Yellowbrick

Visual analytics for insurance customer 360°

Industry Whitepaper

SYSTECH

Key use cases for insurance customer analytics delivered with Yellowbrick Cloud Data Warehouse and Tableau

Introduction

For insurance companies, achieving a "360-degree view" of the customer journey (customer 360) is one of the most important requirements for ensuring excellent customer service, creating precision marketing campaigns that lead to upsell/cross-sell, calculating risk thoroughly and accurately, and meeting regulatory requirements.

This whitepaper presents four use cases of insurance customer 360 analytics and highlights how the insights can be applied to deliver a better customer experience and drive targeted activities to optimize profits. To help visualize data, Tableau dashboards are provided for each use case with sample data in Yellowbrick Data Warehouse.

Finally, Yellowbrick's architecture for distributed clouds is described in detail as the technology solution that can enable these use cases and deliver real-time analytics with the fastest performance in the industry – at a fraction of the cost of other solutions.

Vehicle Telematics

The norm in the auto insurance industry had been to issue premiums based on fixed risk attributes (age, location, speeding tickets, etc.) but now the industry is moving towards usage-based insurance. With vehicle telematics, insurance companies can enrich existing customer data from other systems (CRM, ERP) with behavioral data points and provide personalized services. To unlock the benefits of usage-based insurance, customers install an IoT device in their car that captures data points of their driving patterns and get premiums that more closely reflect how they drive.

For insurance companies, the insights from vehicle telematics can be applied across the entire customer journey. For example, behavioral data points help better capture the risk profile of a driver and issue premiums that align with that risk. Companies can reduce existing customer churn by

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offering discounts to good drivers. Similarly, companies can better predict who is more likely to file a claim and increase premiums to those risky drivers. And customer loyalty programs can be improved with richer data on the driver population.

Below is an example of how insurance companies can use driver behavior data from vehicle telematics to create a driver risk profile:
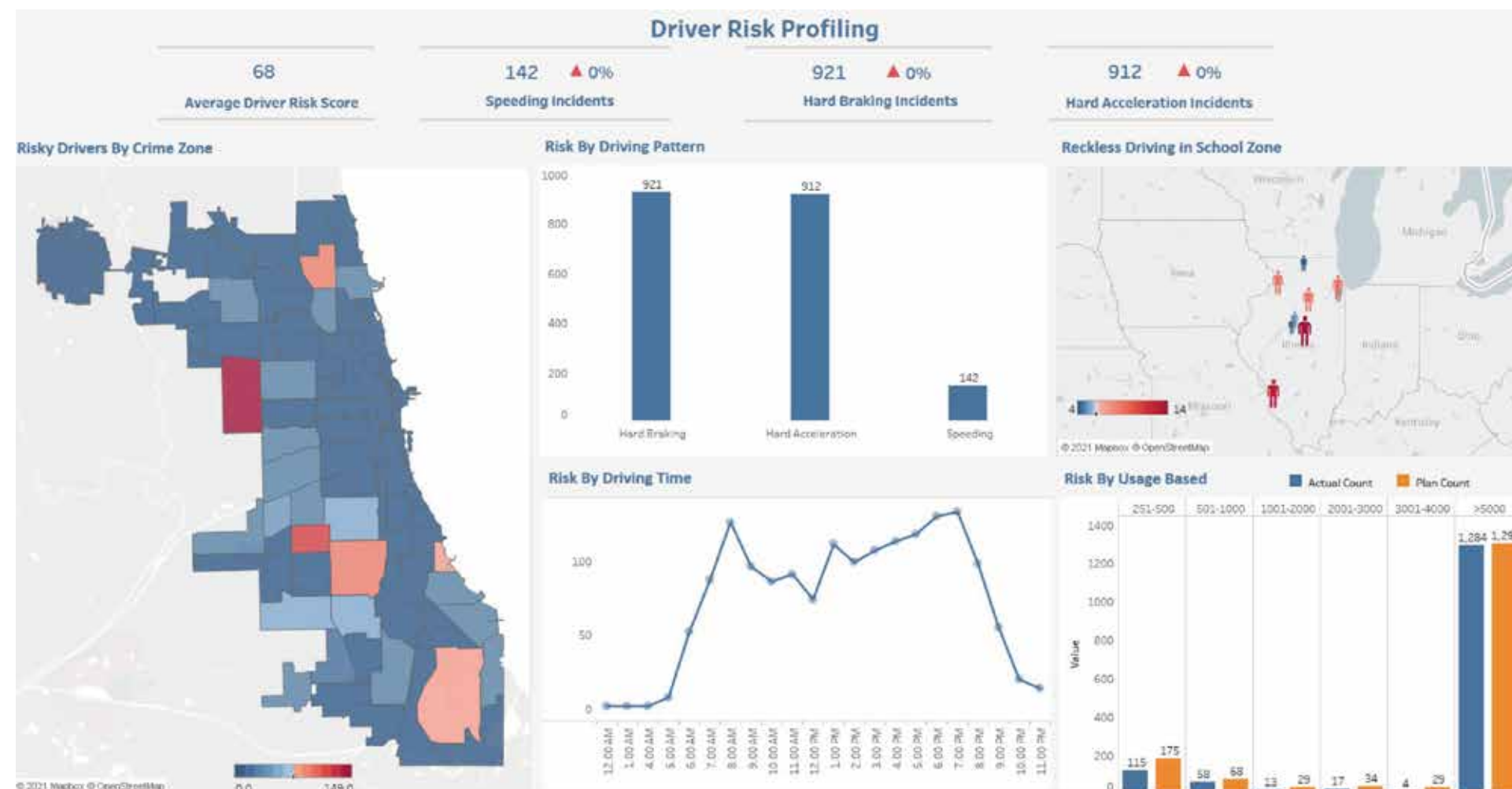
- **Risk by crime zone driving:** Driver data can be mapped to crime zone data to identify the population driving in risky zones.

