Public-private partnership		~
Nissan Europe	Europ	Automotive OEM	~	~
Nissan Motor Corporation	USA	Automotive OEM	~	~
No Nonsense Insurance	N. Ireland	General insurance	~	
Nokia	Finland	Mobile phone vendor		~
Norton Rose	UK	Law firm	~	
Novacom Europe	Netherlands	TSP		~
Novatel Wireless	Worldwide	TTP	~	
NTT DoCoMo	Japan	Mobile operator	~	~
NXP	Netherlands	Chipset vendor	~	v
ÖAMTC	Austria	Automobile club		 ✓

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Company name	Country	Sector	Discussion	Mentioned
OBD Experts	UK	Software developer	v	v
Octo Telematics	Italy	TSP	~	~
OECD	France	International organisation	v	~
Omnitracs	Netherlands	TSP	~	~
Oracle	USA	Software provider		~
Orange	UK	Mobile operator		~
Orange Business Services	France	Integrator / TSP	✓	v
Orion Technology	Taiwan	TTP	✓	✓
ÖSA (Öffentlichen Versicherungen Sachsen-Anhalt)	Germany	General insurance	~	~
Osborne Clarke	Global	Law firm	✓	~
Pacifica Assurances	France	General insurance		~
Panasonic	Japan	In-car electronics		~
PayGo Systems	Israel	TTP / TSP	v	✓
Perr&Knight	USA	Actuarial consulting firm	v	✓
PHS Datashred	UK	Business services		~
Pioneer	Japan	In-car electronics		~
Plymouth Rock	USA	General insurance	v	~
Polis Direct	Netherlands	Consumer insurance		~
Privacy International	UK	Non-governmental organisation		~
Progressive Insurance	USA	Consumer insurance	✓	~
PSA Banque	France	Financial institution	✓	~
PSA Peugeot Citroën	France	Automotive OEM	~	~
ΡΤ٧	Europe	Software developer	✓	
Punch Telematix	Belgium	TSP		~
QNX	Canada	Embedded software		~
Quality Planning	USA	Insurance services		~
Quanta	Brazil	TTP	✓	
RAC	UK	Automobile club	~	~
RACE	Spain	Automobile club		~
RBS Insurance	UK	General insurance		~
RCI	France	Leaser		~
Real Insurance	Australia	Consumer insurance		~
Reala Mutua	Italy	General insurance		~
RealVNC	UK	Embedded software		~
Redburn	UK	Brokerage firm	~	
Redtail Telematics	UK	TSP	✓	~
RelayRides	USA	Car sharing provider		~
Renault	France	Automotive OEM	✓	~
Renesas	USA	Semiconductors		~

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Company name	Country	Sector	Discussion	Mentioned
Risk Technology	UK	TSP	V	✓
Robert Bosch	Germany	Tier-1 supplier		v
Rosno (Allianz Group)	Russia	General insurance		v
Royal & Sun Alliance	UK	General insurance		v
Royal Exchange	Nigeria	General insurance	✓	
RS Fleet Installations	UK	Installation network	~	~
RSA	UK	General insurance	 	 ✓
RSA Intouch	Russia	General insurance		~
Safeco	USA	General insurance	 	~
SafeFleet	Europe	TSP	 	
SageQuest	USA	TSP		 ✓
Samsung	South Korea	Consumer electronics vendor		~
Sanford Bernstein	USA	Asset management	V	
SAP AG	Germany	Enterprise resource software	 ✓ 	~
Sara	Italy	General insurance		~
SAS Institute	USA	Enterprise resource software	 ✓ 	~
Scania	Sweden	Automotive OEM	 ✓ 	~
Scope Technologies	Singapore	TSP/TTP	 ✓ 	~
Seesam	Latvia	General insurance		~
Sensomatix	Israel	Data management	<i>v</i>	~
SFEREN	France	General insurance		~
Sheila's Wheels	UK	Insurance broker		~
Sierra Wireless	Canada	Connectivity module provider	V	~
Sinocastel	China	TTP	v	
SiRF (Qualcomm)	UK	Chipset vendor		~
Sistran	LATAM	TSP	V	~
SmartDrive	USA	TTP		~
Société Générale	France	Bank		~
Sogessur	France	General insurance		~
Solly Azar (Verspieren Group)	France	Insurance broker	✓	~
Sompo Japan	Japan	General insurance	✓	v
Sony Ericsson	Japan	Mobile phone vendor		~
Sprint Nextel	USA	Mobile operator	✓	v
SSP	USA	Data management	~	~
Standard & Poor's	France	Rating agency	~	~
State Farm Insurance	USA	General insurance	~	~
Stellar International	Ireland	n.a.		~
Stok Nederland	Netherlands	TSP	~	
Swiss Re	Switzerland	Reinsurance		~
T-Matic	Poland	TSP	 ✓ 	~

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Company name	Country	Sector	Discussion	Mentioned
T-Mobile	Germany	Mobile operator		v
Tag N Go	USA	TSP	V	~
Tapiola	Finland	General insurance	V	~
TCS	Switzerland	Automobile club		~
Tech Mahindra Limited	India	Software developer	~	
Telefonica digital	Spain	Mobile operator	✓	~
Telefonica UK	UK	Mobile operator	✓	 ✓
Telekom Austria (TAG M2M)	Austria	Mobile operator	~	~
Telenav	USA	Navigation / MRM provider		~
Telenor Connexion	UK	TSP	✓	
Teletrac	USA	TSP		v
Telit Wireless Solutions	Italy	Connectivity module provider	~	v
Telogis	USA	TSP	~	~
Teradata Aster	USA	Data management systems	~	
Test-Achats	Belgium	Consumer rights organisation		~
Теха	Italy	TTP	V	~
Thatcham	UK	Certification company		~
The AA	UK	Automobile club	V	~
The Carphone Warehouse	UK	Telecommunications retail		~
The Co-operative Insurance	UK	General insurance	v	~
The Floow	UK	TSP	v	~
The Hartford	USA	General insurance	v	~
Thélem Assurances	France	General insurance		~
Tiger Wheel & Tyre	South Africa	Tyre fitment centre		~
Tokio Marine Risk Consulting	Japan	Risk consulting firm		~
Toll Collect	Germany	Road charging provider		~
TomTom Telematics	Netherlands	Consumer electronics vendor	✓	~
Touring	Belgium	Automobile club	 	~
Towers Watson	USA	Actuarial consulting firm	 	
Toyota	Belgium	Automotive OEM	~	~
Toyota Insurance	Japan	Insurer	~	~
Tracker	South Africa	TSP	~	~
Trafficmaster	UK	TSP	~	~
Trak Global	UK	TSP	~	~
Trakm8	UK	TTP		~
Transics	Belgium	TSP	 	~
Transport Research Laboratory	UK	Research institution	~	
Traqueur	France	TSP	~	~
Travelers Insurance	USA	General insurance	~	~

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Company name	Country	Sector	Discussion	Mentioned
Trimble MRM	USA	TSP	v	v
TRL	UK	Automotive supplier		~
uBlox	Switzerland	Chipset vendor		~
UGF Group	Italy	General insurance		~
Unipol	Italy	General insurance	✓	 ✓
Uniqa	Austria	General insurance	 	~
Uralsib Insurance	Russia	General insurance	 	~
US Bank	USA	Bank		 ✓
US Department of Transport	USA	Government	 	~
Valeo	France	Tier-1 supplier		~
Vanguard plc	UK	Mobile phone retailer		v
Vazhno	Russia	General insurance		~
Vauxhall	UK	Automotive OEM		~
Vector Capital	USA	Private equity firm		~
VEDECOM	France	AV - Association		~
Vehcon	USA	TSP	 	
Verisk Insurance Solutions	USA	Software developer	~	~
Verizon Telematics (formerly Hughes Telematics)	USA	TSP	~	~
VHV	Germany	Insurance	✓	
Viasat	Italy	TSP	✓	 ✓
Vivium (P&V Group)	Belgium	General insurance	 	~
Vodafone Automotive	Europe	TSP	 	~
Volkswagen Financial Services	UK	Financial services		
Volkswagen Group	Germany	Automotive OEM		 ✓
Volvo Cars	Sweden	Automotive OEM	✓	 ✓
Volvo Trucks	Sweden	Automotive OEM		~
Wunelli	UK	TSP	 	~
Xirgo Technologies	USA	TTP	 	~
Zubie	USA	Connected services provider	 	~
Zurich	Europe	Consumer insurance	 	
Zurich Fleet Intelligence	UK	Commercial insurance	 	~

LIST OF COMPANIES PROFILED IN THIS REPORT

We have built **profiles of 69 major telematics providers in the world**. We would like to **thank these organisations** for their precious contribution.

	Technology providers (TTPs)	Service providers (TSPs)	Analytics providers	Connected car services provider
Global players	 CalAmp Danlaw Meta System Mobile Devices Novatel Wireless Orion Technology Queclink Vodafone Automotive (Cobra) 	 Baseline Telematics Cambridge Mobile Telematics DriveFactor (CCC) Driveway Himex IMS Modus Novatel Wireless (cTrack) Octo Telematics Scope Technologies The Floow Vodafone Automotive Wunelli (LexisNexis) 	 Accenture HERE IBM LexisNexis / Wunelli Octo Telematics The Floow 	
Europe	 Quartix Redtail Telematics Trak Global Trakm8 	 Amodo Arvento Detector Dolphin FMG Support Infrasure Masternaut Microlise MyDrive Solutions Movelo RAC Tantalum TomTom Telematics Trak Global Viasat 	• SAS • Towers Watson	• Automile • Drust
North America	Xirgo Technologies	 Agero Censio iMetrik Omnitracs Teletrac Verizon Telematics 	 Cambridge Mobile Telematics LexisNexis Towers Watson Verisk Analytics 	 Automatic Dash Mojio Zubie
Other continents	 AnyDATA (Sierra Wireless) ATrack Chainway Launch Tech 	Cesar Satellite Raxel Telematics		• Golo (Launch Tech) • Jooycar

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INTERVIEW WITH

GARY HALLGREN, PRESIDENT, CONNECTED CAR

ALLSTATE INSURANCE





Gary, could you please tell us what Allstate's Connected Car business now represents?

I joined Allstate in September to take this newly created role. Allstate *Drivewise* is the heart and soul of our Connected Car business. The *Drivewise* programme was started in 2010 and we will approach one million active users in the system by the end of 2015.

It is also growing. About a third of new Allstate auto customers enroll in the *Drivewise* programme. It is continuing to show progress.

Team wise, the Connected Car business was previously separated into different parts of the organisation and it was put together underneath one umbrella about a year ago. I was hired to run that team. When you think about its scope, five years ago, there were very few people involved. It has grown exponentially. We continue to invest in it and we will continue to accelerate.

Another metric is the number of miles analysed. It was very important when we were smaller. We passed through the **10 billion mile mark** some time ago. Now we don't pay too much attention to it as a specific metric of progress.

What was the logic behind Allstate's decision to create this Connected Car business?

Ultimately, when you think about UBI, you make the investment to connect to your customers. Then the question is: how do you evolve the relationship? **So Connected Car is definitely far bigger than just UBI**. A big part of that is now to add more services leveraging the infrastructure that we have created and other assets that we generate in the business.

One part of that is adding in Allstate **Rewards.** As long as we are connected to these customers, they should be rewarded by earning points for safe driving. We launched that programme about 6 months ago. Customers use those points to earn savings on name brand merchandise. That makes it a little bit different.

Allstate Rewards is available to any Allstate customers that are currently enrolled with us.

And then because safe driving is a tenant of who Allstate is as a company, we made it available to anybody even if they are not an Allstate customer.

It is an area where we are leveraging a lot of the same technologies but providing value to the broader consumer, even without *Drivewise*.



Should we understand that these points are attributed to customers who have no claims?

It's open to everyone. In fact, if you are a non-Allstate customer today, you can download the *Drivewise* mobile app and it will still collect data on your trips. If you drive safely, you will earn points and you will be able to register for savings on merchandise.

And if you are an Allstate customer or want to be one, the same is applicable for you but you would also sign up for the *Drivewise* programme and you qualify for savings on your auto insurance as well as receive the **Allstate Rewards.**

This seems to underline that you are able to propose those discounts largely based on the fact that you obtained favourable conditions from your partners. You bring them a large number of customers and they give you nice conditions.

Yes, I think that's a good way to think about it. We leverage the Allstate brand and the relationship that we have with our customers and part of that is the *Drivewise* UBI programme. But there are other services that we are offering. *Rewards* is only one example.

We also are thinking of introducing more consumer services. And those could be services that we might conceive of and develop to promote safety or enhance the driving experience. We will continue to roll out programmes like that, using applications that we develop.

We are also building a platform that third parties can create applications and build upon in order to offer other consumer services as well. So the bottom line when we think about Connected Car is that we are improving the experience for our customers and otherwise enhancing the relationship that customers have with the Allstate brand and our agents as well.

A platform opened to third parties. That sounds familiar when we know that you are coming from Telogis.

There is a little bit of that but actually it was announced in early 2015 by our EVP of Allstate Technology and Strategic Ventures, Suren Gupta, well before I came on board.

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That sounds very exciting, much more ambitious than what we've seen so far. It could mean that Allstate is taking the lead in the innovation race.

If we try and think about the big picture, why is the Connected Car important for Allstate?

If you listen to Tom Wilson, our CEO, when he talks about where the business is going, he emphasises the Connected Car, the relationship it creates with our customers and how it will evolve going forward. We have definitely been investing in understanding where our business will go in the future.

<complex-block>

It had been in the works for a while but yes, I relate to it thanks to my telematics background, as well. You and I have been sitting at the same conferences for a lot of years.

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How many insurers just sat back and said: "We're going to stay on the sidelines. We're going to run a small trial."

By contrast, the way that Allstate looked at it was: "We're not going to wait. We're going to jump right in and we're going to be very innovative with it."

We did not simply follow the pack. We looked at the industry using the plug-in dongles and just gathering information but then went one step further and saw that the smartphone was going to play a huge role.

Half the people in the country have them today and that's only growing. So we invested a lot in innovation to build our mobile app and were the first major insurer in the U.S. to announce it. Bringing it to the market was a big innovation for us as well.

And then, continuing down that path, you're going to want to be connected at home as well as on the road. We are going to continue to invest in building those relationships.

The overall market is moving towards UBI and other services in other shapes or forms. The industry is changing.

You introduced this app about a year and a half ago. What is your conclusion about its benefit to your customers?

We were the first to launch an app for UBI data collection. It makes it applicable to more customers more easily. With the dongle solutions, there is a fair amount of friction when you have to order it and ship it, get it installed and tied together.

I think those programmes have worked... But if the only thing to

do is to download the app from the App Store and you can start to save, there appears to be much less friction. From the customer's standpoint, there is a great deal of benefit to having easy access to these programmes. From there, we just layer other services on top.

In addition, if we think about all Drivewise programme customers, the average customer will get an average discount of approximately 10% when they share their driving data. So there is certainly value for the customer.

And if you can deliver that value to them not only with a savings but also with other services that add value to them, and deliver that in a way that has no friction, that's going to be good news for the customer.

Can you please tell us how you have developed this app? Did you call on external resources?

It was internally developed and it is owned and run by the team. So it is not white labelled or created by a third party Telematics Service Provider.

It's a team we've grown. Our company has key assets: our data scientists and our ability to handle the data analytics. There is a great wealth of information that we have. We just keep iterating and get better.

Can you already give us some indication on how *Rewards* was received by the market?

About 25% of our *Drivewise* customers have engaged with the *Rewards* programme.

