Insurance Claims Prevention Using New Predictive Analytics

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Connected risks

Combined global IoT markets to grow from **$235B** in 2017 to **$520B** in 2021 (Bain)

Number of IoT devices to grow from **14.2B** in 2019 to **25B** in 2021 (Gartner)

IoT expected to add **$10-15T** to global GDP over next 20 years (GE)

Internet of Things

AI & Analytics goals: Engagement, Automation, Insights

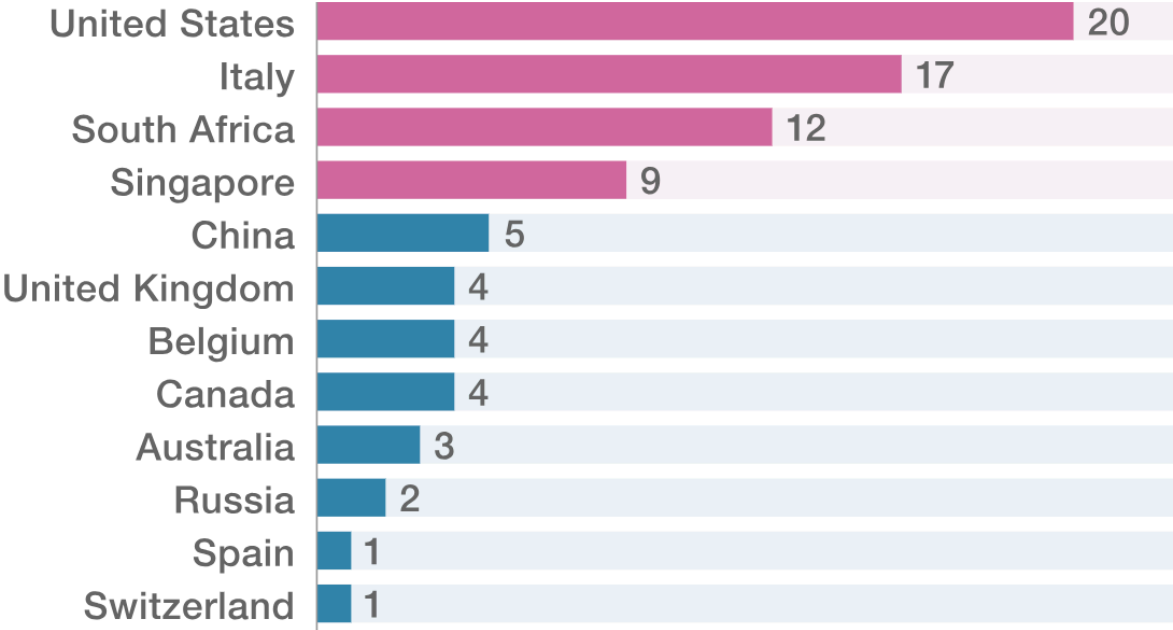|		
Engagement Chatbots, recommender systems, etc.	24	16%
Automation Document processing, straight-through processing, etc.	71	47%
Insights Pricing, fraud detection, claims prevention, etc.	57	37%
Total	152	100%

Source:

Tom Davenport and Rajeev Ronanki,

Artificial Intelligence for the Real World

Harvard Business Review, Jan/Feb 2018

Automobile telematics

Mature markets   Fast-growing markets

Telematics penetration by country, 2016, %

| Country	Value
United States	20
Italy	17
South Africa	12
Singapore	9
China	5
United Kingdom	4
Belgium	4
Canada	4
Australia	3
Russia	2
Spain	1
Switzerland	1