- **Risk by driving patterns:** Telematics provide data points on hard braking, acceleration, and speeding incidents and how often they occur with drivers.

- **Risk by driving time:** Telematics capture how long a customer drives and that can be factored into a risk profile.

- **Risk by reckless driving in school zones:** Geo location can be mapped to school zones to assess the risk of reckless driving in school zones.
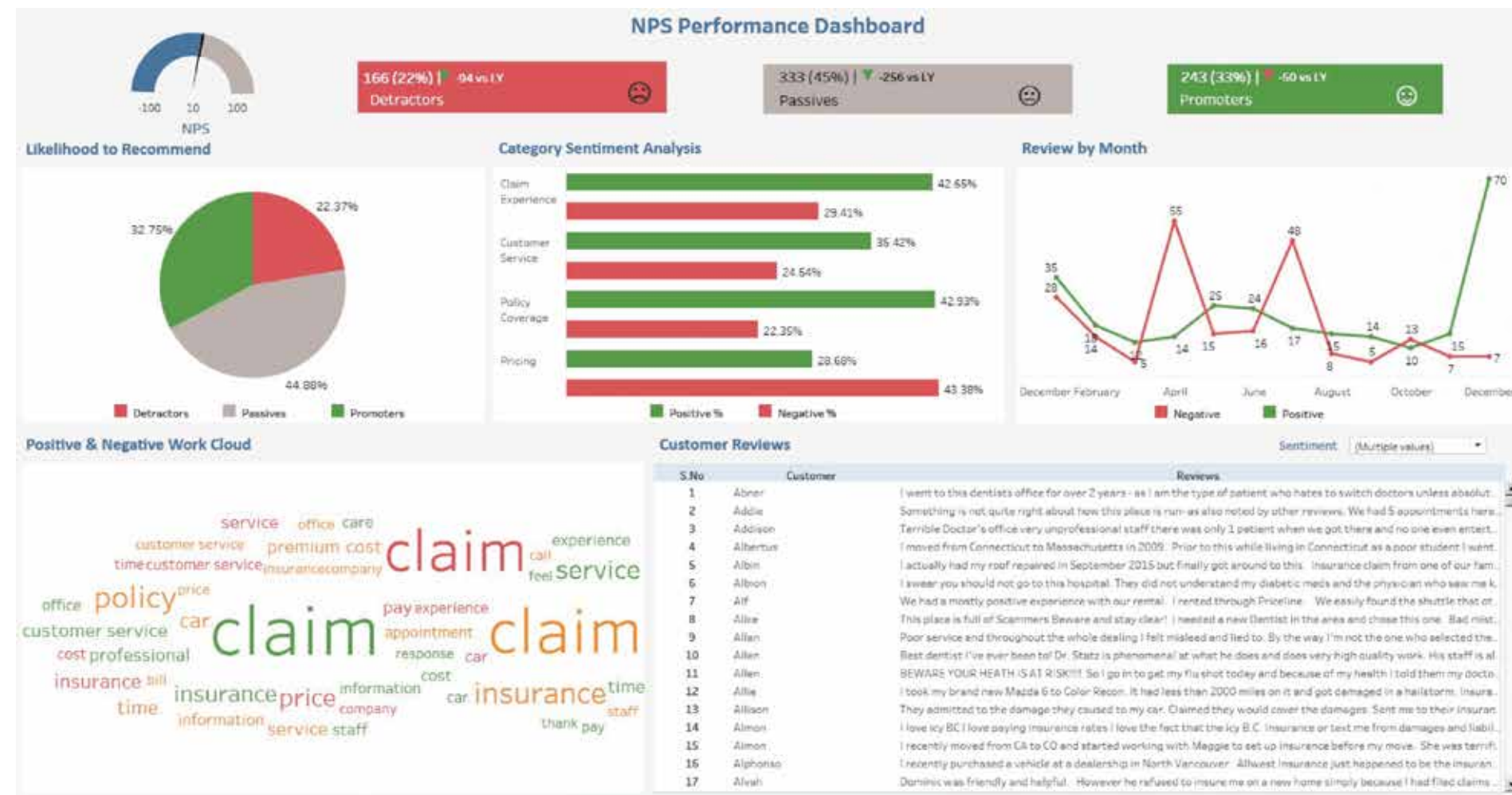