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And that's just a means to the end. We have a nice pipeline of

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things that will follow.

We also announced our **Apple Watch application** a couple of months ago. It was the result of 2-3 months of development.

We are showing our leadership in innovating rapidly.

What do you expect to be able to do with the Apple Watch tiein?

We would still be pulling data largely from the smartphone. *Drivewise Mobile* has really been developed to use the cell phone sensors.

The watch is there more to alert, report and communicate to the customer, give them a better experience. They can get this information when they are walking on the street or otherwise interacting with their watch.



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Consulting Group

Would you say that Drivewise has also brought improvements in safety?

The goal of Drivewise is to encourage people to drive more safely and it is definitely doing that. The average customers are earning savings, which gives you an indication that they are more self-aware of safety, on a consistent basis. We invite anyone to participate, though, not just the ultra-safe drivers and we do not surcharge for poor driving. The worst you can do is earn zero savings. Our goal is to educate about safe driving habits and then reward and encourage it through our various savings opportunities.

Do you see telematics improving people's driving behaviour in a lasting manner? Or is it about selecting the best drivers?

Allstate is different from others in the industry. We keep the device in the vehicle or you use the mobile app in perpetuity. You don't use it only for a few days or a few trips or even 3 months.

We're able to continue to collect driving data and perform our analysis and provide savings for the way the customer continues to drive.

From that standpoint, we do it more as an ongoing relationship and less of a one-time test.

So have you been able to observe actual improvements in the way people drive?

Telematics has proven that if people are driving less aggressively, at a lower speed and not in the middle of the night, then they are safer. These are broad truths in the industry.

If we now think of the benefits of the app for Allstate, particularly compared with a dongle solution?

It is the engagement of the customer. In the dongle solution, there is a device in your car and the data is coming back into the back office and you engage with them differently.

With the app, you are always up, front and centre with them.

When you go one step further and add in Allstate Rewards, every day you want to look at the app to know how many points you received today for your safe driving.

And then in the future, as we layer on third party apps or other apps that we develop, there will be even more reasons to come there every day to engage with Allstate.

So if you think of the tenant behind Allstate, it is being a trusted advisor to our customers. Drivewise is just an extension of that trusted advisor relationship: we're helping you to be safer; we're easing some of the pains in your life and we add incremental value.

We are making an ongoing push to have Drivewise Mobile launched in more and more states. It will be in more than half the country in the first half 2016.

Overall we are very pleased with the level of engagement we achieve from it. Of course we will continue to iterate on that going forward.

Have you found that the data from the app was as predictive as data from OBD dongles?

We're comfortable with the level of accuracy that we're getting. We continue to learn, iterate and make improvements as we keep rolling out these programmes.

It seems that you have chosen to integrate the full telematics and scoring solution yourself. Is that correct?

We have. One of the core competencies of our innovation team in-house is the ability to ingest data and to perform the analytics of it. We have become very good at developing telematics solutions as well.

Where I think the third parties are more likely to come in could be leveraging our platform to produce apps that could build extra value for our customers in areas that we wouldn't necessarily want to or be good at developing applications for.

One such app that we have rolled out recently is Allstate Roadside. We are using an API of our connected services platform so that you can now initiate roadside assistance help inside the Drivewise app.



I expect opportunities like that for third parties as well. We're engaging in such a dialogue with third parties as we speak.

Do you think that you have the scale to compete on analytics with specialist scoring companies such as Verisk?

There are not many companies out there that have a million connected vehicles in the market place. I feel very good about our ability to compete and create innovative services for our customers.

That being said, if there is a better solution that can provide a better service to our customers, we are always open to it.

Today Allstate customers can download two apps: Allstate Mobile and Allstate Drivewise. Do you expect a convergence between these apps?

We certainly have intense internal discussions on how we engage with our customers digitally across the business, which goes even beyond *Drivewise* and *Mobile*.

How do you see State Farm's Ohio experiment with a Bluetooth Low Energy beacon?

There are multiple approaches and choices that every company makes on their business.

That said, we have a team on the R&D side that looks at all sorts of different ways to build not only connected car but UBI programmes in the future. I don't think we've seen any form of an end state yet. It seems that as soon as we think we have reached an end state, a new technology comes up that could change the rules.

One of the issues with the mobile app is that you are not able to identify whether the driver is in his vehicle...

Drivewise Mobile gives the user the ability to remove trips. You can take a trip and say: "That was not my trip" and pull that out. And as we iterate on the application, we will continue to get better at ruling out trips like that.

But ultimately we are tying this to the policyholder as well. So an individual user on the app is a different thing than connecting the vehicle. We have a variety of strategies to deal with that.

We are comfortable with the quality of the data that comes in and our ability to run our UBI programme effectively using this data.

Do you expect to use phone data to assist in the claims management?

I think it would be more challenging to detect a crash than with a fixed device but there are more and more sensors showing up on phones nowadays, allowing us to do some really innovative things.

I must say I have been extremely pleased and excited with the level of data scientists inside the organisation and the analyses they come up with. I think you will be surprised at the innovations that come out of this organisation.

Do you think you will phase out the OBD dongle solution?

What I can say is that I want to be flexible as we go to market in a variety of ways.

We know that the *Drivewise Mobile* programme is very successful and we're rolling it out more broadly.

Depending on what our customers want as services go, we may use the whole variety of devices we are using today or devices we haven't even thought of today.



So what is the benefit for Allstate to maintain a dongle solution?

In the first half of next year, we will be rolling out in more than half the country with the mobile solution. As we look at products and services that may use different sensors, it could be a dongle or something else.

Would you expect to use professionally installed black boxes at some point?

I haven't seen anybody adopt these aftermarket devices at any level of scale anywhere in the US. Even in the fleet market, where it used to be dominant, most fleets have gone for the plug-in form as well.

So I think the more likely change in the future will be that every car shipped is going to have an OEM-

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mounted black box that collects data.

A number of your competitors have forged partnerships with OnStar. Do you also expect to announce one?

We are open to having a dialogue with them. We certainly know them. But at this point, we are not engaged necessarily and not ready to make any announcement.

However, it is important to note that Allstate Roadside Services is actually a white label provider for a very large number of OEMs in the US. So we have great OEM relationships today.

Do you think the hub / clearing house model created by GM and operated by Verisk is the right way of connecting insurers with car makers?

From the services we provide today, we are already talking to OEMs.

It is probably too early to tell what will be the dominant model. We

Interview performed on 12th November 2015 by Frederic Bruneteau

just know that with our brand and our scale, we will have a seat at the table.

Most car makers have announced the launch of autonomous vehicles (AVs) by 2020. The liability related to the driving could become much smaller. What is the likely impact on Allstate?

Our CEO has been very visible in addressing this topic. A lot of companies are taking a 'wait & see' attitude. Our standpoint is that we're moving forward into it instead of waiting. We're looking at the ways we would play in whatever comes to pass.

One thing is that we would expect these new services to be safer. Some of the results are showing that today and Allstate from an historical standpoint has always been front and centre as a proponent of safer things e.g. seat belts, airbags, etc.

As the new driver assistance technologies come to pass, we are going to support those. We're in a great spot, thanks to our ability to differentiate through our offerings, the way we go to market, our strong brand, innovation. I do expect that future differentiated UBI offerings will factor in the new technologies that are embedded in each vehicle.

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Further on, do you expect that people will eventually buy mobility services instead of cars, at least in cities?

The autonomous cars are coming in some shape or form. You could also agree about the car sharing trend.

The opportunity for us is to come up with new and innovative ways to meet this demand.

We're not putting our heads in the sand and assuming that those things are not happening. Instead we're embracing new opportunities as things that are going to happen and we are going to be a leader in them.

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INTERVIEW WITH FABIO SBIANCHI, CEO, OCTO TELEMATICS





Dear Fabio, could please give us a brief overview of where Octo Telematics stands today?

When we speak about Octo, we are speaking about **a driving analytics company**. This is our mission. We want to leverage our large database that we have collected during the course of our history to help insurance companies in the areas of risk assessment, scoring and pricing.

This is on top of the current services we provide, such as driver assistance, stolen vehicle recovery (SVR) and fleet management. We want to help leverage the full potential of telematics.

It is not a matter of technology. **Technology is not the main issue**. In the telematics space, there is more technology than we need. But we must help our environment to use and transform the data we collect. In particular, we would like to help insurers change their internal processes. In our view, telematics has only 2 constraints: one is numbers and the second is process.

Insurance companies do not see any advantage if they are only managing tens or hundreds or one thousands customers. **Telematics needs a high portfolio penetration.** Telematics needs millions of customers in order to change the internal processes such as FNOL and claims and to leverage the data which is collected from the car. we are a driving analytics company. This is what we want Octo to be.

How big is Octo today? How many customers do you have and how many vehicles are insured through your systems? How much data have you collected?

Octo has 4 million active customers and 380 billion km of driving data. This equates to 20 million km of driving data collected every hour.

In our company, we count only the active and already installed customers.



These are the key points: numbers and processes. Not technology or invention. We must use what we have. The telematics environment already has more possibilities than it needs. The importance thing is to start reforming the internal processes of insurance companies. For this reason, we stress the concept that When we say 4 million, we mean already installed and active customers, not in the pipeline or historical.

Our average annual fee is around €50 and this year we will have more than €220 million in revenue. It is very simple to

calculate the number of customers we have.

The important issue is to help transform the internal processes. A good example is to change the claims management towards a push modality.

This allows the insurer to call the customer and not wait for the declaration from the customer. In real time, you can firstly call the customer and provide the road assistance first and secondly you can provide FNOL and details of the incident and claims details to the customer. In 3 days, you could complete the claims procedure and settle the claim for the customer.

This is the key transformation, the revolution in the insurance industry through telematics. Some have suggested that the big savings are in driving behaviour but we see big savings in claims as well.

You say that the value lies in the value of the data and bringing data to the insurance company so that they can change their processes. Would you say that you have an influence on those processes? Are you affected by the fact that insurance companies do not move very fast?

Yes, we can help insurance companies develop their internal activities. We can outsource some of these activities to demonstrate the benefits of telematics. We want to offer claims management in telematics to the insurance company, to demonstrate what they can do with a change in internal processes. We are developing an internal department, which we call the **Insurance Lab**. This will demonstrate the possibilities to be gained from leveraging the full potential of telematics, both in scoring and in claims.

We have not seen that many insurers do things concretely in the claims domain. What are your views?

I think that is fair, up until the last 12 months or so. In a way, insurers have only been able to make the case for the higher premium categories and segments.



In our strategy, there is **low-priced telematics**. In the next year, our **prices will begin at €6 per year for leave-in devices**. We want to help telematics adoption across larger markets. This is the price for telematics, not €50 or €60 or €70. Telematics must be low priced to appeal to the mass markets. Telematics needs bigger numbers. 20% of each portfolio should be telematics. There is no need to measure a lot of additional details, we need to use what we already have. We want more than 20 million customers by 2020.

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The number of UBI policies has more than quadrupled in 3 years. Do you think we have reached the tipping point for telematics insurance?

We researched this about 12 months ago and looked at what we could do as a TSP to increase the adoption and penetration among insurance companies.

The insurers told us 2 things: one was the **challenge of integrating the legacy systems**, although there is a strong desire to develop and improve those systems. The second point was about the **cost of the technology**.

We took that away and focused really hard on R&D and innovation and that has allowed us to bring these costs down for entry level devices to €6 per annum for "leave in" devices. This is what creates an increase in the addressable market and this is what creates the ability to build propositions around telematics that are not just focused on price and discount.

Cost is certainly a big road block. On the other hand, is that market not also slow because the insurers themselves are waiting for someone to start something?

Yes. An insurance company's primary activity is pricing risk. They look at risk in everything that they do.

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What is interesting is that every RFP that we see now is in part looking for a TSP, but is also looking for a partner to help them innovate and to help them think in a more innovative way in terms of value proposition, products and services and processes within their organisation.

That is a lot of what we do. We are not just bringing the next idea in terms of technology but helping them innovate in terms of value proposition and to develop their systems and processes for the digital age.

Do you think the market has changed in that respect?

Yes. Insurers are financially based people. If you can make a business case across a lower premium segment, enabled by cheaper technology prices, then that is a fantastic opportunity. That is a transformation.

We think that insurance companies can specialise in pricing and in analytics at a high level. The responsibility of a telematics service provider is to collect the data, process the data at a low price and transfer this smart data to the insurance company that can include the high level pricing analytics.

The other activity is in the hands of the telematics provider. There is no sense for the insurance company to manage all the data. They must specialise, like Generali, in the analytics at the high level, which affects their core business, which is pricing.

You are saying that you are coming with low-cost solutions. Can you reveal what that means? Are these smartphone-

based solutions or are they based on a device? How will you get to this low price point?

In both directions. We have substantially invested in order to develop smart solutions with smart devices. We have also invested millions of euros in the development of our proprietary chipset, which is our intellectual property. We will use the chipset in every kind of device. This was the breakthrough.



We have moved away from buying the device from a supplier to the **development of an internal solution owned by Octo**. Now we are ready to go to the market in the first months of 2016 with a low priced solution, to help the telematics adoption. This is the best solution. This is an investment for the future.

There is no point in innovation and invention if there are no sales. We are the global leader and we have the responsibility to demonstrate that telematics is the revolution for the insurance industry.

What we often see in the telematics industry is good ideas looking for markets. The Octo approach is always to look through the lens of the problem we are trying to solve and provide answers to those business questions.

That is why we have innovated

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around what we term the kernel module, which enables us to offer a complete portfolio of devices for different use cases and service provisions across the segment.

Some European markets notably Germany and France have not taken off as expected.

More generally, how can insurers in low premium countries find a business case for UBI?

We have delivered a low-price solution for both of these markets. Not only for these market,s but for the low premium segment, which is a big market in every country.

We think that in the second half of 2016 and into 2017 we will finally see that Germany and France will start, based on the low price solution. If an insurance company can pay €12 per year, they can adopt telematics also in these markets. Insurance companies love telematics in Germany and France but they do not have the economics to pay a high price for the services.

We think that our solution can help these 2 important markets. Both are very important markets in our strategy because we want to conquer these markets. We are a leader in Italy and the USA. We want to become the number 1 in the UK, but we want to start in Germany and France with our solution. We are sure that with a low price they can deliver big numbers.

It is a matter of economics, nothing else. It is not a technology issue.

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You recently announced a partnership with SAS. Do you expect to transform Octo into an analytics provider? What does the partnership bring to you and your insurance customers?

We want to leverage our partnership with SAS to help insurers use telematics data. We think that there is a big space within medium and small insurance companies which can use these new platforms.

We have a new platform in development with SAS, which is a combination between the standard SAS platform and the dynamic data expertise from Octo.

Insurance companies today use static data. With telematics they can use the dynamic data. What we have under development is a combination of the static and dynamic data. At the end of this process, we will **deliver a platform that we can sell as a SaaS across the world, sharing revenue with SAS**.

For us, it is not important to collect the revenue. The primary purpose of this activity is to demonstrate the benefit of telematics. This is our mission in the next year: to demonstrate the benefit of telematics. Not to develop other technologies, not to invent other sophistications, rather to use what there is in the market to change the processes.

The partnership with SAS is the other way to to process crashes and claims, which we will leverage to show to the market the real percentages we can save on combined ratio. We want to show that we can use telematics to decrease by 7, 10 or 15 points the combined ratio.

Smartphones are increasingly used by insurance companies and understanding the data from smartphones is going to prove more and more important in the future. How far have you progressed in that direction?

We already use smartphones extensively, but don't do a lot of announcements on that.

