PTOLEMUS
Consulting Group

2016
EDITION

CONNECTED INSURANCE ANALYTICS

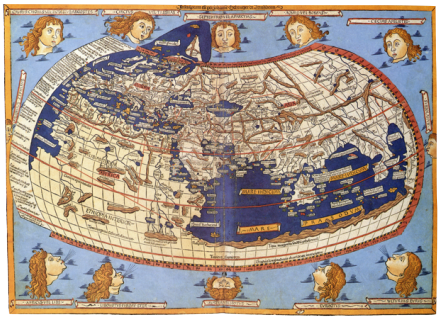
Report

Best Practices

The most comprehensive research on the UBI analytics market

From copper to gold: transforming telematics into predictive analytics

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 more than 35 consulting assignments related to insurance telematics.

For any enquiry, please send a message to contact@ptolemus.com

Our consulting services

Strategy definition
Vision creation, strategic positioning, business plan development, board coaching & support

Investment assistance
Strategic due diligence, market & technology assessment, M&A, post-acquisition plan

Procurement strategy
Specification of requirements & tender documents, launch of tenders, supplier negotiation & selection

Innovation management
Value proposition definition, product & services development, architecture design, assistance to launch

Business development
Partnership strategies, detection of opportunities, ecosystem-building, response to tenders

Implementation
Deployment plans, complex project & programme management, risk analysis & mitigation strategy

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

MS, Management, HEC Paris and CEMS Master, University of Cologne

Frederic Bruneteau has accumulated 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 of Usage-based Insurance** (UBI) and is interviewed on the subject by publications such as the *Financial Times* and *The Economist*. He has spoken at more than 20 related conferences worldwide.

As Manager of TomTom's worldwide Content & Services product line, he has also acquired a unique insight into the connected vehicle business and services. In particular, he launched TomTom's LIVE suite of connected services (traffic information, local search, etc.).

Within PTOLEMUS, he has **led over 50 assignments in consumer and commercial telematics** for leaders such as Admiral, Aioi Nissay Dowa, Allianz, AXA, Baloise, Liberty Mutual, Michelin, Octo Telematics, Qualcomm and Toyota.

For instance, Frederic

- Assisted one of the world's largest insurance groups in designing its telematics strategy & business plan across Europe;
- Defined the **5-year device roadmap** of a major Telematics Service Provider,
- Helped the European provider of a smartphone UBI data collection solution in raising funding,
- Helped a **global automotive tier-1 supplier** in **defining its strategy** in the field of telematics insurance (UBI) and acquiring a driving behaviour dataset of 10,000 vehicles to examine the relevance of this data for its own objectives,
- 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.

Frederic co-authored the Connected Insurance Analytics Report and the UBI Global Study 2016.

Thomas Hallauer, Research Director, London

BA, International Business, South Bank University, London

Thomas Hallauer has gained 15 years of strategy, research and marketing experience in the domain of telematics and location-based services from companies such as Admiral, DriveFactor, Liberty Mutual, Michelin, Mobile Devices, Octo Telematics and Wunelli.

He is expert at highlighting new trends, unearthing profitable niches and marketing new products and services notably in the automotive, motor insurance, LBS, navigation 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 ETC Global Study, the most thorough review of the Electronic Toll Collection and Road Charging market published in May 2015.

Thomas **reviewed and published the Connected Insurance Analytics Report. He also co-wrote the 2016 UBI Global Study,** 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.

Sahand Malek, Consultant, Brussels

(PhD in Automotive Engineering, University of Bath, UK and MS Mechanical Engineering, Univ. of Birmingham, UK)

Sahand Malek has gained almost 5 years of experience in telematics research and development projects on vehicle On-Board Diagnostics (OBD), data management and analytics, Usage-Based Insurance (UBI) and Advanced Driving Assistance Systems (ADAS).

He notably conducted an extensive academic study on the effect of driving behaviour on fuel consumption and road safety that led to the development of various frameworks and post- processing methods to analyse driving data. He managed to identify, classify, and model driving differences from real-world data from fleet drivers.

He also gained extensive experience in **conducting projects that are using on-board diagnostics tools (OBD)**, portable emission measurement systems (PEMS) and location-based sensors.

He has in-depth knowledge about many aspects of traffic and transportation science, as well as automotive engineering. He has proficient statistical and technical knowledge, and he is capable of providing advice on both managerial and technical levels.

Sahand is the **lead author of the Connected Insurance Analytics Report.**

IMPORTANT NOTICE

Disclosure

The recommendations and opinions expressed in these guidelines reflect PTOLEMUS' independent and objective views. However, PTOLEMUS cannot provide any guarantee as to the accuracy of the information provided or the reliability of its forecasts.

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BEST PRACTICES IN ANALYTICS

Before you start

- Advanced analytics requires expertise in data science, actuarial, psychology, marketing and IT
- Building a driving score requires an infrastructure able to record, clean, filter, archive, store and exploit large amounts of data

Recording data

- Data collection should meet frequencies of 1 Hz for location, 200 Hz for acceleration and at least 300 Hz for crash reconstruction
- The core driving performance indicators are defined as: speed, acceleration, deceleration, cornering, mileage and time. They should be collected at very low threshold levels.
- The data must be calibrated across all devices to obtain comparable datasets. Tests must demonstrate that all devices used in the programme have been tested together in the same car, delivering comparable data.
- Collect a minimum of 40,000 cars per year worth of data to ensure your risk model is reliable.
- Build your data management architecture with driver privacy in mind, e.g. allow for geographic position to be deleted once the score has been calculated at the end of each trip
- Collect separate crash and near-crash event data for forensic purposes, but also to inform risk assessment and claims management.

Processing data

- Parallel computing and big data frameworks need to be used to provide real-time data analytics services.

Processing data

- Kalman filters should be applied first to clean data noise related to recording, driving and location.
- Machine learning should subsequently be used to ensure datasets are free from errors such as transport mode or driver ID.
- Utilise telematics data not only for pricing but also for CRM, fraud prevention and claims management.

Scoring drivers

- Scoring should be trip-based with adjustments made monthly and quarterly using weighting methods.
- Put driving behaviour in context by relating it to environmental information. The set of information layers should at least include: relative speed limit, road type and crash-prone locations
- Correlate behaviour with past claims records, crashes and actual claims losses to continue improving predictiveness.
- Monitor driver distraction e.g. by using the driver's smartphone app
- Detect and interpret crashes to understand the responsibilities but also how the driver anticipated and reacted to the situation

Interacting with drivers

- Scoring criteria and sub-scores must be clearly expressed and made understandable to drivers. Criteria the driver cannot influence should be explained separately.
- Driver feedback should be made of immediately actionable rules with trip by trip measurement and follow ups, to ensure safe driving habits are adopted.
- Real time information to the driver should not be distracting and designed to make driving safer and more comfortable.

The Connected Insurance Analytics Report will be available shortly and we will keep you informed of its release