Customer Sentiment (NPS)

Reviews offer valuable sentiment data that insurance companies can mine to further understand customer satisfaction. Some customer reviews are captured in internal systems (claim experience survey, support surveys, etc.) and other reviews are captured in third party platforms (Google reviews, Yelp, Facebook pages, etc.). By consolidating all customer reviews into a single analytics platform, insurance companies can apply Natural Language Processing (NLP) and machine learning to get deeper insights on customer experiences and brand satisfaction.

Below is an example of how customer sentiment analytics can be generated from review data:

- **Likelihood to recommend:** Customers are categorized as "Promoters" or "Detractors" based on the overall sentiments from reviews. By combining data from vehicle telematics, insurance companies can also identify customer segments to focus on such as low risk detractors.

- **Category sentiment analysis:** Using NLP techniques such as topic modeling, customer reviews can be broken down into key topics and how customers express their satisfaction. This analysis can help identify stages of the customer journey that need improvement.

- **Sentiment over time:** Customer sentiment is dynamic and can change over time as new products are released or as company practices change. Insurance companies can monitor sentiment trends and take action to maintain a positive sentiment.

- **Segment shift in promoters and detractors:** Detractor to promoter movement indicates that customers have been served well and promoters to detractors is an early indicator of churn.

NPS Performance Dashboard

Customer Conversion

How to acquire and retain more customers is a key initiative for any company. But in the context of the insurance industry, only 1 out of 20 quotes get converted to a policy. Insurance companies can leverage data from quotes that did not convert to identify factors that may help increase conversion. Quote data can be ingested into a data warehouse and techniques such as logistic regression can be used to reveal the factors that are strongly correlated with conversion.

Agents and marketing departments can use this type of analysis to help them be more targeted with their efforts. For instance, agents can reach out to individuals that are more likely to convert. Similarly, marketing departments can create campaigns on prioritized segments to increase conversion.

