

Issue 2

# Unlocking the Value of Insurance Analytics

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# Introduction



Analytics has exploded in recent years, with the promise of driving strategic value throughout the value chain through more intelligent and automated decisions. Successful use of analytics will see insurers benefit from process optimization, operational improvement and predictive capabilities.

In fact, in “Research Roundup: What Insurance CIOs Need to Know About Emerging Analytics Needs” a Gartner research paper published earlier this year, several key trends are highlighted. This includes the limitless power of analytics for the insurance CIO and technology professionals, as well as how analytics drives innovation and success in digital insurance. In the same article, 61 percent of insurance IT executives think BI and analytics on insurance will have a significant impact in the next five years. Furthermore, 21 percent believe it will be reshaping the industry entirely.

Regards,

**Geoff Werner**

Americas’ Country Manager, Vice President DriveAbility Consulting



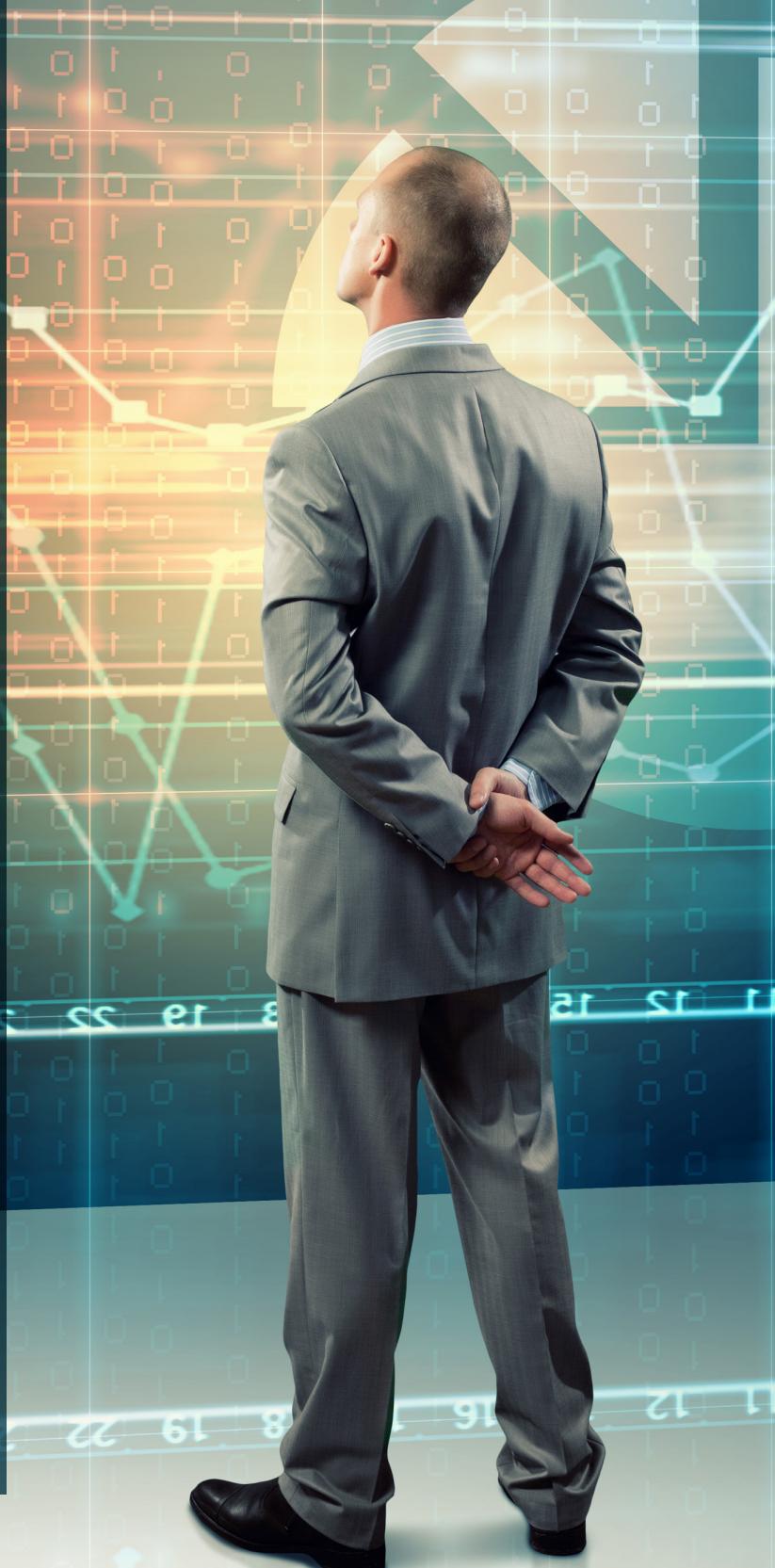
## Enablement Through Data

For many insurers, the journey towards mastering analytics for process optimization, operational improvement and predictive capabilities start with the data obtained from telematics.