Source: McKinsey

# Automobile telematics

Claims prevention
- Use gamification with driver scoring to impact behavior
- Adjust recommendations and alerts based on weather data, traffic
- Detect and alert for distracted driving
- Monitor vehicle performance for predictive maintenance and repairs
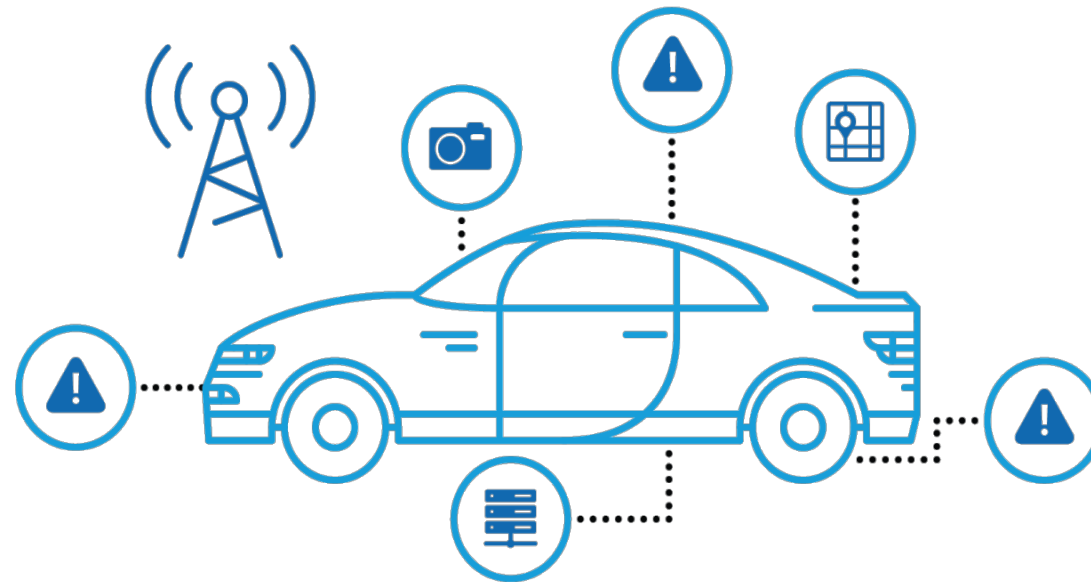
Automobile telematics