On the right is an example on how quote data can be used to analyze factors influencing customer conversion:
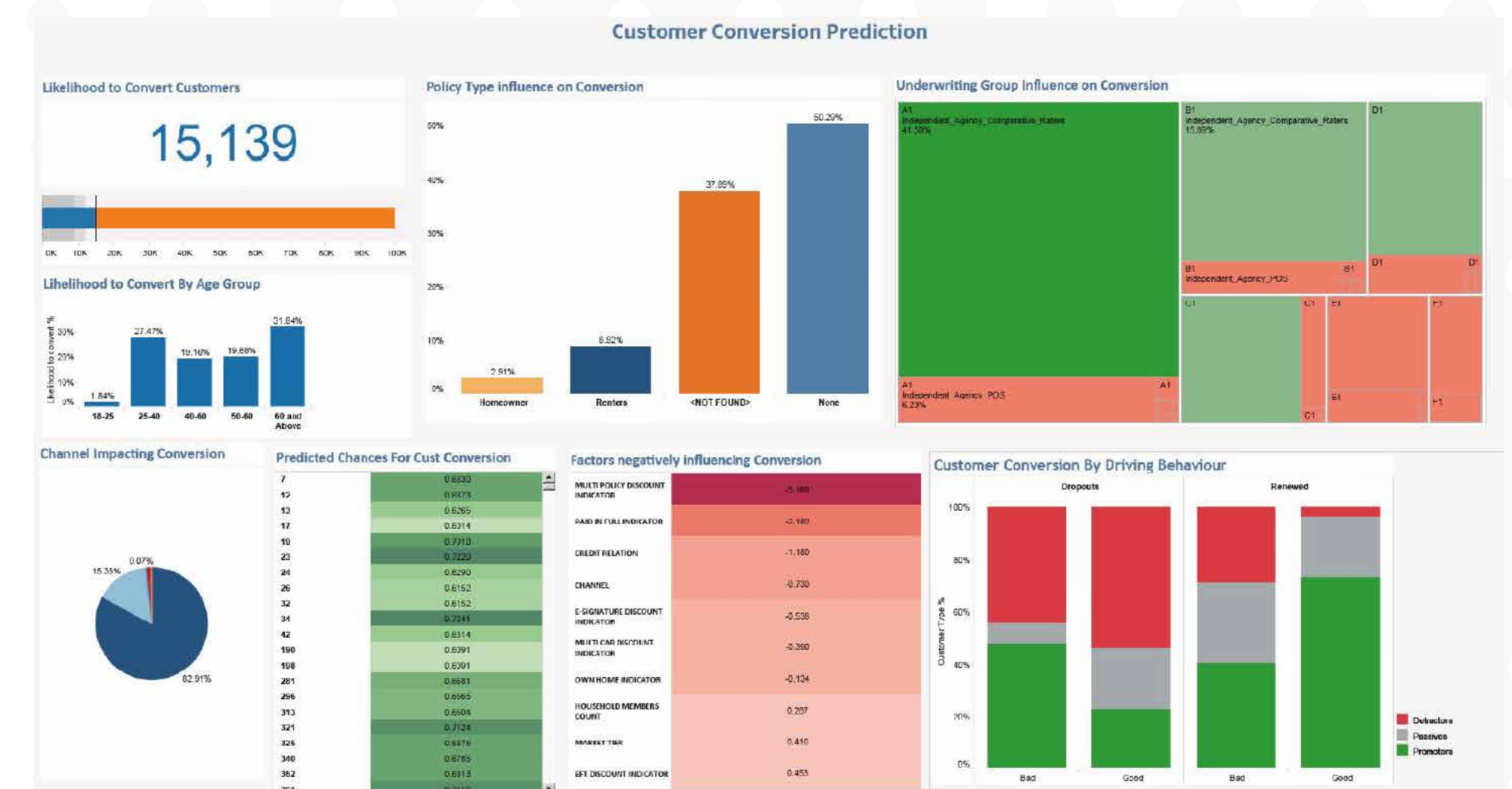
- **Factors negatively impacting conversion:** Multi product discount indicator is the factor that most strongly impacts conversion. An insurance company could increase multi-product discounts to help drive higher conversion.

- **Customer churn and renewal:** By combining quote data with data from vehicle telematics and customer reviews, insurance companies can create strategies to increase renewal conversion of desired segments (detractors that are not risky drivers).

Customer Conversion Prediction

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Product Propensity

For insurance companies that sell multiple services, analytics can also help understand which type of existing customers are more likely to buy additional services. Customer attributes are used in a regression model to identify which attributes have higher correlation with buying multiple services. The resulting segmentation data can be used by marketing to create cross-sell campaigns and by agents to better target existing customers.

Below is an example of propensity analytics:

- **Propensity by location:** Propensity scores can be generated based on geographic location of existing customer holders.

- **Propensity by policy:** Additional insurance purchases can be segmented by the existing policy purchased by customers.