We already have what we call the 'app as device' running very well. Now we are involved in signing contracts with some insurance companies.

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Delphine	Delphine Lane - Calabasas, CA Colorado Avenue - Santa Monica, CA					
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	Snow Heights Circle NE - Albuquerque, NM					
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Snow H	Driven Miles 80	3h 0m				
Snow H Events 40 Be th	Driven Miles 80	3h 0m				

We think that it is possible to use the data that we collect with the smartphone. The key point in our view is assessing the data of the smartphone along with the other data that we collect from the professional box. It is mandatory to check and enrich the data from the smartphone with the other data that we collect through the other devices.

We developed a specific algorithm to do it. We love the smartphone device, we love it and we have it in our range of services.

The output is different from the black box but we can use this imperfect language because we have the capability to reconstruct the high quality services from the data generated by other boxes.

How will you calibrate the data from smartphones with data from other telematics devices?

We can calibrate and integrate. We have other customers in the same way, using the same mechanism to transfer the data to us from the professional device. We have a sophisticated algorithm, which acts as a fusion platform to mix the different data from smartphones and different devices. We integrate what we don't have or what we have lost in order to guarantee the quality.

What we want to get across is that this is the moment to use telematics. The best telematics company will be the one that can help the insurance company to use what they already have. To present a proof of concept, to change the processes, to decrease the costs and to increase the customer penetration, the customer portfolio of telematics.

With a telematics penetration rate of 20-25% across their insurance portfolio, they can do a check on the remaining percent of the traditional portfolio. The first 10,000, 50,000 or 100,000 are

For us, it is important that there are millions of customers. We equip more than 220,000 vehicles per month.

One of our key findings from our market forecasts is the increasing size of the American market as a proportion of the global telematics market.

In the US, most insurance companies use dongles, primarily for pricing and underwriting, not at all for claims and crash management. How do you see that evolving?

At the moment, may I say it, true telematics does not fully exist in the US. Everyone applies a scoring assessment. Telematics means that the device remains in the car. The current telematics proposition in the USA is a small part of telematics.

Our strategy includes a change in the value proposition and the offering of Octo Telematics. In the second half of 2016, we will be offering full telematics with crash and claims.

We think there is a bit opportunity to leverages the full position of telematics. We think that it will be important to use crash and claims in the USA. The price must decrease, because at the moment the price of the OBD or the capability to assess the risk in a short time involves a high cost. We think that we can extend the life of the policy and reduce the cost to between \$24 - 26 per year. This is our target.

Do you think that US insurers will adopt this full claims approach in the end?

If you present to them low prices and full service, they will accept it. The problem for them is the cost, but if you show to them \$24 per year, they can make their business case.

It is a better way to manage their customers through the lifecycle; the FNOL, the claims and the ongoing customer engagement strategy, which is fundamentally important to the US market proposition. We are really excited about that.



Another interesting move in the market this year is the increasing adoption of insurance telematics by OEMs. What is your position in this market?

My personal position is one of pragmatism. The whole world is speaking about the connected car and there are zero revenues.

A telematics hub is an opportunity for carmakers. OnStar understand this concept very well which is why they signed with Octo.

If I am a carmaker, the connected car is the data centre. With Octo Telematics, they can become compliant today with the insurance company.

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The mission and the responsibility of the telematics service provider is to become a telematics hub.

This is our position. In the next month we will announce new agreements with other OEMs.

This is the only way. We will provide the services from them to the insurance company and provide the connection between the car maker and insurance companies in every geographic area. This is the mission of the service provider. We are very pragmatic.

At the moment, Octo Telematics serves a large range of connections with the insurance companies. This solution is a winwin between the carmaker, the service provider and the insurance company.

The carmakers can offer the possibility to sign with any insurance company on the market and this is good for the offer and for competition. The insurance company has the possibility to use all of the built-in technology from the car without any problems. A telematics hub in the middle of the insurance company and the car manufacturer is a winwin solution.

For telematics to reach maturity, there must be large numbers, a change in processes and low cost services.

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SECTION I

PTOLEMUS Consulting Group

Interview performed on 4th December 2015 by Frederic Bruneteau

INTERVIEW WITH

VALTER TREVISANI

GROUP HEAD OF INSURANCE & REINSURANCE

GENERALI GROUP



Dear Mr. Trevisani, could you please tell us what does telematics mean for Generali?

The new strategy of Generali Group sets out a deep business model transformation with the aim of becoming the retail insurance leader in Europe. **To be a retail organisation today means also to be strong on technology and to make an extensive use of it** to respond efficiently to the new customers' needs and market challenges.

We aim to combine telematics technologies with insurance products, resulting in a virtuous incentive mechanism. The automotive sector is typically fitting to this, where the installation of tools like a black box can encourage more responsible driving among customers, helping to reduce the number of accidents and deaths on the road. Telematics solutions can also reduce the cost of insurance for clients who adopt safe driving practices, even if they belong to traditionally high risk segments.

The resulting social impact of more responsible driving practices includes an increase of road safety and the reduction in fuel consumption and gas emissions. Thanks to the vehicle tracking feature, the likelihood of recovering stolen vehicles is also improved.

Moreover, it enables us to intervene quickly at the site of an accident, providing an additional high value added service to the client.



Finally, the ability to precisely reconstruct the accident also



allows us to make a better assessment of damages and effectively combat fraud. In the insurance sector, it is essential to gather and select client information in order to offer competitive products that are tailored to their needs.

We started focusing on telematics in 2010 in Italy, the most developed market after the US. In particular, we have pioneered solutions in the Italian and Spanish markets, where we launched *Quality Driver* in 2011 and *Pago Como Conduzco* in 2013, respectively.

In all countries where we operate, we guarantee the security and protection of personal data collected under the local regulatory framework, and we process them fairly and with due respect.

We believe that proper and totally transparent data management can be a competitive advantage that may encourage customers to choose Generali rather than our competitors and protect our reputation and image.

What were the main challenges you faced along the way?

Since we started this telematics journey within the Generali Group, a lot of technology and

regulatory changes happened and I'm sure that they will still drive the evolution of the insurance market.

Today, new technologies start to evolve and sizeable amounts of new cars sold are already connected (e.g. 25% of new cars for some car makers) and more than 50% of population has a smartphone but, from the insurance perspective, most of the companies are still focused on traditional motor insurance (TPL and Casco / comprehensive), new production concentrated on traditional products and there's still a low penetration of behavioural or pay-per-use products.

There is a widespread development already going on, but the pace still varies by region; in this respect, it's worth mentioning that right now only in Italy there are almost 4 million telematics policies and within our portfolio the penetration is around 20%.

Looking at the future, the new challenge and opportunity will be the connected car and – once again – the next technological evolution. This will enable a shift from a business model based on aftermarket devices to one based on embedded connectivity, enabling an acceleration of the massification of telematics in motor insurance.



At the same time, our mid-term expectation is that more than half of cars will be connected and telematics devices will increasingly become a commodity in the market (high level of standardisation) and a huge part of the population will own a smart phone.

This will drive a fundamental shift in the insurance offering that will see an increasing penetration of telematics-enabled products.

Where does the Generali Group stand today in the domain of telematics?

At this moment we have approximately 800.000 vehicles connected, mainly in Italy, giving information that enables us to provide suggestions about driving behaviour, customised product offerings and pricing.

As already mentioned, apart from the Italian case, we already have a telematics solution in **Spain.** `

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This year Generali Slovakia launched an entirely new and innovative telematics product -SOS Partner - which is the first of its kind not only in Slovakia, but also in Central and Eastern Europe



SOS Partner is a complementary coverage to Casco coverage, giving full protection and advanced assistance to the driver and his family.

To give you a concrete example, the **customer proposition is focused on safety/peace of mind**: the device automatically detects an accident and sends an immediate notification and GPS coordinates of the crash to our assistance service company Europ Assistance; in addition, the device has an SOS button, allowing the customer to proactively seek assistance, enabling direct communication between Europ Assistance operators and the customer in his car.

Looking at the future, **connected insurance is pivotal in our new strategy**. We believe we can build a sustainable competitive advantage in this space focusing on pricing sophistication and value added services.

The expansion of our footprint in car telematics is our first priority, but we are already working to broaden our product range

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starting from motor to other lines of business like home and health telematics, where IoT can support the development of a completely new set of customer value propositions.

Generali recently acquired MyDrive Solutions, a British analytics and telematics firm. What was the rationale for such an acquisition? What are the expected benefits?

The acquisition of MyDrive is an important step in implementing our new Group strategy focused on customer centricity and the wide use of new technologies and data analytics tools.

MyDrive is a centre of excellence in behavioural profiling: we are developing many projects in the field of telematics and, thanks to the new skills we acquired, we aim to become the best insurance choice for connectivity and innovation.

Does this mean that you will insource the telematics & scoring capability going forward?

The acquisition of MyDrive enables the Group to **obtain a centre of excellence in data analysis**, whose competencies will be further enriched and around which a hub specialised in telematics solutions and knowhow will be launched to serve all segments and business units.

So the transaction enables Generali to enhance its operating platform and develop innovative, smart products. These products will be increasingly tailored to the customers' specific needs, benefiting from connectivity and exploiting all the potential of data analytics. MyDrive uses the customer data collected from a series of devices, such as black boxes or smartphones, to formulate predictive algorithms and define behavioural scores, enabling our customers to receive customised commercial offers.

The new, London-based telematics hub, now specialised in motor, will expand data analysis activities to a vast series of sectors, from fraud prevention to sophisticated customer segmentation, thereby facilitating the creation of inter-company synergies and the optimisation of the product offering.

Overall, have you been able to significantly influence your claims ratio thanks to telematics?

In some countries, telematics policies already contributed not only to the improvement of the loss ratio but also to customer retention.

In Italy, for example, if we compare our loss ratio between our new business portfolio with and without telematics, then the benefit is in the range of 5 ppt; on the other hand, if we look at retention the benefit can be around 3 ppt.

Have you already created a direct connection between your telematics system and your claims management system, so that you are immediately aware of any accident, you can assist the driver in real time and manage the crash from Day 1?

Yes, this is our standard practice. Thanks to telematics we are able to provide enhanced customer experience through real time assistance and excellent service levels; at the same time, we can improve technical results through a vertical integration of the claims management process.

In particular, an immediate detection of a crash allows us to start a pro-active management of the claims process from the very b e g i n n i n g. The crash reconstruction provides us with a better understanding of the crash dynamics. This leads to less disputes, a more objective assessment of the damage and better control on fraud.



You recently partnered with Discovery Insurance to introduce a reward system for your life insurance customers. Would you expect to change the 'carrot' in auto insurance too (i.e. from discounts to rewards)?

Vitality is a unique behaviourbased shared value insurance model that encourages and rewards customers to improve health and well-being.

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Similar concepts could be applied also in motor, but a concrete application in car insurance has to take into consideration the specifics of each individual market and the fact that motor insurance is fundamentally pricedriven

So I believe that a reward system can be implemented as a differentiating factor in the offering, in addition to a sound behavioural pricing allowing good drivers to get a benefit on the premium of their insurance policy.

What will be your preferred model to connect the automotive embedded device to the insurance industry? Direct one-to-one connections, exclusive partnerships, data hubs?

All main car manufacturers are already adopting more and more integrated and sophisticated onboard multi-media systems.

This offers an increasing level of interaction between drivers and cars. It also gives the possibility of collecting data directly from the car and enables us to provide additional value added services to the final client/driver.

In this respect, we want to partner with car makers by offering a value proposition based on 2 pillars: focus on telematics, providing a set of distinctive and innovative TPL and Kasko products leveraging technology in order to deliver additional services to drivers/client; focus on prevention and safety, promoting the adoption of safety features in new cars and supporting OEMs in

car development in order to prevent accidents and improve drivers' safety.

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The industry is expected to be disrupted by Autonomous Vehicles, where car makers are likely to cover the largest part of liabilities. What is Generali's paradigm for auto insurance 2.0?

This is an important topic and another challenge to face, even if the driverless car shouldn't become mainstream in the short run

On the other hand, one trend that we believe will impact car insurance in the short term is the shift from a model based on car ownership to pure use (car sharing, long term car rental, etc.).

Interview performed on 7th December 2015 by Frederic Bruneteau



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FUNDAMENTALS OF THE UBI MARKET

I. FUNDAMENTALS OF THE UBI MARKET

A. Introduction to insurance telematics

1. What is insurance telematics?

Did you ever wonder why your motor insurer asks for your age, gender, address and claims history when calculating your premium?

Wouldn't it be more appropriate to see how, when, where and how much you are driving instead?

That is exactly what the proponents of telematics-based insurance are advocating. Telematics is the integrated use of telecommunications and information technology for vehicles. It is mostly widely used for providing services such as real-time navigation, roadside assistance, vehicle tracking and, more recently, motor insurance.





Source: PTOLEMUS Consulting Group

Thus insurance telematics is the use of telematics by motor insurers with an objective to adjust the premium to the actual risk.

In this report, we will study telematics-enabled Usage-Based Insurance (UBI) programmes such as Pay-As-You-Drive (PAYD) and Pay-How-You-Drive (PHYD), sometimes also referred to as MHYD (Manage-How-You-Drive). We will also

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evaluate ancillary value added services that are often provided by insurers such as stolen vehicle recovery and remote vehicle diagnostics, among others.

It is important to note that while the car's geolocation adds precious data for the premium to be calculated, insurers do not need to record it and even less to store it for a telematics insurance plan. For example, numerous PHYD policies are based on driving behaviours, primarily driven by acceleration, braking and cornering patterns.

2. UBI or insurance telematics?

Although the concepts of UBI and insurance telematics are often used one for the other, they actually are different.

In fact, UBI is a notion that includes all policies that make the premium dependent on the level of usage by the driver. As we will see in this paragraph, not all these policies require a telematics unit in the car. On the other hand, insurance telematics only includes policies with a connected device enabling the data transmission from the car to the insurer.



Fig 1.3: Let us share the same definitions

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In the graph above, the telematics (X) axis highlights how much and how often the device transmits data from the vehicle. The behaviour (Y) axis shows how much data is being sent about the driver and/or the car. In the case of crash detection, for example, up to 400 points of information are sent per second before during and after the crash detailing the behaviour of the vehicle.

Insurers' experimentation of UBI goes back more than 15 years ago. The first UBI tests were performed in the US in 1997 with Progressive and GMAC offering PAYD discounts using GPS and the cellular networks. Progressive's first patent was approved in 1995 and it conducted its first public test in 1999 using GPS and the cellular networks.

UBI really first sprung up in the US in August **2004** with the introduction of **Progressive Insurance's** *TripSense* product. Launched in Minnesota, it enabled participants to save up to 25% on their renewal premiums depending on how much and when they drove. The data were collected by a telematics device connected on the vehicle's On-Board Diagnostic (OBD) port.



Source: Progressive Insurance

It was a revolutionary concept in its own right and opened many new opportunities for insurers.

It became the first ever motor insurance offering to use a consumer's actual behaviour data to price his/her risk rather than the risk pooling system that has been the mainstay of motor insurers for decades.

Progressive met with equal praise and skepticism. Numerous press articles highlighted the risks of a "Big Brother approach". While some appreciated its potential to price insurance premiums more fairly, reduce driving and promote safer driving habits, others were concerned by the cost of the technology, the

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Fig 1.4: Progressive's *TripSense* plan and the TripSensor data logger

potential invasion of consumer privacy and the difficulties in creating a sustainable business model.