Severity control with sensor-initiated claim reporting
- Total loss identification
- Triaging/routing based on damage assessment
- Engage with customer to get more accurate information
- Video recording of accident can help validate loss details
- Easier to validate if usage of vehicle in line with policy terms and conditions
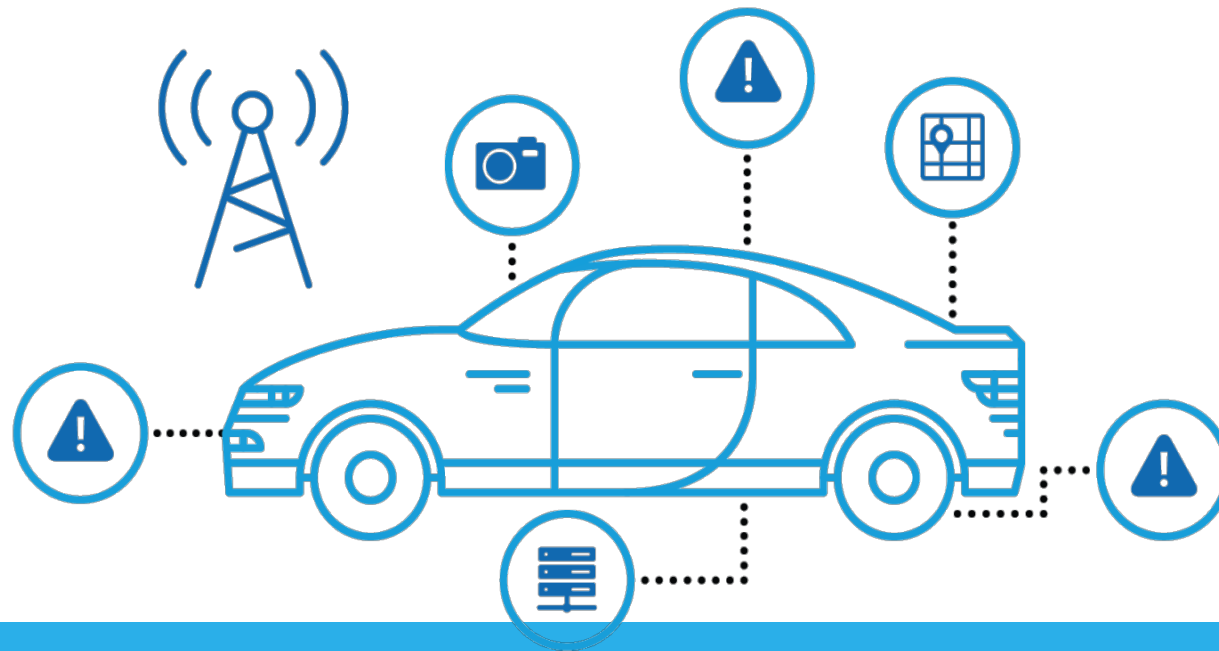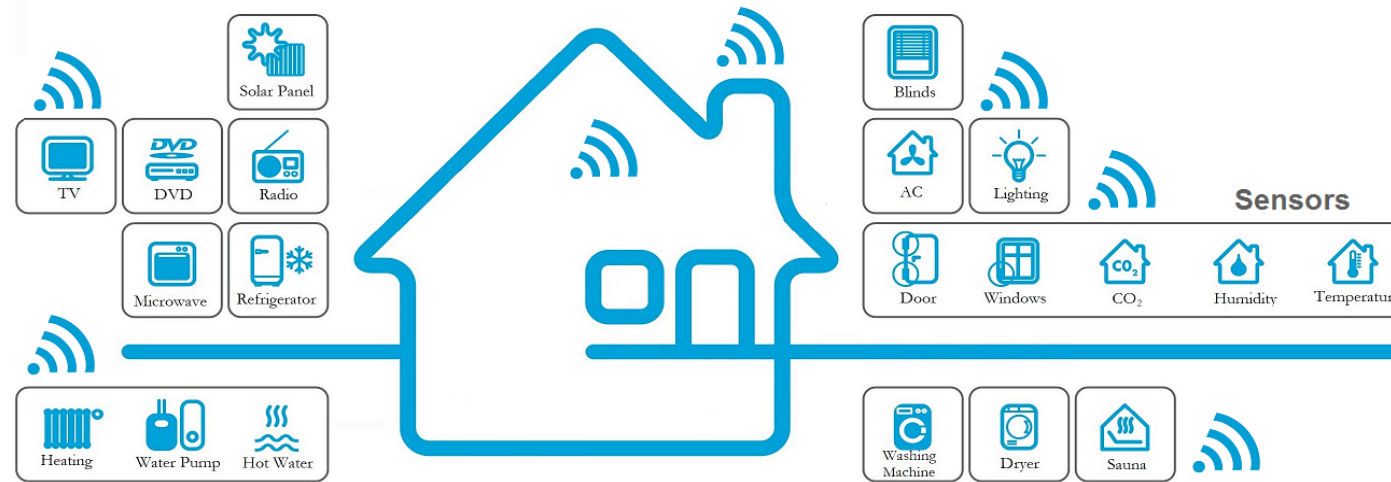
Smart homes and properties