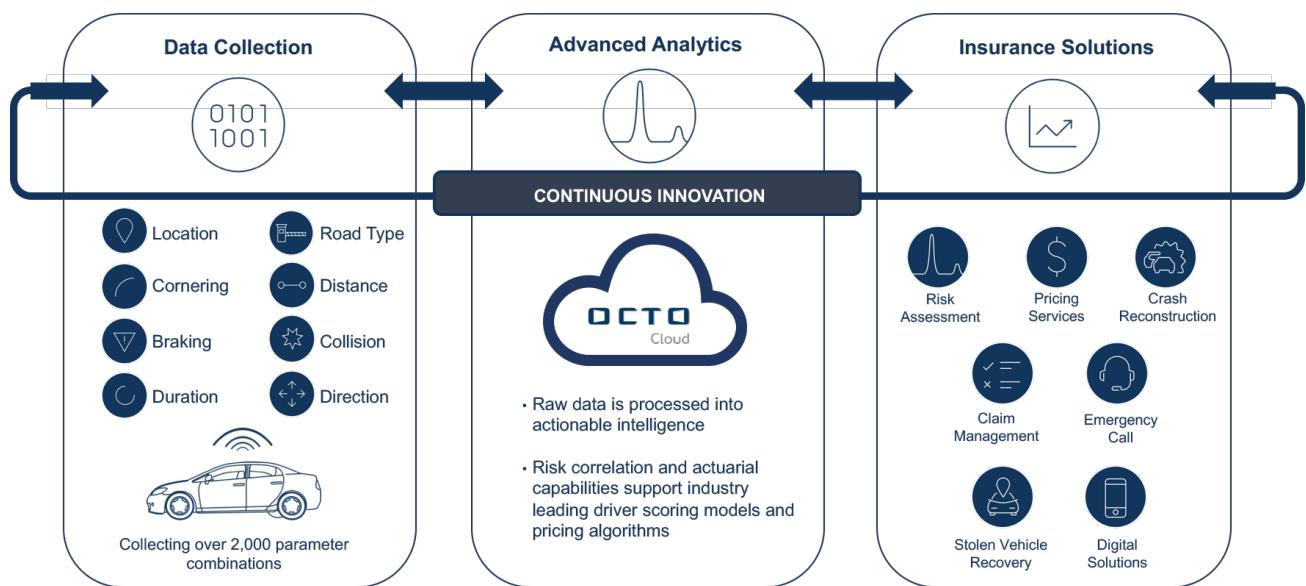
But far too often Insurers:

- Collect large volumes of data from the policy holder without knowing what to do with it. This is costly to collect and securely store, and without a clear path towards ROI (Return on Investment).
- Collect the bare minimum data due to concerns over privacy and cyber security. Minimum data sets can prove to be value-less, being so limited there is not enough to do anything with and made worse when this is only realized after a number of years.

The path towards achieving ROI and avoiding wasted efforts is to think about derived solutions from day one and the data needs required to enable it. In Figure 1, viewing the chart from right to left, we see a number of insurance solutions that have all been derived from telematics data collected from the vehicle. These solutions provide ROI, such as risk assessment for improving the insurers' portfolio and crash detection for near instant FNOL (First Notice of Loss), but also proactively and efficiently manage a claim and reduce the risk of fraud, etc. These solutions can only be achieved through advanced analytics, that is also the foundation for innovation in digital insurance as discussed in the Gartner research.