Today, UBI offerings are based on a various range of pricing models:

- Self-reporting based insurance: the premium is calculated based on the driver's reported milage,
- **Pay-As-You-Drive** (PAYD) also called Pay-As-You-Go (PAYG): a device in the vehicle sends mileage data to the insurance company. The premium is entirely or partly mileage-based (Sometimes combined with time and location data),
- **Pay-How-You-Drive** (PHYD): a device in the vehicle sends driving style data to the insurance company. The premium evolves with the driver's risk rating.

From the start, these programmes primarily aimed at positively selecting drivers, attracting new customers and retaining them longer. Since the insurance regulations varied greatly between states and privacy issues was a concern, the PAYD model initially took off in a wider number of US states because it did not require vehicle location data.

Yet we can classify UBI policies in two main categories with remarkably distinct characteristics and business models: **self-reporting** based policies and **telematics-based** policies.

a. Self-reporting based policies

These policies calculate the premium's amount primarily on the total distance driven as reported by customers through the odometer of the car. Customers are required to communicate the odometer reading at specific intervals (e.g. at the annual renewal of the policy) and sometimes the insurer performs random checks on customers to ensure that the reported reading is accurate.

For insurers, these policies are easy to implement and to integrate with existing operations. As a result, insurers have introduced these in a number of countries.

For example, as early as in 2004, **Polis Direct** introduced in the Netherlands a 'kilometre policy' whereby the customer's premium could increase or decrease by up to 50% based on his actual mileage against his forecast mileage.

In the US, **MileMeter**, a Texas-based start-up, introduced in 2008 a pay-per-mile policy that claimed to save customers up to 75% on their motor insurance premium. They required customers to provide a digital photograph of their odometer at the time of renewal of the policy, which happens every 6 months. Customers had to prepay for 6,000 miles at a time or 6 months at a time. The rate

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per mile was calculated by the company based on the age, location, car model and past history of the driver. The company folded in 2012.





Source: Real Insurance

In September 2008, a similar service was also launched by **Real Insurance** in Australia, called *Pay as you drive*. Real Insurance is part of the **Hollard** Insurance Group - a leading South African insurer, which now counts 7.2 million policies in Africa, Europe, India, China, the United States and Australia.

It relied on customers to faithfully report their odometer readings at the time of purchase, renewal or filing a claim. They included a fixed base amount in their quote with a variable rate per mile.

Similar schemes were introduced by many insurance companies such as **Corona Direct** in Belgium, **MAAF** in France, **Mapfre** in Spain and **State Farm** in the US.

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Fig 1.6: State Farm still has a self reporting PAYD programme

DISCOUNTS Drive Safe & Save TM with Self Report If you live in California, you can save more through Drive Safe & Save with Self Report. All you have to do is report your vehicle's odometer readings to Log in	🍣 State Farm [®]	Insurance	Finances	Claims	Customer Care
State Farm [®] prior to each policy renewal. Your discount will be based on the miles you drive.	DISCOUNTS Drive Safe & Save ¹ If you live in California, you can sa Self Report. All you have to do is <u>re</u> State Farm [®] prior to each policy re miles you drive.	with Self ave more through Drive port your vehicle's of newal. Your discound	Report we Safe & Save with dometer readings to t will be based on the	Report Your Oc Log in Not a customer	Iometer ? Get an auto quote

Source: State Farm

Thus, non-telematics UBI programmes use the similar statistical factors to assess the risk level of a customer. However, they levy the premium entirely or partly based on his / her actual mileage rather than as a fixed lump sum per annum.

However, these insurers suffer from a number of drawbacks.

First, the **odometer accuracy** is affected by factors such as tyre size and wear & tear that can lead to errors in risk pricing.

Such systems also generally rely on the customer's honesty to calculate the periodic mileage but there is a clear **conflict of interest** for the consumer, which makes the system unreliable.

In addition, there is a **greater risk of fraud.** For example, it is easy to imagine photographs of fake odometers. This make the system not easily scalable.

The **system does not gather any additional driver behaviour data** that can be used for more accurate risk pricing such as the time of the day when the vehicle was driven, the type of road on which it was driven, the distance per trip, his/her driving style, etc.

Finally, there is **no opportunity for generating additional revenue** through the sale of ancillary services.

In a nutshell, because mileage is the most important variable in the assessment of risk, policies based on odometer readings represent a step forward in the analysis and the pricing of risk.

However, numerous other variables can also add risk-rating accuracy. This is what telematics-based insurance can deliver.
b. Telematics-based insurance

At the outset, most current insurance policies use static / statistical criteria to evaluate drivers' risks, notably age, gender, vehicle make & age, place of residence, occupation, etc.

After a certain period in the relationship, insurers take into account the customer's historical claims profile, often called the No Claims Discount (NCD) status or the bonus-malus status. In most countries, this translates into a discount or excess.

Telematics insurance is a policy based on these 2 criteria and **5 new, dynamic** parameters.



Fig 1.7: The driving risk star adds 5 telematics components

Source: PTOLEMUS Consulting Group

The distance travelled is still a primary factor in the UBI sector today and recognised as the most predictive factor. It is also a very simple way of explaining how UBI is fairer.

Time includes the time of the day the drivers are on the road and highlights specific higher risk ranges for them to avoid. It also includes the average length of the trips highlighting potential fatigue and distraction issues.

Place looks at the type of road, the type of traffic, the type of driving (urban or country lanes) and is often augmented with road attributes.

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Consulting Group

Context is where external data sets are added to the algorithm to take into consideration where the vehicle was when the event was recorded to qualify whether or not it was appropriate. For example, the contextualised data will differentiate an acceleration on a slip road or in front of a school.

Finally **driving behaviour** reflects the driver's risk profile expressed through a score calculated from various datasets produced by the device.

The first UBI programmes were called Pay-as-you-drive to indicate that the consumer's insurance premium would have a direct correlation with the total distance driven. A GPS device is still generally installed in the car to measure the distance driven and automatically transmit it to the insurer.

It offered significant improvements over the non-telematics UBI products:

- A GPS device can measure the distance travelled with greater accuracy compared to an ordinary odometer,
- It does not rely on the consumer's honesty while reporting the annual mileage,
- The on-board unit (OBU) can be configured to measure other parameters that can help the insurer more accurately price the risk of the consumer,
- It can be used to deliver other vehicle- or driver services such as stolen vehicle recovery, emergency call or roadside assistance.

Today, telematics-enabled insurance policies are offered in 5 different continents to 12 million customers.

Insurance companies have developed various innovative business models to market these policies and the technology platform has improved to reduce the implementation cost and effort, increase the data collected and support a range of value added services to meet the needs of different consumer groups.

The simplicity of Pay As You Drive (PAYD)

As early as 2006, **Hollard Insurance**, the international insurance group, launched in South Africa the first commercial PAYD policy based on a black box solution.

It targeted low mileage drivers, notably women, as well as young drivers and promised:

- A reduction of the premium in case of an annual mileage below 25,000 km,
- The first 400 km free,
- A stolen vehicle tracking device,

- An emergency assistance button inside your car,
- Electronic logbooks of the distance covered available for tax purposes.

The company has maintained and expanded its PAYD offer to **6 different** *DrivePlan* **options**, based on the number of kilometres insured per month: *Drive-500*, *Drive-750*, *Drive-1000*, *Drive-1250*, *Drive-1500* and even an unlimited plan, *DriveMax*.

Fig 1.8: Hollard Insurance's DrivePlan PAYD programme



Source: Hollard Insurance

Premiums are collected monthly, on the first day of the month. As with a mobile **phone subscription**, if the driver exceeds his plan's included kilometres, he/she pays a variable cost per month. However, the user can roll over non-used kilometres from one month to another.

Hollard's pay as you drive offer is sold through direct channels, via a call centre and online.

To market it, Hollard has even launched TV advertising campaigns that promise **discounts of up to 30%**. The main message is simple: pay only for what you need. Standard motor insurance contracts, similarly to fitness clubs, force customers to pay for something they do not need. By measuring what they actually need, discounts are possible.

Interestingly, Hollard supports several tracking devices, notably Tracker's SkyTrax or Hollard's own device (supplied by Scope Technologies).

To leverage Tracker's large customer base in South Africa and due to a high rate of vehicle theft, Hollard has also opened its *Pay as You Drive* plan to Tracker subscribers.

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In both cases, the customer pays a monthly subscription fee equivalent to \notin 5-12 to rent the device. The \notin 12 option notably includes stolen vehicle tracking, as shown in the following table. If his/her car is equipped with a device already, it can be used as well.

However, the model differs in one important dimension, the duration of the contract. The Hollard contract is a monthly agreement whereas Tracker requests a 3-year commitment.

	Service provider		
	Hollard Insurance (Scope's device)	Tracker	
Included items	DriveMate	SkyTrax Data	SkyTrax Recover
Mileage reporting	~	~	~
Driving behaviour reporting*	~	~	~
Roadside assistance	~	~	~
Medical assistance	~	~	~
Detailed trip reports	~	~	~
Stolen vehicle recovery			~
Automatic health checks			~
High risk zone notification			~
International roaming			(🗸)
SMS polling			(✔) (R1 / request)
Monthly cost for PAYD clients	R60 / month	R58 / month	R133 / month
Contract term	Monthly contract	36 months	36 months
Cancellation policy	No cancellation cost if device is returned	Paymen	t of R796

Fig 1.9: Hollard Insurance' & Tracker's proposed plans (in South African Rands)

Note: (✔) indicates an optional feature; * Driver behaviour is not used in the policy pricing. Source: Hollard Insurance

Obviously, kilometre-based policies are a big step forward compared to standard flat-rate policies in reflecting actual risks.

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While remaining simple to understand, PAYD policies reward low mileage drivers, who, in almost all cases, carry lower risks. This is a big advantage compared to standard policies, which de facto represent a subsidy of low mileage drivers to "road warriors".

However, PAYD does not take into account the behaviour of drivers. For example, a trip on Saturday night will cost the same amount as a trip on Tuesday at 3 PM. In our view, this explains why the marketing focus of Hollard has been on women and pensioned workers rather than on young drivers.

This is the reason why several insurers have launched telematics-enabled policies that take other factors than mileage into account. These are named **Pay How You Drive (PHYD)** policies.

While Hollard used a professionally fitted black box, other insurers used various source to collect mileage data. **State Farm** started its **Drive Safe & Save** programme in 2011. First by using its **In-Drive** device (provided by Verizon Telematics) and after 2012 giving the option to use the car manufacturer's own telematics platform to calculate and send the mileage information.

In the **In-Drive** model, State Farm collects the miles driven, acceleration, braking, right and left turns, speed and the time of day the vehicle is driven.

With **OnStar (GM)** and **Sync (Ford)**, State Farm proposes a simple PAYD model. Customers obtain an up to 5% introductory discount and can save up to 50% of their premium at renewal depending on how much they drive.

They must be connected to the OnStar / Sync service throughout the contract period and therefore need to pay the cost of the **OnStar vehicle diagnostics subscription**. State Farm then requests odometer information from OnStar or Sync 30 days after sign up.





Fig 1.10: State Farm uses GM's OnStar (left) and Ford Sync (right) to obtain mileage data

Source: State Farm

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If State Farm is unable to retrieve the odometer reading from the vehicle health report, it **removes the initial participation discount** back to the effective date it was added.

In 2015, State Farm started to offer a smartphone-based solution, *Drive Safe & Save™ Mobile*, the app version of the PAYD programme (in Ohio only).

It is more flexible but not entirely friction-less:

- The driver must have a phone running Android version 4.3 or higher with Bluetooth Low Energy or an iPhone 4s or newer running iOS 8 or higher,
- Odometer readings must also be provided (through the app or through a State Farm agent at renewal, which can be every 6 months. A photo must also be taken of the odometer,
- Although full acceleration, braking, cornering and speed data is collected, only mileage is used for pricing.



Fig 1.11: State Farm's new Drive Safe & Save™ Mobile PAYD programme



The app and tag functionality brings a number of advantages:

- Many drivers can be insured with the same car, as long as they all have the app. The app, connecting to the vehicle or the beacon will identify the car- vehicle for each journey,
- A driver can be insured for many cars on the same app as long as the set up is done with beacon and the app,

- If the driver changes car, the beacon can be reused in the other car,
- Driving data can be stored in the phone and uploaded only when the phone is connected to Wi-Fi, meaning a data plan is not necessary.

State Farm is one of the few top tier carriers in the US to use TSPs: for its *In-Drive* programme with Verizon Telematics and for its Ohio programme with the Bluetooth beacon, with Cambridge Mobile Telematics (CMT), the same partner it works with in Canada.

In fact, for the Canadian market, the same app (and Apple Watch app) is used in their PHYD programme "telematics".

The fairness of Pay How You Drive (PHYD)

While it is possible to question the impact on privacy of PHYD, it is clear that actual behaviour-based insurance is a major **improvement in the fairness** of the insurance risk pooling system.

Discovery Insure, a South African personal insurance provider, has even coined the term of DQ ("Driver Quotient") in its commercial offering to show that the driver is ultimately in control of the premium he/she pays.

Discovery launched one of the first comprehensive Pay How You Drive (PHYD) programme in 2011 called *VitalityDrive*.

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Vitalitydrive sta	tus: Engaged			
DQ Points 952 Total fuel cashbac R330.54	sk o	1600		
Your total score				
Qualifying percentage 50%	Qualifying spend R661.07	DQ points 952		
Your DQ Points				
Your driving behaviour 752	Your vehicle safety 150	Your knowledge and awareness 50		
1100	150	350		
Vitalitydrive card Your Vitalitydrive card number is 0374831009011493				
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From the start, instead of a discount, the model was meant to reward safe behaviours. If the customer drives well, he/she will earn **DQ Points** based on his/her driving behaviour. The more points, the greater the reward.

Originally based on a black box from cTrack, Discovery Insure kept innovating and is one the first insurers today to also offer a programme based on a smartphone app and a **Bluetooth low energy beacon** (tag) from **Cambridge Mobile Telematics**.

To join *VitalityDrive*, the driver pays **€4 per month**, which gives the ability to earn up to €52 in fuel rewards each month.



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In order to benefit from the black box or smartphone-enabled programme, a $\in 10$ activation fee is required.

Drivers that do not wish to use their smartphone or have no compatible smartphone must opt for the DQ-Track black box. This automatically comes with SVR at a cost of \in 3 per month. There is a one-off fee of \in 10 per policy for the DQ-Track device, irrespective of how many cars require a device.

Driving behaviour is assessed on the following criteria:

- Acceleration,
- Speed,
- Braking,
- Cornering,
- Night time driving (between 23:00 and 04:30),
- Distance,
- Smartphone usage (when the app version is selected).

Since 2013, the reward model has evolved and **Discovery now offers new rewards aimed at young drivers** in addition to its previously available rewards:

- Up to 50% discounts at BP gas stations and public transport for holders of the Discovery card,
- Up to 10% discounts at Tiger Wheel & Tyre, a network of tyre fitment centres specialising in performance wheels and tyres,
- Young adults (<26 years old) benefit from rewards of 25% of car insurance premiums back every six months based on driving behaviour,
- Up to 25% discount on *DriveMe* partners (Uber, Road Trip and Smart Guyz) in an attempt to reduce night time driving and drink-driving.



Rewards are paid automatically at the end of each month into the client's bank account, so there is no reward redemption as such, it's automatic.

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The *VitalityDrive* telematics programme has been growing steadily since 2011 and now counts **more than 120,000 drivers** including both policies with professionally-installed black boxes and smartphone apps.

Initially, with black boxes, Discovery saw an improvement in driving behaviour by an average of 20% within the first 12 months of joining *VitalityDrive*. With the smartphone-enabled DQ-Track, the insurer experienced a **risk reduction of an average of 15%, within the first 30 days**.