Claims prevention
- Behavior and occupancy monitoring
- Home maintenance monitoring incentives
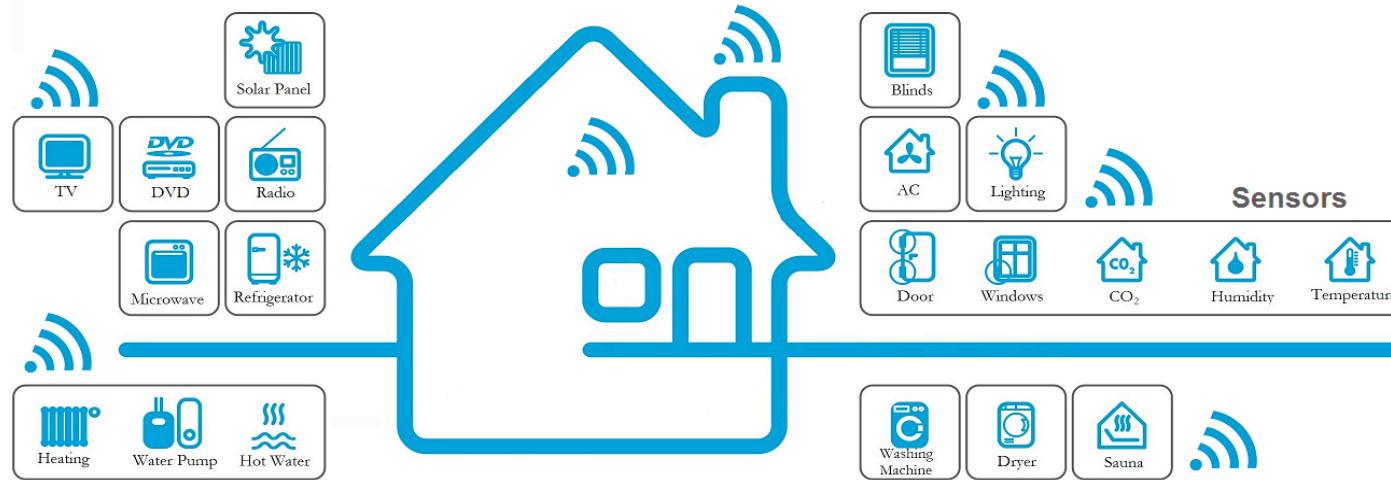- Better security systems (smart locks) for theft prevention

Smart homes and properties

Severity control with sensor-initiated claim reporting
- Leak sensors notification
- Triaging based on damage assessment
- Validation of contents
- Video recording of accident can help validate loss details

Smart homes and properties

Complexity (vs auto):
- Multiple devices
- Various configurations and installations
- Non-insurance related usage

IIoT and advanced analytics

Claims prevention
- Predictive maintenance to enhance asset reliability and reduce maintenance costs
- Reduce equipment breakdowns, downtime, and business interruptions
- Multiple integrated systems of connected workers, fleets, and equipment can work together to mitigate risks
- IIoT also used to optimize productivity and ensure workplace safety

IIoT and advanced analytics

- Fleet/Marine insurance premium could **factor** route chosen, weather, conditions, and usage.
- Risk of **cyber** attack on IIoT devices could lead to increased cyber insurance premiums

Predictive analytics

Single sensor:
- Using time series with change point detection can help detect departure from normal behavior or operating range

Multiple sensors:
- More complex multivariate analysis of time series data to perform anomaly detection to predict a system failure.
- Multi sensor modeling can leverage complex techniques such as deep learning
- Challenge with unbalanced datasets

In case of predicted failure:
- Predictive maintenance can be undertaken or
- Automated action can be triggered to take corrective action by translating the predicted failure into an action step sent to an **actuator attached to the edge**.

Challenges

Disruption to existing insurance business models

- Shrinking revenues due to reduced losses
- New competition from IoT vendors that offer insurance (e.g., auto manufacturers)

Data management

- Many insurers still struggle with traditional data
- Big data volumes generated by IoT require an enterprise data management strategy
- Data management strategy should provide unified solutions, tools, methodologies and workflows for managing IoT data as a core asset.

Challenges

Data ownership

- IoT data enables insurers to better understand risk. But data ownership remain a challenge for many insurers.
- Customers may argue they have rights over the data and need access to historical data on their claims history to switch insurers at renewal.

Regulation

- Many insurance authorities will struggle with how to regulate the data created by sensors.
- The more invasive nature of IoT data can present new challenges (e.g., cross-border driving)

Data security

- A vast quantity of data flowing between connected risks and insurers will be vulnerable to interception.

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