**Figure 1. Insurance Solutions Derived from Telematics Data**



Source: Octo Telematics

A typical approach by insurance data scientists is to collect and analyze highly summarized telematics data. For example, they may only use data such as total miles driven, number of harsh brakes, percentage of driving that occurs during high risk times, average trip duration or average speed. This approach is easier to handle the analytical challenge when using this simple data, but much of the potential benefit of telematics data is lost.

The best practice, as set by Octo Telematics, is to start with granular telematics data (e.g. location data can be as granular as every second) as it provides the following benefits:

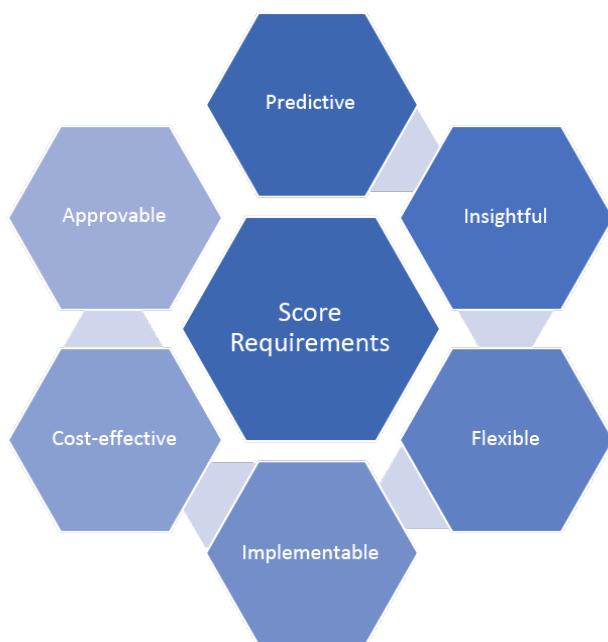
- Data cleansing:** with the granular data, the analyst can build automated cleansing routines to address the common data errors that occur (e.g., speed dropping to zero for a record) to minimize 'phantom' events that can undermine the confidence of the customer.

- Contextual data:** when the analyst has the granular data, it is possible to add or derive contextual information that may be available and powerful. For example, if you know exactly where the vehicle was, the analyst can add elements like attributes of the road being travelled and weather conditions.
- Deeper insights:** relying on events and averages limits any analysis to those events. For example, harsh braking thresholds are commonly set at levels in which 99% of deceleration events are ignored. By collecting data at a granular level, the analyst can study any behavior and uncover far deeper insights.
- Behavior modification:** when events are highly summarized, an analyst can only determine driving profiles that are correlated with an increased probability of accidents. For example, harsh braking thresholds are commonly set

at levels in which 99% of deceleration events are ignored. Harsh brakes, however, don't cause accidents to happen, but rather helps the driver avoid an accident. Instead, it is the driving behavior that precedes the need to brake harshly (e.g. following too closely to the vehicle ahead) that causes accidents and the need to brake harshly. With granular data, the analyst can determine the driving decisions and the environment immediately before a claim takes place, understanding what causes accidents to happen. This is crucial for behavior modification.

- Analytical flexibility: sometimes the analyst may need to build a risk score for a new emerging dataset. If you have collected granular telematics data, the analyst can redefine the existing granular data to make it "look like" the new dataset, providing another analytical dimension.

**Figure 2. Building Blocks for a Best-in-Class Risk Score**



Source: Octo Telematics

## Data that works for you

Examining data at a much more granular level allows the analyst to study actual behaviors and the environment in which the policyholder is driving or in which an accident has occurred. Managing risks related to driving behavior and the potential for accidents is done by creating an individual telematics based risk score, derived from advanced analytics.

The essential ingredients to building market leading risk scoring algorithms include raw telematics data, crash and claim data, important contextual information, and traditional policy data. As shown in Figure 2, these ingredients should be used to develop risk scoring algorithms with consideration to a number of building blocks.