Thanks to the smartphone, drivers are also able to receive instant feedback from their driving. The old architecture could only score once a week.

Discovery was also able to **validate the use of social network integration**: drivers with more friends on their app leaderboards are driving better and achieve higher scores (on average) than drivers who do not invite friends.

In terms of **battery consumption**, still regarded as one of the major challenges faced by smartphone data collection, an average driver who drives about one hour per day and uses a typical smartphone may experience battery drain in the range of 15% to 20% over the day, according to Discovery.

For the last 2 years, Discovery insure has also organised the "**Discovery Insure Driving Challenge**". It is open to everyone in South Africa and is now based on a version of the UBI app used with their customer, albeit without the beacon.

Essentially a **Try-Before-You-Buy (TBYB)** app, drivers are required to record their journeys, which are then rated. For each safe journey made, they receive a lottery ticket. A draw for **€650 worth of fuel at BP** stations is made every day.



The challenge has been a success with more than 160,000 people participating last year. Indeed, fuel prices go up on the first Wednesday of every month, sometimes by up to 10 - 30%. So it is a very **emotional purchase** and people queue every month before the prices go up.

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Fig 1.12: Vitality Drive is engaging drivers on multiple fronts to reduce the driving risk

Source: Discovery Insure

In addition, Discovery also offers free online courses to young drivers to improve driving behaviour and earn additional DQ points, such as:

- Use of an interactive online tool and smartphone app to see their past trips information and driver records,
- Follow driving courses to receive points every month,
- Follow the online driver training and pass the assessment,
- Complete the EyeGym training to improve visual fitness,
- Take their vehicle to Tiger Wheel & Tyre for an annual check,
- Read safe driving articles and learn about safe driving practices and useful tips.

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Discovery's success brings the evidence that promoting healthy living and driving can be combined under one umbrella program.

With the use of fuel as a reward and challenges to widen their app usage, Discovery also demonstrates that finding the reward that touches the drivers' attention can become a key part of a successful UBI programme.

3. SWOT analysis of the 3 main rating models

On the following page, we sum up the strengths, weaknesses, opportunities and threats (SWOT) of each of the three afore-mentioned key models.

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Fig 1.13: SWOT of classic rating & pricing methodologies (Rating based on statistic risk factors)

STRENGTHS	WEAKNESSES
	* Based on statistical data, not individual behavioural data
 ✓ Well understood by underwriters, agents and brokers ✓ Well understood and accepted by customers 	* Not dynamic - Based on risk factors at the time of first set up (afterwards, this depends on the willingness of the gustamer)
	 * Significant delay between actual claims data and
 ✓ Vast amount of statistics available to correlate risk factors and claim statistics 	pricing decisions, generally resulting in 12 months time lag in pricing (an increase of claims in year N leads to increased premiums in year N+1)
 ✓ Already built and well integrated into existing insurance IT (CRM, billing, claims management) systems 	* Incentive to improve driving is indirect (better driving does not prevent accidents) and delayed (time to obtain a bonus)
 ✓ Low cost as does not require a device / an installation 	 Facilitates fraud as it is largely based on customers' own declarations
✓ Impact on privacy is limited to initial declaration by customer	* In case of an incorrect declaration, the risk exists of having an accident without indemnification
	* Limited opportunities to develop direct link with the customer (except through smartphone)
	* No ability to recover vehicle in case of theft
OPPORTUNITIES	THREATS
★ More and more statistical data sets are available, making the rating more accurate every day	 Rising costs of insurance for young & senior drivers makes it unaffordable to drive in certain countries (notably the UK), pushing these segments towards telematics
	 Best customer segments generally pay more than they should, which could push them towards telematics-based solutions
	 Acceptance of traditional risk factors is decreasing as they are increasingly seen as sheer discrimination (cf. "post-coding" debate between ABI and the Conservative Party in the UK)
	 Gender ruling and other similar anti-discrimination rulings or European directives could prevent the use of the most useful risk factors (Age, postcode, etc.)
	 In Europe and Russia, mandated eCall and ERA- Glonass will push automotive OEMs to sell insurance themselves and even become insurers (as part of a larger motor finance unit)

Source: PTOLEMUS Consulting Group

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Fig 1.14: SWOT of self-reporting methodologies (Rating based on insured's reporting of mileage)

STRENGTHS	WEAKNESSES	
	* Based on trust, i.e. fraud is very easy	
✓ Simple model, easy to explain for brokers and direct agents	 Does not integrate other behavioural factors than mileage (e.g. driving times) 	
✓ Well accepted by customers, which leads to good volumes	 Declaration cannot easily be requested more often than on a yearly basis, resulting in 12 months time 	
✓ Positive incentive to drive less, leading to lower risks	lag in pricing (an increase of claims in year N leads to increased premiums in year N+1)	
 ✓ Indirect positive effects on the environment (CO₂ emissions, noise, etc.) 	 Incentive to improve driving is indirect (better driving does not prevent accidents) and delayed (time to obtain a bonus) 	
 ✓ Indirect positive effects on fuel consumption 	 Facilitates fraud as it is largely based on customers' own declarations 	
✓ Low cost as does not require a device / an installation	* Little opportunities to develop direct link with the customer (except through smartphone)	
	* No ability to recover vehicle in case of theft	
	* Little control over risks in case of fleets	
OPPORTUNITIES	THREATS	
	 Rising costs of insurance for young & senior drivers makes it unaffordable to drive in certain countries (notably the UK), pushing these segments towards telematics 	
 Increase in petrol prices pushes such usage-based models More and more data sets are available, making the rating more accurate every day Large diffusion of smartphones enables insurers to request customers to more easily send a digital photograph of their odometer 	 Certain attractive customer segments will still pay more than they should, which could push them towards telematics-based solutions 	
	 Acceptance of traditional risk factors is decreasing as they are increasingly seen as sheer discrimination (cf. "post-coding" debate between ABI and the Conservative Party in the UK) 	
	 Gender ruling and other similar anti-discrimination rulings or European directives could prevent the use of the most useful risk factors (Age, postcode, etc.) 	
	 In Europe and Russia, mandated eCall and ERA- Glonass could push automotive OEMs to sell insurance themselves and even become insurers (as part of a larger motor finance unit) 	

Source: PTOLEMUS Consulting Group

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Fig 1.15: SWOT of telematics-based methodologies (Rating based on customer's own records)

	STRENGTHS	WEAKNESSES
	 ✓ Individual pricing, based on actual driving behaviour (mileage, time, place, style, etc.) ✓ Indirect positive effects on the environment (CO₂ 	 Unclear effect of telematics on the motor insurance market as a whole (risk of decreasing its size)
	 Indirect positive effects on fuel consumption Ability to recover the vehicle in case of theft (for models with a black box) Ability to provide eCall services and thus reduce the number of fatalities Ability to strongly reduce fraud Ability to provide actual driving data to actuarial models Strong incentive to improve driving skills and style Ability to adjust pricing on a dynamic basis (to the customer's driving behaviour and to market changing patterns) Ability to retain good customer and weed out high 	 Cost of purchasing and installing the device when a black box is used Difficult business model, notably in low motor premium markets Complex business case for low premium drivers Perception of possible infringements on privacy (Big Brother effect) Necessity for all departments in the organisation to take interest and work together Requires experience of actuaries and the recruitment of data scientists
		TUDEATO
Stric	 Decreasing cost and new types of telematics devices Better customer acceptance of the use of private data Ability to discriminate based on real risks instead of age-based pricing that may become unlawful eCall and other driver services available from a dashboard-mounted solution Ability to sell more value added services (Real-time traffic information, vehicle locator, roadside assistance, remote diagnostics, etc.) Use of more accurate CAN bus-related data eCall becoming compulsory for new car models in the EU from March 2018 ERA Glonass now compulsory for new car models in Russia Growing market of connected vehicles Smartphones as sensors 	 Risk of backlash against "customer tracking" Laws preventing insurers to charge for the rental of the device (as latest Italian law) OEMs ability to act as an insurer or broker using their own data Google becoming able to score based on smartphone data already collected in the background

Source: PTOLEMUS Consulting Group

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B. Why many insurance markets are not profitable

1. A maturing business in the most advanced markets

As shown in the figure below, there is a wide contrast between the growth in the most developed markets, comprising North America, Western Europe and Japan and other regions.



Fig 1.16: Non-life insurance growth is flat in the most advanced markets

Source: Swiss RE

With a 35% share of the global market in 2014, the European insurance industry is the largest in the world, followed by North America (29%) and Asia (28%). Yet, while the number of passenger cars in use is growing at an average growth rate of 1-2%, the European motor insurance market has stagnated.

As shown in the chart below, premiums generated by the industry have grown only very slowly since 2006. Given that the number of passenger cars in use has increased in all countries, this obviously means that the average premium has decreased.

On a country basis, the weak growth in premiums has not been uniform across Europe; the prolonged recession has hit the Western peripheral countries the

hardest. That decline has been accentuated by rate decreases in both commercial and personal lines.



Fig 1.17: The European motor insurance market has entered a stagnation phase

Source: Insurance Europe

In 2014, motor premiums in Europe were estimated at €128.6 billion, against €124.4 billion in 2012, according to Insurance Europe. Taking a longer perspective, premiums shows a positive trend, up 6% since 2004. The growth between 2004 and 2014 was mainly driven by an almost 20% growth registered in optional damage cover. Compulsory MTPL cover, on the other hand, remained broadly stable.

Most of the largest markets such as Germany, Italy, the UK and Spain have declined in the last 5 years due to the economic recession. The most affected country has been the United Kingdom, probably due to a more cyclical economy.

However, we must qualify this description. The French market has constantly grown in the last 10 years. Similarly, supposedly highly competitive and mature countries such as Belgium and the Netherlands have experienced total premium increases by 27% and 9%, respectively, between 2002 and 2011.

In addition, all new EU countries such as **Poland** and **Romania** have experienced rapid growth in the last 10 years. For example, the Romanian market has been multiplied more than 6 times during the period. At the same time, **Slovakia**, **Slovenia** and the **Czech Republic** saw two years of negative growth as strong competition within the motor insurance market pushed premiums down.

In certain markets, insurance premiums have been rising again since 2010, particularly in Germany and the UK. Admiral reported increases of 12% in 2009, 23% in 2010 and 11% in 2011 but their premiums decreased again by 9% in 2012 and continue to decrease until 2014.

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Fig 1.18: Gross premiums in key European markets are stagnating (€ million)

However, this stagnation in premiums has been counterbalanced by a relative drop in claim frequency and cost, particularly in the UK and Italy as we will see below.

2. Increasing churn

While motor insurers' combined ratio exceeds 100 in a large number of countries, this does not in itself indicate increased competition. The cyclical nature of the non-life insurance industry is well-recognised and we find ourselves in the most advantageous part of its cycle with a combined ratio average declining since 2009.

Yet the average for Europe today is only 98.7%. Many interviewed insurers have indicated that motor insurance is the entry point to a larger offering comprising property- and life insurance. As such, most insurers "subsidise" their motor insurance activity and consider it as a customer acquisition cost.

Nonetheless, it is true that in most EU countries it has become easier for customers to switch insurance providers. Recently France passed the **Hamon law** to facilitate

Source: Insurance Europe, PTOLEMUS

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the process of changing car insurance. Until then, French drivers had two months to change insurance contract before it was automatically renewed. They can now change at anytime after the first anniversary of their contract.

As the chart below attests, there is a marked **difference between home insurance and motor insurance** (MTPL in this case), which is affected by a much higher churn level.

It shows the impact of governments pushing for more competition in the energy sector, with more than 30% of respondents thinking about it in the last 12 months.





Source: Euromonitor, ACCC, UT and Heritage Bank, AEM

Health and car insurance are also big "churners".

In the US, a survey from Bankrate.com suggested that in the last 12 months, 21% of the 1,000 respondents had been shopping for car insurance. Out of those, 43% made the switch in that 12-month period. For 81% of them, price was the sole motivator.

This is partly due to the growing role of regulation forcing competition, direct insurers, **online comparison tools**, aggregators, etc. Increasingly, changing your motor insurance provider is just one click away. As a result, in the British young driver insurance market, a retention rate of **60% is a success!**

3. Changing claims costs

A key feature of the present motor insurance market is the changing outlay on claims. While the number of accidents is said to decrease as a general long term trend, the actual expenditure on claims has been evolving differently in each country.

According to Insurance Europe, total claims have grown almost 20% in the period between 2002 - 2010 across Europe. After 2010, the trend has gone the other way due to the fall in road accidents. Only in 2015 are we seeing in countries like the UK and Italy, the claims (and the premiums) levelling down.





Source: Insurance Europe (EU 27)

The increase in claims costs in the 2004-2013 period goes against the long-term trend in the reduction of accident volumes and the number of fatalities.

Besides the cyclical nature of claims, this fall could be explained by the use of telematics of course, but only in markets where the penetration is high enough, like Italy.

Other triggers include the increasing penetration of standard safety features, the lower mileage caused by the economic recession and the increasing average age of drivers. Last but not least, an increasing number of countries have installed a

large number of speed cameras and set up driving licence points systems. Both are potent factors on the reduction of the average road speed.

Since the year 2000, the average number of accidents and injured people in car accidents has never stopped decreasing. By 2013, the number of accidents in Europe had decreased by 27.9% and the number of injuries has decreased by 28.6%, as shown in the chart below. In the same timeframe, the number of fatalities from car accidents decreased by 54.5%.





Source: European Commission (Directorate General Energy and Transport)

In 2014, the **average road fatality rate in Europe was 51 deaths per million** inhabitants. The four lower countries (including the UK) have rates below 30. East European countries including Poland have rate above 80.

On the whole, **between 2010 and 2014, the number of road fatalities in Europe has decreased by 18%**. In some countries such as Spain and Greece where average mileage decreased brutally due to the economic slump, the decrease was even sharper at almost 30%.

In terms of claim costs, the variations can be attributed to 3 main factors; repair costs, personal injuries costs and fraud.

We describe each of these thereafter.

a. Repair costs

The claim costs for motor insurers have been rising steadily across Europe and this is in part due to the rising prices of spare parts and repairs.

It is estimated that automotive OEMs generate up to a fourth of their net income from spare parts. They leverage the fact that competition virtually does not exist in this market as the customer cannot choose his/her part supplier. **The prices of spare parts have increased by 22% on average in the last decade** in the European Union.

However, the EU market is not uniform in that respect.

In **France**, the price of spare parts (excluding tyres) has increased by 25% between January 2005 and October 2010 - as shown in the chart below. In addition, 85% of bodywork repair revenues are generated by insurance claims and the repair centres controlled by car makers generate 53% of the sector's revenues.

This led the French Competition Authority to launch an investigation in July 2011 and a public consultation on the subject in April 2012.

In October 2012, the Authority recommended the market for visible spare parts (hoods, bumpers, windshields, mirrors, etc.) to be gradually opened up in the coming years. Although its recommendations are not binding, they could lead to law-making initiatives at the French or European level.



Fig 1.22: Annual price variation of automotive spare parts & accessories (%)

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Interestingly, the price of spare parts in Europe which had kept growing by more than 2% started to stagnate with increase rates under 1%.

In the US, the price increase has been felt particularly badly in the cost of repair as the graph below indicates.





Source: US Bureau of Labor Statistics

Unless public bodies mandate an open market for spare parts, this trend is likely to remain. **Vehicle makers follow the printer-cartridge model** where most of the profits are made on ink cartridges.

Manufacturer-run workshops tend to be more expensive than others and as such, insurers tend to discourage their customers from using them.

In certain countries, such as the UK, the price for spare parts has grown but general repair and maintenance prices have increased very fast - 50% more than inflation between 1998 and 2010.

To counter this, most motor insurers are now tying up with certain "preferred partners" in order to cut down their claim costs.

This is the case of Pacifica, Generali, Aviva, Thélem Assurances and Sogessur, which have partnered with Assercar in France. The insurance companies have even taken a stake in the company's capital.

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In March 2015, US-based **AutoNation** partnered with **Zubie**, the start-up supplier of a consumer services using an OBD dongle, to address its lack of solid relationship with drivers. To retain customers who buy cars at their dealerships and entice them back to perform service on these cars, they will start using real-time data from the Zubie device. The car data is linked to their CRM tools, enabling the dealer to call the driver at the appropriate time for maintenance and repair work.



However, promoting the use of these partner networks remains a challenge, notably because insured customers tend to go to the closest garage (or the garage they are used to) when they have an accident. This explains why numerous insurance carriers have launched apps to help the drivers in many different situations, including in and after an accident, guiding their customers to the nearest certified repair centre.



Fig 1.24: GEICO's mobile application helps its customers find assistance

Source: GEICO

b. Personal injury claims

Despite the decrease in the number of injuries during the last decade, personal injury claims have risen dramatically in certain countries in Europe in the last decade, most noticeably in the UK, France, Poland and Italy.

In the EU, personal injury claims grew by an average of 2.3% per annum between 2003 - 2006 and represented about 14% of all motor insurance claims. However, in certain countries such as Italy, they accounted for almost 22% of all claims.

Since 2008 however, bodily injury claims have kept decreasing in Continental Europe, from 2.16 million in 2008 to 1.84 million in 2013, largely due to the decrease in driving mileage in many countries.

In the **UK**, data from the Compensation Recovery Unit shows that the number of personal injury claims from motor accidents has **grown by almost 10% annually**. In 2011-12, there were 547,405 claims related to whiplash injuries. These injuries cannot be verified through a medical exam and the cost of related claims represented **£50 on each British driver's policy**, according to the Association of British Insurers. It grew to £90 in 2013.

Legal developments, such as Legal Aid, Sentencing and Punishment of Offenders Act (LASPO) and more recently the Criminal Justice and Court Act 2015 have all made the pursuit of **motor personal injury claims less profitable** with the banning of referral fees and the restriction on recoverable costs.

Still, claims levels are high and continuing to grow. The difference however, is that the **repudiation rate is a lot higher now**. Some insurers have reported making no payments to 70% of claimants in the case of Noise-Induced Hearing Loss (NIHL).

In **Italy**, the situation has been worrying for some time. According to ANIA, the Italian insurance association, personal injury claims have become a major issue, representing **two thirds** (\notin 9 billion) **of total damages paid**. Bodily injury claims represented 21.7% of all claims in 2009, about 10 percentage points more than the EU average.

As the following map indicates, in certain geographic areas, it even **exceeds 30%**, **clearly indicating fraud**.

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Fig 1.25: The share of claims with personal injury in 2013 was still very high (in % of total claims)

Source: ANIA

However, after changes in the regulation, the share of claims with personal injury decreased from 21.7% to 18.5% between 2011 and 2013. This is partly driven by the increased prevalence of telematics-equipped vehicles and the greater number of investigations that insurance companies have implemented to fight fraud.

However, the cost of claims did not decrease; the average compensation for 9 invalidity points accidents have steadily grown; in 2009, the average was $\leq 155,000$. In 2013, it rose to $\leq 200,000$ and in 2014 to $\leq 210,000$.

This is an increase of 35% and totally cancelled the benefits of the reduction in serious injury frequency. This increase can be explained by the gravity of the accidents and the change in the treatments provided.

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Fig 1.26: But the number of claims managed has decreased steadily (% variation)

Source: ANIA

Since personal injuries typically involve significantly higher claim expenditures for the insurer, an increase in the proportion of these claims results in higher total claims expenditures.

According to Insurance Europe estimates, **personal injury claims** account for about 14% of all MTPL claims recorded by European insurers but represent **48% of all claims expenditures or €24 billion.**

On average, a personal injury claim costs three times the average cost of all claims.

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c. Fraud

Motor insurers have been reporting increased instances of fraud since 2010. In 2013, the average percentage of fraudulent claims was estimated at 3.7% in Slovakia and 1.6% in the UK, while in 2014 it was only 0.6% in Sweden and below 0.2% in the Netherlands and Norway. In Italy, the share of fraudulent claims was estimated at 14% but with clear regional differences: in the South of the country, it can be as high as 24%.



In the **UK**, according to the ABI, the value of fraudulent motor claims covered by insurers topped £835 million in 2014.

They reveal that out of all fraudulent claims (130,000 in 2014), dishonest motor insurance claims were the most common and of the highest value: 67,000 claims (up 12% on 2013), valued at £835 million (up 3% on 2013).

Fraud includes fraudulent claims, staged accidents, phantom passenger claims and underwriting frauds i.e. non-disclosure of information or false disclosure in order to obtain a more favourable rate of insurance premium.

Whiplash injury claims in particular have drawn the ire of insurers who believe they are often used for fraudulent and exaggerated claims.

For example, actuaries know that adults have rising accident rates when they reach the 45-55 age bracket. This is because parents often take out motor insurance on a car in their own name despite the car being primarily driven by their 16-25 year old child.

In the US, fraudulent auto insurance claims were estimated at \$4.8-6.8 billion in 2007 by the Insurance Research Council.

Questionable personal injury protection (PIP) claims involving staged accidents surged by 52% in 2009 and then 17% in 2010. For 2011, early estimates suggest an even larger increase.

Today, 21% of bodily-injury (BI) claims and 18% of PIP claims that were settled had the appearance of fraud and/or build-up. Build-up generally involves inflating otherwise legitimate claims.

The majority of those claims involved chiropractic treatment, physical therapy, alternative medicine and pain clinics. As an illustration, we looked at the evolution of insurance crimes in the US.



Fig 1.27: Vehicle collision questionable claims by referral reason

Source: National Insurance Crime Bureau

This situation is partly caused by the no-fault regime that prevails in certain states. In a no-fault state, the insurance company pays for injuries to its customers and its passengers regardless of who is at fault. Most no-fault states allow the victim to sue the at-fault driver if **they have sustained serious injuries**. The gravity and value threshold attached to the injury needed to sue depends on the states.

Fraud and theft are also key drivers to consider when looking at the insurance market in **Asia**.

In India, non-life insurance companies in India lose approximately 6% of their revenue annually due to fraud, according to Bajaj Allianz General Insurance.

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In certain Asian countries such as Thailand and Singapore, the fraud rate can reach **20%**!

Only 2 of the countries described below do not have plans in place for UBI programmes to be developed, 3 have active programmes on the market today.



Fig 1.28: Asian countries suffer from high rates of fraud (Rate per 1,000 claims)

Source: PTOLEMUS Consulting Group

Despite their best efforts, insurers are yet to find an effective solution to tackle fraud. Telematics has a clear role to play here and we will cover this in more depth in **Section V**.

4. Filing regulations in the US

The filing regulation in the US is particularly difficult to comply with in the case of UBI. As a new rating factor appears relatively rarely, on average **every 12 years**, it is very difficult for the insurance establishment to decide what to do with it. In fact, the last innovation in rating was the controversial use of **credit-based insurance score**.

Fortunately, it is simpler to explain why driving behaviour rather than the ability to pay one's bills affects one's risk rating and premium pricing.

The difficulty comes mainly from the unknown and the variety of decisions taken or not taken at state level. State Departments of Insurance all have a different ethos and disclosed priorities, but they all agree on a few things: **customer protection**

and **competition protection**, while keeping **stable price levels** and **fairness** in the rating mechanisms.

The implementation of the last factor, fairness, is where the departments differ most from state to state. New rating factors need to take the test and be proven non-discriminatory, not excessive and not inadequate. They also need to take into account existing restrictions on usable criteria such as age, race, gender, etc.

There are **three main types of filing**: File & Use, Use & File and Prior Approval and each state has differences in the filing process, as shown below.



Fig 1.29: Filing UBI programmes in the US

Source: Perr&Knight, PTOLEMUS

Then comes the filing itself. All states do not agree on what is a state secret. This is not only about the type of data gathered by the device and how it is weighted into the final pricing mechanism.

State Departments of Insurance and the public are worried about how telematics data can be augmented with other datasets to transform it into contextual data. For example, a dataset combining time of day, behaviour data and the location of licensed establishments could demonstrate the possibility that a driver took to the road after drinking alcohol.

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The main criteria to look at for filing UBI policies in each state include:

- Whether the filing is required or not,
- Whether the filing is **open** or not (disclosure of the criteria used in rating),
- Whether the filing is transparent or not (disclosure of the rating mechanisms),
- Other exceptions in the rating criteria, such as a ban on the use of age, location, etc.

Other regulated risk calculation factors that the state department will look at include:

- The respect of consumer privacy,
- Rates based on factors that individual drivers can control,
- Rate stability Certain states attempt to do so by controlling the rates, while others attempt to foster competition in order to drive rates down.

Some of the states have already started to take action related to UBI and we have summarised some of the known decisions, or exceptions below.

Illinois has passed regulations that promote PAYD but indirectly inhibits PHYD.

Illinois has "open rating laws" whereby the insurers can chose their risk rating factors freely, which originally promoted PAYD. However, the same law requires the open posting of the ratings systems, so PHYD programmes would be required to share their predictive modelling formulae.

In fact, Pennsylvania, Maryland, Massachusetts and Texas also require the open filing of the pricing and rating formulae.

In the state of **Washington**, the Dol (Department of Insurance) accepts a separate confidential filing for trade secret information.

Telematics devices to collect actual mileage are specifically permitted in California. But collecting additional information, such as when, where or how the car is driven, is prohibited.

As Joel Laucher, a deputy commissioner for the State of California Department of Insurance, puts it: "The freedom to use any rating factor is not the story in California."

Ironically, California was also the first state to implement Electronic Data Recorder (EDR) statutes which require vehicle owners' consent before retrieving accident

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reconstruction information. We analyse the impact of EDRs on insurance claims in Section III.

We attempted to map out the situation in the following figure, considering that the information is often vague and changes often.

Fig 1.30: UBI programme filing criteria vary depending on each state



Source: Perr&Knight, PTOLEMUS

Confidentiality is required to file a UBI programme in order to protect the IP of the rating algorithm. In some states, specific steps have been taken to protect the filing. For example in New Jersey, a separate section is dedicated to the rating algorithms for on-board sensors.

In Wyoming, filing is not required, as the state is considered a competitive market.

Finally, in **North Carolina**, the situation is again very different. A bill was passed in April 2013 to authorise UBI offerings in the state. In the same week, another bill was passed to re-instate the driver age as a determining factor in calculation of the insurance premium.

Filing smartphone UBI

In 2013, no filing had ever been proposed for mobile-only UBI solutions. Our understanding was that there was no immediately recognisable impediments to provide smartphone-based UBI since the DoIs did not look at the data collecting technology nor its accuracy.

They are however asking how the data is transferred to the insurance carrier and require the driver to be informed of what the smartphone does in relation to the rating.

We expect new rules to be added by carriers in their filing explaining that alongside the plug-in device, the policy is using data from the smartphone. A separate filing is only required if the insurer has no prior UBI filing.

In 2014, **Allstate** launched a mobile version of *Drivewise*, which pushed most insurers including Progressive to reflect on the possibility of using phones for data collection and rating.

We analyse mobile offerings and opportunities in Section IV.

5. The advent of online distribution

In numerous countries, direct online distribution has significantly altered the playing field for insurance companies. According to Swiss Re, in 2011-12, the share of direct insurance in non-life premiums varied from 11% in Latin America, to 28% in Western Europe, 32% in Asia and 47% in North America.

For example, **43% of private car insurance sold in the UK in 2010 was through direct channels** such as telephone and the web, this increases to 60% when talking about young drivers.

In France, the FFSA reports that 45% of motor insurance was sold by insurers directly to consumers, yet the portion of that sold online is still below 10%.

In China, the direct channel has grown very fast, representing 19% of motor premiums in 2012.

On the other hand, this share only represented 4.5% in Belgium and 3% in Spain.

Online price comparison websites such as **comparethemarket.com**, **confused.com** in the UK, **assurland.com** and **LeLynx.fr** in France or **CoverHound** and **Google Compare** in the US have helped increase transparency and direct competition

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between insurers. As product differentiation between insurers is minimal, price comparison has become easier.





Source: 2013 comScore Auto insurance survey

Furthermore, when purchasing through these online comparison websites, customers may not pay the same amount of attention to the details of each policy and the service quality. As a result, the price differences between insurers are highlighted.

It also makes the customers self-select the appropriate policy, which can sometimes lead to misinformed decisions, as they no longer receive the assistance of a specialist advisor such as a broker.

On the other hand, the internet allows the insurers to directly distribute their products and facilitates more direct interaction with the end consumers.

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6. Sustainability of the mutualisation model

The present model, based on the mutualisation of risks, no longer seems to serve the motor insurance industry well. It seems that **the industry is moving from a cyclical pattern to a more structural deterioration of business conditions.**

The present **mutualisation model** of motor insurance assigns customers into different risk classes on the basis of geographic, social and demographic characteristics. The risk level of a particular customer segment is then determined by analysing historical claims data. Such a system incorporates a certain degree of **systemic error** as all members of a particular risk class are not homogenous in their actual risk exposure and it relies on cross-subsidisation to balance a relatively high-risk customer against a relatively low-risk customer.

The 2011 **Test Achats ruling**, also called "gender ruling", by the European Court of Justice is a big threat to the preservation of the mutualisation model as is. It is described in detail in Section II. A of this report. In a nutshell, it forbids European insurers to take gender into account as a risk factor in motor insurance.

This of course significantly reduces the accuracy of current risk pricing models by preventing a difference between low-risk (women) and high-risk consumers (men) in a particular class. This in turn incentivises these low-risk consumers to look at other pricing options or deter them from seeking insurance altogether.

Product differentiation, especially in MTPL, is **minimal** and although service has become a focus area for most insurers, customer touch-points are too few and far apart to have a big impact on purchasing behaviour.

As a result, we expect strong price competition to continue in the foreseeable future. The high instances of fraud are also hurting the industry and thus far insurers have struggled to find a workable solution to combat this.

Therefore, we believe that the present mutualisation model is no longer the optimal solution for the industry:

- Low mileage drivers pay for road warriors,
- Prudent drivers subsidise drivers who display an aggressive behaviour,
- Honest drivers pay for fraudsters,
- Better protected drivers (which take own damage policies) subsidise customers with minimal coverage (MTPL policies), as shown in the next figure,
- Last but not least, customers without cars pay for car owners (because other insurance activities subsidise the loss-making automobile insurance business).

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Fig 1.32: European motor insurance average combined ratio (in %)

Note: Combined ratio = (Claims expenditure + operating expenses) / gross earned premiums on home territory Source: Insurance Europe

Therefore, the **current system goes against fairness** but also against safety, against the preservation of the environment and even against a better protection against risks.

In our view, **this is no longer the most efficient model.** Moreover, it is not sustainable. Such high levels of losses will be difficult to support in the long run as the profitability of other sectors deteriorate, even in life insurance.

While the sector could initiate a large cost-cutting exercise (as has been the case in the Netherlands for instance), an improved evaluation of risks and a more active management of drivers' behaviours offer significantly better prospects to insurers.