- Predictive: the risk score should accurately predict future insurance losses for the vehicle or driver being scored. Additionally, the lift (improvement in predictive accuracy) should be above and beyond lift achievable with traditional rating factors.
- Insightful: the risk score should provide information that is useful to both insurers who need to understand the risk and consumers who may want to mitigate their risk. Ideally, the risk score will identify driving behaviors that lead to accidents (as opposed to behaviors that are just correlated with increased risk) and are controllable by the consumer.
- Flexible: the risk scoring algorithm will ideally be built so that it can be adapted to different situations (e.g. sensors that are unable to give the same data or products targeted at different customer groups).

- Implementable: the risk scoring algorithm must be able to be implemented in a production environment and deliver insights in near-real time for consumers
- Cost-effective: the benefits of the risk scoring algorithm should exceed the costs associated with software development, system maintenance, operations, data transmission and contextual data acquisition.
- Approvable: any risk scoring algorithm used in pricing must be approved. Care should be taken when including factors that may be contentious to the various regulators.

## Results driven advanced analytics

Taking an analytical approach has three major advantages: it provides a better consumer experience, it maximizes predictive power and it facilitates future proofing.

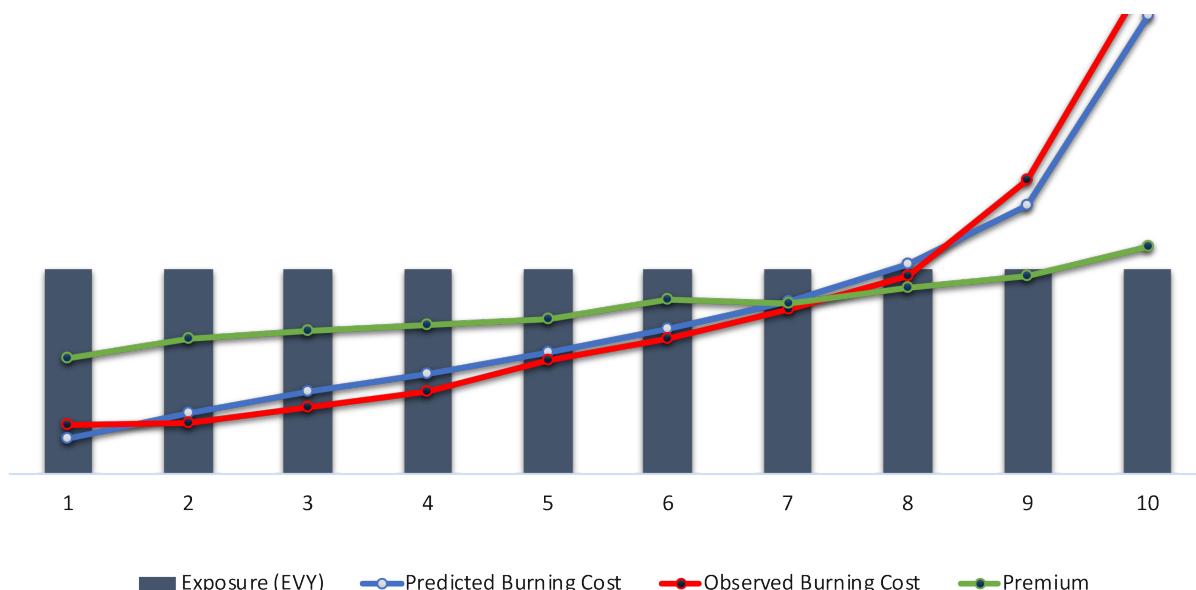
This approach helps provide a better overall consumer experience. First, it seeks to minimize false positive events which lead to complaints and distrust of any score. Second, by focusing on events that cause accidents, information can be provided to help drivers improve their driving and minimize the chance of getting into accidents.

Furthermore, this approach can maximize the lift of a score which is important to insurers. Based on the way Octo Telematics conducts their analysis, the score is believed to be two to three times more predictive than any traditional rating variable.

To illustrate this predictive accuracy and expected lift, Figure 3 shows the predictive lift above and beyond traditional factors.

- A group of insured drivers are scored using the Octo Telematics algorithm and subdivided into ten equal groups (or deciles), with group one being the safest drivers and group 10 being the riskiest.