In other words, the motor insurance market offers favourable conditions for a change towards more modern methods of risk pricing.
C. The impact of the "smartcar" on the insurance sector

3. The technologies that will change cars

We believe that the *smartcar* will emerge in the next 3-5 years and have a major business impact within the next 10 years. We identify 6 categories of technological advances affecting insurers.

a. Big car data analytics

Vehicles are becoming **rolling sensor platforms** generating vast amounts of data from a growing number of data-generating nodes. The number of sensors on-board of most cars is expected to jump from 60-100 today to 200 in next 5-10 years.

Insurers will need to use **analytics to mine heterogeneous data** from smartphones to black boxes. Developing world-class solutions to help insurers implement **enterprise data management strategy** will become a priority for the next generation of Telematics Insurance Service Providers.

We analyse the evolution of analytics and the Big Data market in Section V of the study.

b. Broadband connectivity to the car

2G's end of life period is expected by the end of the decade in several countries. In the US, AT&T already announced that it would cut down its GSM network by 2017.

We expect **4G/LTE to take over rapidly**, even leapfrogging 3G. Telematics service providers should consider the costs and implications of integrating 4G today. A good start would be in high-end video recording devices. Further implementation can then be reviewed for deployment after 2017 in order to provide at least **7 year device lifetime** to insurers in the aftermarket.

For embedded connectivity, the roll out will be much slower due to the design life cycle of the OEMs. Providing high speed connectivity to the vehicle before OEMs do is a great opportunity for value added service in the UBI portfolio of options.

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c. Connected navigation / infotainment

In the last two years, Google has attempted to open the access to certain vehicle data, providing a **standardised interface to the vehicle.** Under their influence, we expect that many car manufacturers will **deploy telematics platforms and car app stores**, using Android Auto or their own solution. This already installed interface will not only facilitate the use of UBI applications by customers, it could also become the point of entry to new UBI contracts.

CarPlay & MirrorLink will be rapidly deployed and provide **standard phone access to a vehicle's display.** If nothing else, the unique Bluetooth ID of the car could be used today to **identify the driver and the car** for mobile UBI.

Running in parallel, the OEMs will continue to embed connectivity and services in the vehicle. As ERA Glonass and eCall are implemented in new cars, the trend will affect all types of vehicles. PTOLEMUS expects that the number of newly produced connected cars will double between 2015 and 2020 worldwide.



Fig 1.33: New vehicles sold with embedded telematics (million)

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As more vehicles are sold connected and then retain that capability after their first owner, the options for the insurers to retrieve car data will dramatically change. For the manufacturers, new methods are emerging, which will protect customer ownership from their side.

On the basis of these apparently opposing interests, we analyse strategies available to vehicle OEMs regarding UBI in Section IV of the study.

d. Smartphonisation

As of July 2015, Android's app store recorded 1.6 million apps while Apple's App Store had reached 1.5 million.

This has impacted the automotive domain. According to Priori Data, in December 2013, 346,000 different automotive apps were counted globally, actively used by 156 million smartphone owners.

This is not only about devices. **An "app economy" is born**: as of June 2014, Apple had paid out more than \$25 billion to app developers since the beginning.

According to us, the change is actually even much deeper: **the mobile economy is changing the rules of the game in all industries** including automotive and insurance.



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Mobile has become the reference system and business model for many other industries. This is due to the combination of 7 factors:

- 1. The wide range of applications, which means that all industries are impacted;
- 2. The **fast speed of the smartphone renewal cycle**, typically once a year to be compared with 3-year cycles for the car industry;
- 3. The **considerable volumes of smartphone sales**, nearly 1.2 billion in 2014, which means that vendors benefit from the highest economies of scale in the consumer electronics and even in the durable goods industry;
- 4. The **breadth of sensors** integrated in new smartphones, which make them real context sensing machines;
- 5. The considerable power of smartphone leaders Apple is the number 1 market capitalisation in the world, Google probably the most powerful on the planet given its dominant position in the search market and Samsung is the number 1 vendor not only of smartphones but also critical components such chipsets and screens;
- 6. The **very high price of smartphones** enables vendors to integrate components that are actually often better than in competing electronic devices; The same is true for mobile data bundles, which are often very large, if not unlimited.
- 7. Last but not least, the unique relationship we all have with our phones, which makes powerful tool to communicate According to Salesforce, Americans spend between 2 and 5.2 hours on our smartphones per day, depending on their age.

As a result of this real tsunami, all companies are changing priorities.

For example, **Bosch**, a company largely focused on the automotive sector, now reuses the accelerometers it originally produced for the mobile sector for the automotive industry. The only difference in the products consists in an even higher series of tests aimed at meeting even higher quality targets.

This is also one of the reasons why all car makers are quickly adopting common interfaces to the mobile world: Android Auto, Apple CarPlay and MirrorLink.

We evaluate the impacts of the smartphonisation trend on the motor insurance industry in Section IV of the study.

e. Active & passive safety & V2X

We expect new features to reach the car market within the next 3-5 years such as pedestrian detection, pre-crash detection, traffic jam assistance and braking assistance. The overall penetration of advanced safety systems will increase rapidly thanks to **legislation and standardisation**.

As an example, **brake assist functions** (to insure that the brakes are applied fully in cases of an emergency stop) have been mandated for all new cars and light commercial vehicles in Europe since February 2011. The result is an estimated 1,100 fatal accidents a year involving pedestrians avoided.



Braking assistance systems not only reduce

the risk of injury for pedestrians, they also help prevent rear-end collisions. Research has shown that in rear-end collisions resulting in injury in Germany, a **third of drivers did not hit the brakes at all before the collision**, and half of them did not use the car's full braking capacity.



Since November 2015, commercial vehicles in Europe also have to be equipped with **advanced emergency braking** systems (AEBS) and lane departure warning systems.

Automatic emergency braking uses radar, lasers, and cameras to see as far as 650 feet in front of a truck; about three times the typical follow distance on highways. They first **signal a driver of upcoming obstacles** by a combination of optical, acoustic or haptic signals and, if the driver does not react, will **slow or stop the vehicle**.

EU Regulation No. 347/2012 specifies the technical requirements and test procedures for these advanced emergency braking systems (**AEBS**). One with the vehicle approaching a moving target, the other with the vehicle approaching a stationary target. The regulation specifies two "levels" of limit values on the **timing of the warnings** and on the **vehicle speed reduction** to be achieved in each of these tests, with the level 2 requirements being more stringent.

To allow time for the development of suitable systems for lighter vehicles, vehicles with hydraulic braking systems and vehicles with mechanical rear suspension systems, the level 1 limits are only applied to buses and trucks between 8 and 12 tonnes as well as trucks equipped with pneumatic or air/hydraulic braking systems and with pneumatic rear axle suspension systems.

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Level 1 AEBS became mandatory in November 2013 for new types of vehicle and mandatory for all new vehicles in November 2015.

Level 2 AEBS becomes mandatory from 1st November 2016 for new types of vehicle and from 1st November 2018 for all new vehicles.

Since the life cycle of large trucks has



been markedly reduced in recent years thanks in part to steadily rising fuel economy standards, new safety technologies such as AEBS will penetrate the commercial fleet faster than it will in the consumer vehicle market.

In the US, the past 10 years have also seen an explosion of automated systems on trucks, including adaptive cruise control, lane-departure warnings and electronic stability control. These are already mandated for large trucks after 2017.

The US National Highway Traffic Safety Administration (NHTSA) is also considering mandating AEBS since large commercial trucks have been the cause of an increasing number of accidents in the last five years.

While miles traveled and the number of registered trucks has held relatively steady, the rate of accidents has increased from 29.3 fatal crashes per 100,000 trucks in 2009 to 36.9 per 100,000 in 2013. In 2013, **64% of those crashes involved frontal impacts by trucks** - Crashes that could have been prevented or mitigated by automatic braking.

Worldwide, the trend is certainly for more automation and for more vehicles involved in automation.

f. Autonomous vehicles

We anticipate that fully autonomous vehicles (AVs) will emerge by 2020 in the consumer market but will not be sold in high volumes before 2025, notably due to the high cost of the technology.



Of course, the impact from semi-autonomous vehicles will be become rapidly transparent due to a decrease in claims.

In the case of fully AVs, the shift in responsibilities will have to be determined between drivers and manufacturers. We expect that the **risks of autonomous**

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vehicles will be covered by OEMs' product liability, as has been confirmed by Volvo. Its CEO Hakan Samuelsson has announced in November 2015 that his company will accept full liability if any of its cars crash while in full autonomous driving mode.

Of course, some of the risks may still be covered by insurance companies - for example, the risk of a glass being broken or someone scratching the car's painting - but the bulk of today's premiums are likely to evaporate for these vehicles.

Since OEMs will also have eCall control and UBI data as standard by that time, the disruption on the current value chain in inevitable.

We investigate the impact on ADAS and AVs on insurers and UBI in Section IV.B.

2. The impact of active safety functions

Active safety has been in vehicles for years. The next steps of its incarnation involve numerous areas of research but only a few will emerge in the next 5 years.

We briefly list them below and identify their impact on insurance after that:

- ABS: Anti-lock Braking System Allows the wheels on a motor vehicle to maintain tractive contact with the road surface according to driver inputs while braking, preventing the wheels from locking up (ceasing rotation) and avoiding uncontrolled skidding;
- AEBS : Advanced Emergency Braking Systems see above;
- TCS: Traction Control System also called Electronic Stability Program (ESP) is a secondary function of the ABS designed to prevent loss of traction of driven road wheels and assist the driver when accelerating or cornering. Mandated since 2014 in the EU;
- ACC: Adaptive Cruise Control Optional cruise control system for road vehicles, which automatically adjusts vehicle speed to maintain safe distance from vehicles ahead;
- **SG Stop-and-Go** Enables low-speed distance keeping between successive vehicles;
- AFL: Adaptive Front Lights Provides an optimised vision to the driver during night time and other poor-sight conditions of the road by adapting the headlight angle and intensity, and judging the speed of the car, the steering wheel angle, the weather condition as well as yaw and tilt rates of the car;

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- **PA: Parking Assistance** Autonomous car manoeuvring system that moves a vehicle from a traffic lane into a parking spot to perform parallel, perpendicular or angle parking;
- LDWA: Lane Departure Warning Assistant Warns a driver when the vehicle begins to move out of its lane (unless a turn signal is on in that direction) on motorways and other major roads;
- TJA: Traffic Jam Assist Controls vehicle speed and distance to vehicles ahead in dense traffic on motorways and even takes over steering;
- BA: Brake Assist Increases braking pressure in an emergency situation;
- CA: Collision Avoidance / Mitigation / Warning Reduces the severity of accident by using radar and sometimes laser or camera sensors to detect an imminent crash;
- DMS: Driver Monitoring System Uses infrared sensors and cameras to monitor driver attentiveness;
- FCW: Forward Collision Warning Uses radar and sometimes laser and camera sensors to detect an imminent crash;
- HUD: Heads-Up Display Projects image or information on the windscreen;
- ISA: Intelligent Speed Adaptation Constantly monitors vehicle speed and local speed limit and implements an action when the vehicle exceeds the speed limit;
- AHS: Automated Highway Systems Enables the grouping of vehicles into platoons to increase the capacity of roads;
- PCS: Pre-Crash System Uses radar and sometimes laser and camera sensors to detect an imminent crash. Once the detection is performed, these systems either provide a warning to the driver when there is an imminent collision or take action autonomously without any driver input (by braking or steering or both);
- **OD: Obstacle Detection** -Necessary for pre-crash, collision mitigation, stop and go, obstacle avoidance or inter distance management;
- PDS: Pedestrian Detection
 System Detects and recognises target objects such as human bodies, faces, hands, vehicles and their motions/actions, by



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processing image data from camera inputs on a frame-by-frame basis (including some previous frames in the case of time series processing).

• NVS: Night Vision System - Increases a vehicle driver's perception and seeing distance in darkness or poor weather beyond the reach of the vehicle's headlights,

Fig 1.34: Night vision systems



Source : Autoliv

- AM: Advanced Mapping Multi-layer, dynamic mapping;
- **RSD: Road Sign Detection** Recognises the traffic signs of the road e.g. "speed limit" or "children" or "turn ahead" typically using cameras. Signs are typically displayed in the form of a symbol in the cockpit;
- SVC: Surround View Cameras Consists of 6 wide field of view (FoV) cameras around the car 1 on each side, 1 in the vehicle grille and 1 rear-mounted camera;
- CACC: Cooperative Adaptive Cruise Control Realises longitudinal automated vehicle control. In addition to feedback loop used in the ACC which uses Radar or LIDAR measurements to derive the range to the vehicle in front the preceding vehicle's acceleration is used in a feed-forward loop.

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Fig 1.35: The impact of active safety systems & emerging services on the auto insurance line

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Based on our analysis, active safety developments will have a noticeable impact on insurance in the next 5 years.

As we have seen above, active safety functions have already emerged in the afterand OE markets and will continue to grow due to the decrease in application and systems prices and the positive impact of government safety regulations.

Active safety features such as Advanced Emergency Braking Systems, Object Detection, Pre-Crash Systems and in the future Forward Collision Warning and Pedestrian Detection Systems will have a particularly **high impact on insurance** and the UBI service providers.

They will need to consider that:

- More camera-based driver assistance systems will be deployed,
- Head-up displays (HUDs) will be an ideal interface for many active safety products,
- Insurers will have to start **applying discounts** on both aftermarket and OE active safety systems installed.

Indeed, active safety systems will lead to a strong reduction in claims frequency and severity in the long term.

Working in the "pre-crash" area, active safety systems have a major impact on accident frequency and severity, which will drive a fall in claims and premiums. However, these changes will happen gradually, first in lower volume and high end models. Also, the car park takes around 15-20 years to be completely renewed.

Also, as they will appear in new cars, it is important to note that the **average age of new car buyers is above 50 in most developed countries**. At that age, premiums are already very low and any discount on safety equipment will be difficult to sustain.

Although most safety features will come through embedded systems, insurers and telematics services providers should continue to investigate and innovate in the potential of aftermarket advanced warning systems:

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- Video-based obstacle alert or detection systems such as Mobileye's or Harman's iOnRoad (pictured), deployed by MS&AD in certain Asian countries,
- Crowd-sourced traffic jam and accident alert systems such as IrezQ,
- Drowsiness detectors from companies such as **Eyeris**.



Fully autonomous cars are in their experimental phase. Similarly V2V (vehicle-to-vehicle) and V2I (vehicle-to-infrastructure) applications are still in prototype phase.

Thus we expect that their impact on the insurance market will be remote. We do not see an impact on the insurance personal line sector in the next 5 years.

In our Section IV.B on the **effect of autonomous functions on UBI**, we explore the levels of automation and identify the expected impacts on premiums due to accident risk reduction. We also estimate the **availability of these technologies** and their **penetration rate** over time. Finally, we analyse the impact of autonomous functions on auto insurers and propose a **response strategy** to face this changing environment.

D. Can telematics solve the motor insurance woes?

1. A European perspective on insurance telematics

The European insurance telematics market emerged in 2006, with the launch of Norwich Union's PAYD programme in the UK. After the programme was cut short, most insurers became wary of the model and in most countries except Italy, PAYD started to flourish only after 2009.

As of November 2015, there were **4.4 million telematics insurance customers in Europe** vs. 2.1 million in July 2013 with the majority of them still concentrated in Italy, the UK, Spain and France.

Indeed, Europe has become **the most important market for insurance telematics** and is becoming an experimentation field for the entire industry.

A number of **innovative business models** have emerged and an increasing level of consumer acceptance is being witnessed. This is particularly visible in the **young**

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driver segment where numerous trials and nationwide launches have been focusing on. Young drivers are the perfect target since they pay more, have more accidents and care less about privacy.