**Figure 3. Telematics Derived Predictive Lift**



- The blue colored line shows the relative predictive risk for each group. As can be seen, the risk increases with each group with the highest group posing well over 10 times more risk than the safest group which is an amazing result considering the included population is a group of “good” drivers that self-selected into a usage-based insurance product. To put that in perspective, the most powerful traditional factors have a lift of about three or maybe four.
- Too often score providers have a score that doesn't hold up when actual results are compared to the predictions. The red colored line shows the actual results of that group. As can be seen, the actual results very closely followed the predictions adding confidence to any insurance company relying on the Octo Telematics score.
- Importantly, the full lift can only be realized for insurers if the telematics data is combined optimally with the traditional factors being used.

Finally, the analytical approach provides future proofing. As stated earlier, by collecting and storing the granular

data, new behaviors can be studied and append emerging external data at any time (e.g. Advanced Driver-Assistance Systems related data). An additional benefit is that we can also use a granular data set to build scores analytically, when we only have access to less granular data sets.

## Summary

Risk scoring is often the first step, but as you continue down the analytics path, greater savings can be expected. CIO's have shown they are already fully aware of these benefits, but need the full ‘buy-in’ of business leaders to achieve ROI.

Figure 4, shows several best-case improvements to the business based on the real experience of insurers that have fully integrated telematics powered analytics as part of their processes.

With these proven benefits, CIO's and analytic leaders can use telematics as their key to unlocking the value of analytics when working with their business counterparts and when seeking internal sponsors for investment. As digitization of the platform is driving a surge in focus on analytics, the spotlight on CIOs will continue to shine.

## Figure 4. Business Process Improvements from Telematics Powered Analytics

Reduction of Number of <b>Claims</b>	-18%
Reduction of the Average <b>Claim Cost</b>	-11%
Reduction of the Number of <b>Frauds</b>	-50%
Reduction of <b>Whiplash</b> Claims Paid	-32%
Reduction of <b>Lawsuit</b>	-34%
Reduction of <b>Managing Time</b>	-15%



**Research from Gartner**

## Research Roundup: What Insurance CIOs Need to Know About Emerging Analytics Needs

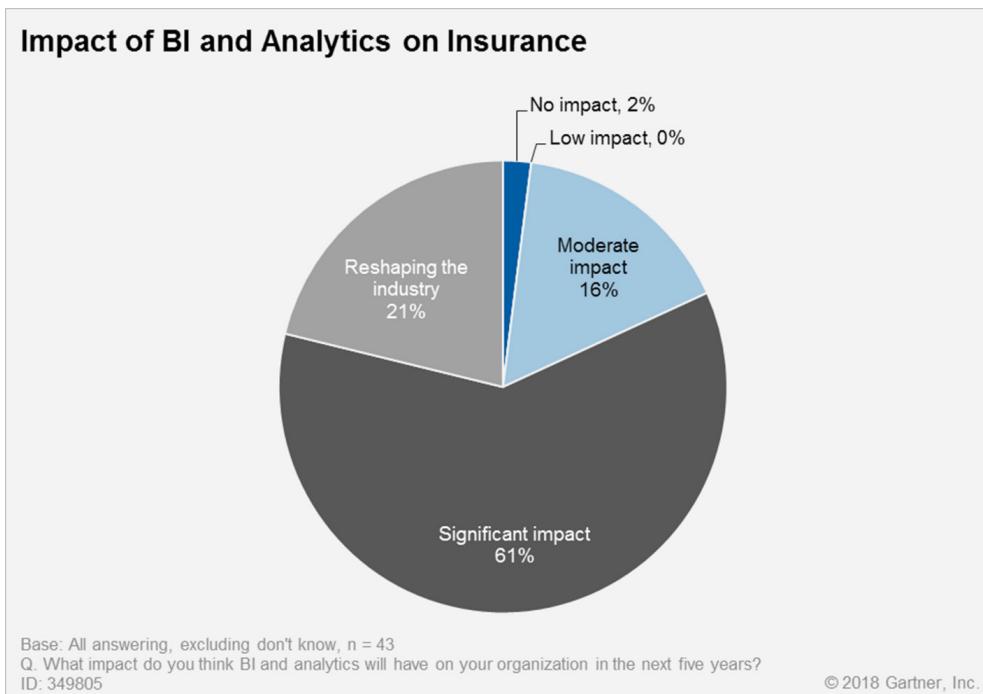
Insurance CIOs will be instrumental in analytics success, but must build new skills, work closely with analytics leadership, and take a central part in data governance. CIOs need to begin today to ensure they can effectively meet the needs of the business as they continue their digital journey.

### **Analysis**

BI/analytics continues to top the list as one of the most strategic technologies for P&C and life insurance companies. For several years running, BI/analytics has been cited by insurance CIOs as the top technology to provide strategic value to the insurance industry. Business and IT management alike are noting this as a way to drive strategic value throughout the value chain, through improved intelligence, automated decisioning and knowledge worker empowerment. Use of BI/analytics will lead to full process optimization when used with a range of other technologies such as robotics.

The power of analytics is limitless, and insurance CIOs and technology professionals are becoming increasingly aware of its potential — for example, to provide in-depth insight into operations and to transform the entire value chain through predictive capabilities. Insurance IT executives in a 2017 Gartner joint study with ACORD found that almost all insurers report that BI/analytics has a moderate or higher impact on the industry. Roughly 21% report that it is completely reshaping the industry as we know it (see Figure 1 and Evidence).

**Figure 1. Insurers Keenly Aware of the Importance of BI and Analytics**



Source: Gartner (February 2018)

Analytics and data will become larger parts of digitalization strategies in the future. New focus will grow as companies look to use information to innovate in areas such as marketing, customer experiences, fraud, claims and underwriting. To promote effective analytics use, however, CIOs need to ensure that the company has the proper leadership, governance (including data cleansing and cybersecurity), and IT implications of new data/analytics solutions that will be adopted in coming years.

CIOs will need to evolve first. They must ensure that they are more aware of analytics needs and building out analytical capabilities within the IT department to support new:

- Roles (such as the chief data officer)
- Departments (such as data science or analytics teams)
- Technologies (such as advanced analytics and artificial intelligence)
- Risks (such as cybersecurity associated with internal threats and those from externalizing data in cloud-based models)

They will need to educate the business on the role of analytics and intelligence in their future IT model (a digital platform). Building this digital platform with intelligence in the center of company operations will become the main architectural design for the future and will be key to digital transformation.

Furthermore, CIOs will need to support their businesses in new ways:

- Tap into more enterprise data, even dark data that has been underutilized and/or trapped in the legacy systems
- Build new capabilities, such as data lakes
- Seek methods to blend in new data, such as social, sensory or third party

In some cases, CIOs will need to implement new technical capabilities, such as machine learning or artificial intelligence, to assist in algorithm development and pattern recognition. Building a cohesive partnership with analytics and data leaders is necessary, and understanding the role of analytics in governance is a critical success factor.

## Research Highlights

### “Analytics Innovation Drives Digital Insurance Success”

Interest in analytics has exploded across the insurance organization, with the most interest in areas such as underwriting, product, customer, behavioral and fraud. In 2017, these were the areas where innovation was sought and implementation started. This research provides a framework for understanding these five analytics trends, including their use case and application in the insurance industry. However, in 2018, the focus on analytics is expanding. Although these areas are still immature for the majority of insurers, Gartner inquiries and research show that there are new focus areas for the coming year, in addition to those from 2017. New focus areas include:

- Claims analytics, to support the no-touch claims process

- More complex analytics, such as images through a combination of use with drones
- Fluid-free underwriting, where advanced predictive models and facial analytics are used in life insurance

### “Best Practices for Driving Successful Analytics Governance”

Although there is a greater focus on analytics, most CIOs and analytics leaders are quickly realizing that results will be limited and challenged without proper governance. CIOs are drawing the attention of business management toward the risks associated with trapped data, lack of data cleansing, and cybersecurity as digital initiatives become more commonplace and mature. In one way, it could be said that they are attempting to slow down analytics programs, with safety in mind. This may cause frustration among business and analytics leaders. CIOs must continue to educate and work with business counterparts on how to improve data governance and put in place the IT foundation to facilitate improved business outcomes from analytics investments. This research reviews the best practices seen across the industry for governance of analytics programs. It will help IT and analytics leaders develop effective governance programs to ensure analytics success.