In January 2009, **Wunelli**, a telematics service provider now fully owned by Lexis Nexis, launched the **Coverbox** panel in the UK in partnership with a number of leading insurance companies including Allianz, Groupama, The Co-operative Insurance, Sabre and Markerstudy 'to prove to the insurance industry that telematics can work effectively with motor insurance and assist in reducing risk.'

The generic problem to solve was the endemic rate of accidents among young British drivers and the related high price of insurance, often pricing young drivers out completely. The premiums have by and large decreased in the UK in the last 5 years but as we see below from the Association of British Insurers, young drivers still have to expect to **pay a thousand pounds per year for car insurance**.





Source: ABI, 2014

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In that context, **Insurethebox**, a provider of telematics insurance in the UK now owned by MS&AD partnered with brands such as Marks & Spencer, The Carphone Warehouse, B&Q and Dixon's etc. to offer young driver specific insurance tariffs based on behaviour at the wheel and powered by customers 'Reward Miles' (i.e. discounts on their motor insurance) when they shop online through its **dedicated portal** (pictured).

The high level of activity and innovation in the last 5 years demonstrate how difficult it is to make a

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DUR HIST	TORY TOTAL TIME	TOTAL DISTANCE	AVG. DISTANCE	AVG. SPEED	AVG. TIME	Data last up BUSH HOUR %	odated as	of 24/01/1	D	- URBAN	Show/	Hide Grap % PARKET
DUR HIST	TOTAL TIME 1h 42	TOTAL DISTANCE 124	AVG. DISTANCE 34	AVG. SPEED 60mph	AVG. TIME 32m	Data last up RUSH HOUR % 80	odated as 5 MGHT % 2	of 24/01/11 WEEKEND % 10	0 MOTORWAY	(URBAN)	Show/	Hide Grap % PARXEE 76
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profit in motor insurance and how complicated it is to create a sustainable UBI offering.

In **Italy**, the success story is more evident: in December 2015, Generali indicated that it had reached **800,000 telematics policies**. It sold 145,000 new policies in 2014 alone, representing **33% of the new business that year**.

In addition, it has reached interesting progress in its operational KPIs:

- A reduction of 5 percentage point on its average loss ratio,
- An addition of 3 percentage point to its average retention rate.

Overall, since we last published this study, a lot more insurers have started offering UBI policies.

In 2013, we counted 155 active UBI programmes in 17 countries. Today there are 204 active UBI programmes in 34 countries worldwide. The next graph shows the number of UBI programmes and some of the trials we know off in each country.

We did not include Try Before You Buy (TBYB) programmes but included mobile UBI apps when they are effectively used for premium pricing based on driving behaviour. Norway and Slovenia have both one programme on the market (respectively Codan from RSA and Triglav) but they are TBYB only.

As predicted, the growth is not as much on the number of programmes in mature areas but in the number of countries that are now running UBI programmes. This suggests the bulk of the growth is yet to come.

The countries with the strongest level of activity have been the UK, the US and Canada.

Numerous trials have also been launched in **China** where the regulation is being adapted to go towards a certain liberalisation of insurance tariffs. New countries have also appeared in the list such as Australia and Belgium.



Fig 1.37: UBI trials* and launches in 2013 and 2015

Note: * Trials in transparent colours - An insurer can run more than one UBI programme, using different target segments or / and different devices

Source: PTOLEMUS Consulting Group quarterly dashboard

By contrast, the uncertainties created by the Monti law, voted in 2013 - its decrees are still to be passed - have pushed most Italian insurance companies to wait for better clarity on the regulatory constraints. This factor, along with the already high

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penetration of telematics among insurers, has led to a relative stagnation in the number of programmes.

To support this international growth, insurers have relied on a wide set of devices.

This study is looking in details at the strategy, the technology choices and the sourcing of these devices.

In the next graph, we highlight the share of devices used globally. This is based on our quarterly record of the **225 UBI programmes in the world today**.



Fig 1.38: Breakdown of UBI policies worldwide by device used

Source: PTOLEMUS Consulting Group

2. The North American market's ever growing demand for UBI

In the US, the OBD-II dongle became the device of choice from the start. All vehicles produced after 1995 have an **accessible OBD-II port,** power and some diagnostic data available. The low cost, self-install solution could therefore be **aimed at the general public** and not just at specific, high premium segments.

Progressive's *Snapshot* success triggered a wave of trials from most national carriers (Geico being the notable exception).

A few patterns have appeared:

- The number of test devices needed to research has been underestimated,
- The amount of devices needed for the first trials has been overestimated,
- Once the programme began, the consumer pick-up has been underestimated,
- 3 years after launch, the growth is still sustained.

In fact, acceptance rates and (conservative) take-up estimates were **wrong sometimes by a factor of 2 or 3.** Nationwide predicted that 10% of their new sales would take up the device offer. In their initial pilots, the actual rate was nearly 30%.

Allstate found that depending on how much the agents were pushing *DriveWise*, the take up in certain states was as high as 50% of new contracts using the device. They had been expecting 10-15%.

On the other hand, some of the carriers chose not to roll out UBI after the initial trials or restricted their public offering to specifically targeted, very narrow niches such as teen drivers or accident forgiveness. Some of these programmes, such as **USAA**'s *Young Driver Intelligence* programme never went as far as including behaviour-based pricing even after the end of the Progressive's patents trial.



Fig 1.39: Insurance telematics trials and launches in the US

In 2015, the US market has continued to accelerate due to 3 factors:

- Progressive's advertising campaign has continued to widen the understanding around the use of a telematics device. It has created a positive link between the dongle, safe driving and insurance premium discounts;
- The general **lack of concern about privacy was somewhat underestimated** -Many of the programmes now use GPS successfully and Progressive is testing the inclusion of GPS location to improve its rating algorithm;
- The **recession** has pushed people to find new ways to save money.

US insurance carriers have 3 key reasons to move towards UBI

- **Positive selection:** the first entrants have the advantage of being able to attract the drivers who thought they are safe and are ready to prove it. Further market entries continue to place a strong emphasis on the self-selection process and the forthcoming smartphone applications that US carriers are expected to launch will emphasise that trend.
- **Customer acquisition:** the dongle is a very simple tool to demonstrate savings. A driver does not need to be insured by the programme to start using the programme. After the observatory period, the carrier can demonstrate the discount to the potential customer and underwrite the policy.
- **Customer retention:** this is often hidden from view of the public strategic presentation but our research has shown it is a very strong argument for US carriers. The device in the vehicle as well as the relationship created and the year-2 discount are all factors motivating the driver to stay with his/her own insurance. Since the families are often combining their assets into one insurance contract, it is competitively essential for every carrier to include a UBI programme in their portfolio.

How carriers have gone to market has also been very different than in Europe:

- **Technology exclusivity:** Technology understanding and ownership has been placed at the centre of the US carrier's strategic decision process. This has resulted in early bilateral exclusive partnerships such as those between Progressive and Xirgo.
- **Deeper involvement:** Carriers have done it by themselves first, using TSPs after the trials. Large companies have generally created programmes themselves rather than new brands or subsidiaries to provide UBI. As a result, there are very few **pure-play** telematics insurers in the US, **Metromile** being the exception.

- Actuaries' flexibility: rather than always looking for the best data and trusting nothing else, US carriers have started from the philosophy that "some data is better than no data". As a result, PAYD programmes have started based on mileage provided by the vehicle or the fleet manager. Zurich North America, Liberty Mutual and State Farm have shown examples of what is to come.
- Channel and model experimentations: OEM insurance partnerships and models will be analysed in Section V in detail. Besides the announcement between GM and Progressive, insurance carriers have also tried partnerships with consumer-grade dongle providers such as Zubie (with limited success). "Forgiveness" has also been an interesting model that continues to grow.

Smaller and later entrants have then chosen to use Telematics Service Provider (TSP) partners to reduce their exposure to the fast service evolution and create more differentiation as the competition started to increase.

TSPs are also more adept at bearing the weight of rapid service and technology evolution and the churn resulting from supporting many and new devices. The models, partnerships and services using TSPs are detailed in <u>Section III</u>.

One carrier is still noticeably on the side

Geico is the second biggest insurance group in the US but has not yet shown clear signs of interest in UBI.

Despite spending more than **\$1 billion in advertising** in 2012, ahead of Allstate at \$829 million, State Farm at \$778 million and Progressive with \$526 million according to SNL Financial, Geico's enthusiasm for technology has been limited to smartphone applications.

In fact, Geico suggests that a **defensive driving course** is a great way to become a better driver and save money on your car insurance premium. In California, the online course will produce a **5% discount on premium**, but it is reserved to drivers over 50 years old.

In our view, Geico's position is not sustainable, as they will increasingly suffer from anti-selection.

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3. So who is UBI for?

a. The young market

Globally, the teen/youth market has remained one of the most strategic markets to target with UBI and safety-related services.

However, the **UK's early focus on young drivers has been more the exception than the rule**. Most insurers are looking at the young market for small scale trials, rather than for technology testing or gathering data. However, a business model based on an accident-prone driver paying individually more than €2,000 in premiums is **difficult to scale** over many other segments.

The young driver market in the US and other countries, such as France, is seen as a minority niche. In many countries, most young drivers' policies are an extension of their parents', and it is therefore uncommon for a new driver to have an insurance policy in his own name. US law actually requires **the owner of the vehicle to be the policyholder**, irrespective of who the driver is, and drivers living at the same address must specifically be covered on the same policy.

Teen programmes are, however, common and requested by parents, especially in the US since drivers receive their first car earlier than in many other countries. These programmes are designed to bring security and surveillance, with monitoring done by the parents.



Fig 1.41: Web-based tool: Road Aware from State Farm

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State Farm offers *Road Trips*, a web-based tool that **gives parents 3-minute tutorials** on how to teach their teens critical driving skills. It also enables them to log their teen's progress. They also offer *Road Aware*, a free online tool to help teens learn to anticipate road hazards and work with high schools and bands to spread safe driving messages., as illustrated below.



The opportunity is there for carriers interested in loss prevention or looking at communicating on safety and improving driving behaviour.

American Family already has a *TeenSafe* programme that helps parents rate their teens' driving, but **does not price the policy using that rate**. The insurer believes the teenage/young driver market is, in fact, very fertile and will see many companies pursuing the segment in the near future.

Smartphone applications are also common in the US, but with the exception of **Allstate**'s *Drivewise Mobile*, they have yet to evolve into fully fledged UBI service offerings. They should be an obvious step forward, since, for a lot of carriers, the **churn costs** are very high in that segment, with a lot of **uninsured drivers** and a very **low retention rate**.

We assess the first steps, the value chain and the viable models to create a successful mobile UBI offering in Section IV.B.

As the first generation of young drivers are rapidly moving on to other insurance products, insurers will have to create a solution for the "year 3" customers for whom a discount has become ineffective. This segment of the early twenties has just started to be approached. We analyse **Carrot's experience with reward schemes** in Section IV.

b. The middle market

We define the middle market as the age group above 30 and below 65 years old. UK insurers see the middle market as a second or third stage target. Retention being a very difficult proposition after two years, they are looking at options using different value added services propositions (rather than discounts), **different devices and different service types**. For all the European insurers we interviewed, the middle segment is where the business model becomes very complex, since the cost of the device is too high for the premium, the discount too low for the driver and therefore the proposition less appealing.

In the US, the middle market is where the majority of the offerings are, as we saw earlier. It is also where the offers will have to evolve rapidly to attract the majority of drivers still not using UBI. In our view, there are **several potential strategies** to address this segment.

The **first** one, deployed in the US, is to **rely on low cost telematics solutions**. It has proven effective.

The **second** one is to target subsegments that have higher than average premiums, e.g. customers in **high risk areas**, high end car owners, etc. This is the strategy chosen by **Genertel**, **Generali's** online unit, in Italy.



Fig. 1.42: Allianz France's take on Progressive suckers widens UBI appeal

Source: Allianz

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A **third** one is to provide paid-for **value-added services** to increase unitary revenues. **Allianz** in France, the **Verein Öffentlicher Versicherer** in Germany, and **Uniqa** in Austria have deployed such models.

The **fourth** one is to **switch to mobile and turn the offer to a reward mechanism** with small and recurring wins, as we have seen with Discovery Insure.

We will evaluate the effectiveness of these strategies and others in Section V.

c. The senior driver segment

Berkshire Hathaway's 85 year-old Chairman and CEO, Warren Buffet, said that he is less likely to be involved in an accident than a 16-year-old male because the younger man is "trying to impress the girls".

In fact, the losses generated by older drivers, notably above 75, are often **comparable to those of younger drivers**. As shown below for Italy, while the frequency of claims remains lower, the severity of these can be very high.



Fig 1.43: Average claims frequency and severity of Italian drivers, by age

Source: ANIA, PTOLEMUS - Note: statistics for MTPL insurance; Claims cost in Euros

The population in the US, Europe and in numerous emerging markets is ageing rapidly, and the premiums increase steadily once drivers reach the age of 60. Yet this is a **segment that is never addressed specifically**. Generally older drivers do not tailgate or take corners too fast, but can be too slow and miss turns, which is dangerous in a completely different way.

The problem is that, unless set up specifically - and we are yet to see any efforts in that area - **scoring algorithms do not regard this as dangerous driving**.

In fact, today's insurance telematics does not work for old drivers.

The thresholds on breaking and accelerating are tuned to isolate only impatient or aggressive driving. Older drivers do cause accidents, but for different reasons. Also, they drive fewer miles, since many no longer have to commute. **The present models of PAYD and PHYD would need to be entirely rethought** and the hardware solution would also need to be redesigned to apply for this segment.

4. Some of the challenges ahead

We surveyed the responses from the insurers we spoke to during the process and identified the principle motivations and pain points that will be analysed further in the study.

When looking at what motivated the companies to start a UBI programme, we found that **improving underwriting and risk selection** was by far the most common attraction. It was closely followed by the need to acquire profitable customers efficiently. Other gains were the perspective of loss reduction (in Europe and South Africa mostly), improvement in customer relationships and **being seen as an innovator**.



When looking at the key hurdles in the implementation of a UBI programme, the responders saw **reaching profitability** and **gaining customer acceptance** as most problematic. Getting the offer's pricing right and reducing

cost came second. Making the technology work, collecting the right data and selling was seen as less of an issue.

In fact, the costs of the investments needed were often picked up as the main barrier to development and implementation. It was not highlighted as a prevention to doing business altogether, but as **preventing from attracting specific segments** and market.

As a response, most of the respondents where looking at or already working on **sharing those costs with external partners**. In practice we have seen this happening with independent OBD dongle providers and to a

The installation cost is an issue. In Germany, installing the black box costs about €80-100

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lesser degree with car manufacturers. It is clear however that the carriers are **ready and willing to buy car and driver data** from an OEM if and when it is available.

The telematic industry is very diverse but they all try desperately to sell boxes. That does not work well with the insurance industry, the fleet industry and the clients!

Partnerships between technology and solution providers were also seen as less than perfect. While a minority were happy with the service, most insurers were looking at alternatives and constantly searching for a better deal.

The risk of becoming dependant on one supplier was generally regarded as a threat, together with the idea that a strong partner could own too much of the solution.

On the whole, however, the insurers interviewed are **happy with the predictability of the data**. There are exceptions, but most carriers are satisfied with the accuracy and reliability. It is not plain sailing however.

Improvements are still required on mapping, the data collection rate, the analysis of the data and the decoding of diagnostics fault codes.

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SECTION I



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