### “Toolkit: Data Mastery Model for P&C and Life Insurance CIOs”

It is important to know one's data mastery maturity, and be able to identify the gaps that will prevent optimal analytics outcomes. This is quite hard for many CIOs. To help, Gartner has created this Toolkit, which will enable a self-evaluation of the fundamental elements needed for data success, including proper leadership, governance

programs, utilization across the value chain, model development (e.g., data science) and technology use. This Toolkit will serve as the foundation for assessing the organizational readiness for advanced analytics and as companies move into more advanced technologies such as AI.

#### **“Craft an Artificial Intelligence Strategy: A Gartner Trend Insight Report”**

As AI becomes more prevalent in the industry, CIOs need to evaluate their data and analytics programs. These programs should incorporate AI technologies and expand governance to include the use of machine learning for business outcomes. CIOs should develop more awareness of how to best use AI throughout the insurance value chain, as well as a holistic view on how to build the strategy. In addition, they must put the right AI technologies in place, implement ROI metrics that are associated with their business outcomes, and enable a staffing model that supports optimal AI use. Early insurance adopters have discovered that AI implementations often do not deliver the business results they anticipated. This is often due to not having a strategy or IT staff in place. Other organizational challenges may lead to a failure to see the anticipated results, such as lack change management or process optimization to address the outcomes expected. Applications have emerged in claims, underwriting and customer service, for example. This research will provide guidance for CIOs to help drive effective AI implementations and reduce the risk of these investments.

#### **“Every Organization Needs a Digital Platform Strategy”**

Digitalization is driving this surge in focus on analytics. CIOs in mature organizations are looking to rearchitect their IT to better perform in a digital ecosystem. This includes the build-out of a digital platform, which enables more open integration using APIs, support of improved communication/transactions with ecosystem partners, improved business process agility and enhanced data access. This new model — which is called a digital platform — is essential to meeting advanced phases of digitalization, such as when the Internet of Things (IoT) is introduced or as complex ecosystems are crafted. In the middle of this platform is intelligence. Gartner research has identified this as a core capability of digitally mature organizations and a key to success in sophisticated digital markets. This research reviews the movement to a digital platform and the role of intelligence within this technical approach. Platform components are defined, and recommendations are provided for how to build this platform to enable digital business. CIOs will be able to use this research to help identify the actions needed to improve their IT environment and enable a platform for success.

#### **Evidence**

**Gartner/ACORD Survey:** This survey was conducted by Gartner and ACORD in June and July 2017. The survey was conducted online with ACORD members and Gartner contacts. It included executives from business and IT. The respondents represented 43 P&C and life insurers: 26 in the U.S., four in the U.K., seven in Canada and six in other regions.

# About Octo Telematics

Octo is the number one global provider of telematics and data analytics solutions for the auto insurance industry. Founded in 2002, Octo is one of the pioneers of the insurance telematics industry. Today, Octo is the largest and most experienced insurance telematics company in the world, transforming auto insurance through behavioral, contextual and driving analytics for more than 100 insurance partners.

Octo has more than 5.6 million connected users and the largest global database of telematics data, with over 207 billion miles of driving data collected and 447,000 crashes and insurance events analyzed (as of 30th June 2018).

Telematics data is powerful and can help automotive OEMs, insurance companies and fleet managers facilitate a number of use cases, including but not limited to, promoting safer driving and tailoring insurance premiums. However, these benefits can only be fully achieved if the right data is collected and analyzed appropriately. Understanding the challenges, Octo Telematics help our clients maximize the use of telematics data. The team responsible for creating our analytical approach and building our scoring algorithms has over 20 years of combined experience analyzing telematics data.

Octo is headquartered in Rome, with offices in Boston, London, Stuttgart, Madrid, and Sao Paulo.



## Contact us

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