- **Propensity by demographics:** Age and gender can be used to predict future purchases.
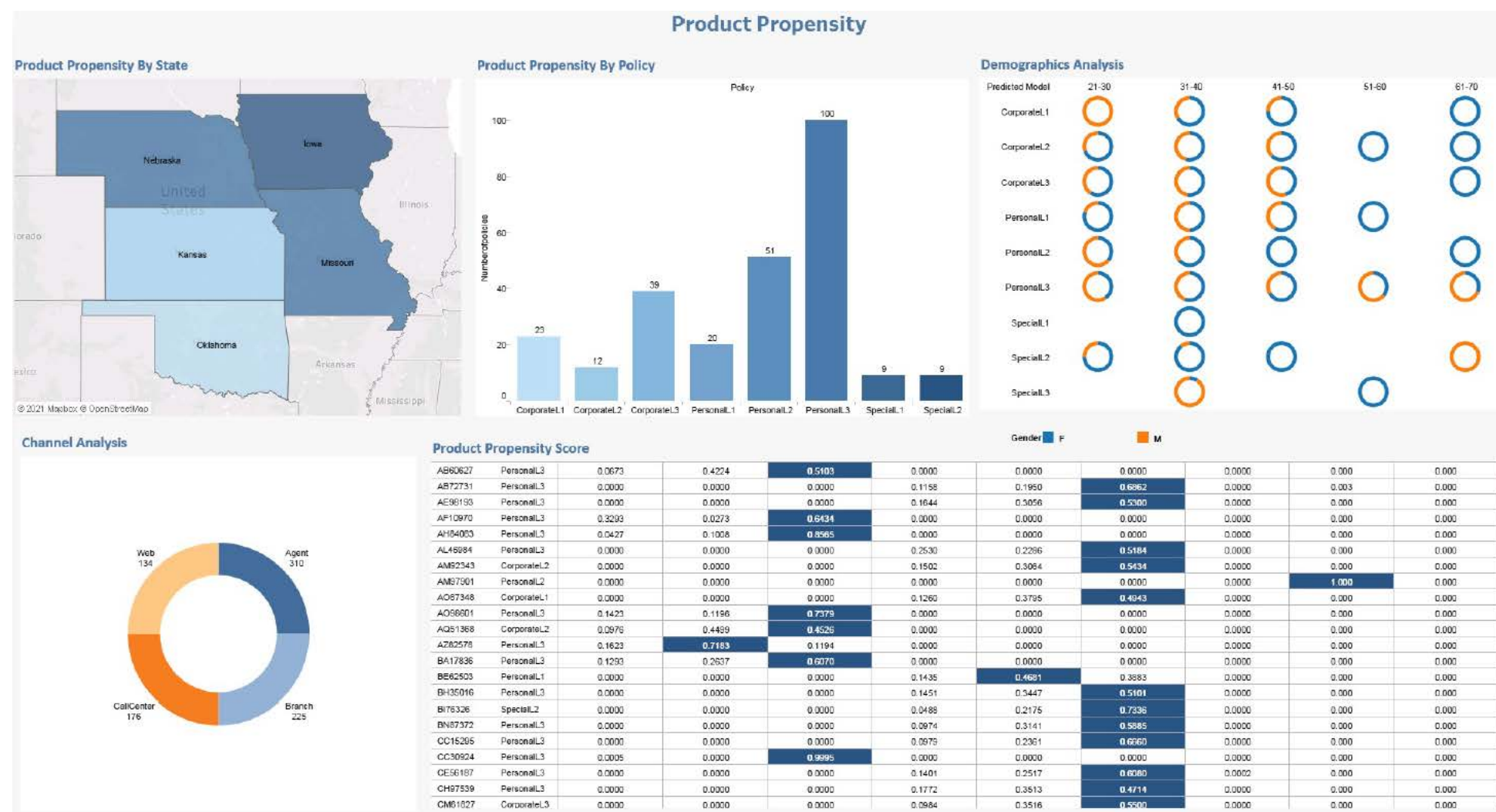
Yellowbrick Data Warehouse for Insurance Customer 360°

Yellowbrick Data Warehouse is a modern, MPP analytic database for the most demanding insurance analytics applications and delivers real-time analytics at a fraction of the cost of other solutions. A key element in providing a modern data warehouse is how Yellowbrick has embraced Kubernetes as core, cloud-native architecture. This architecture helps customers deploy, manage, and orchestrate data warehouse workloads across private cloud and public cloud environments, as well as at the network edge for future use cases like IoT analytics - with all instances, databases, and users managed through a simple, unified control plane (Yellowbrick Manager).

Yellowbrick enables insurance customer 360 use cases with an architecture that supports distributed clouds:
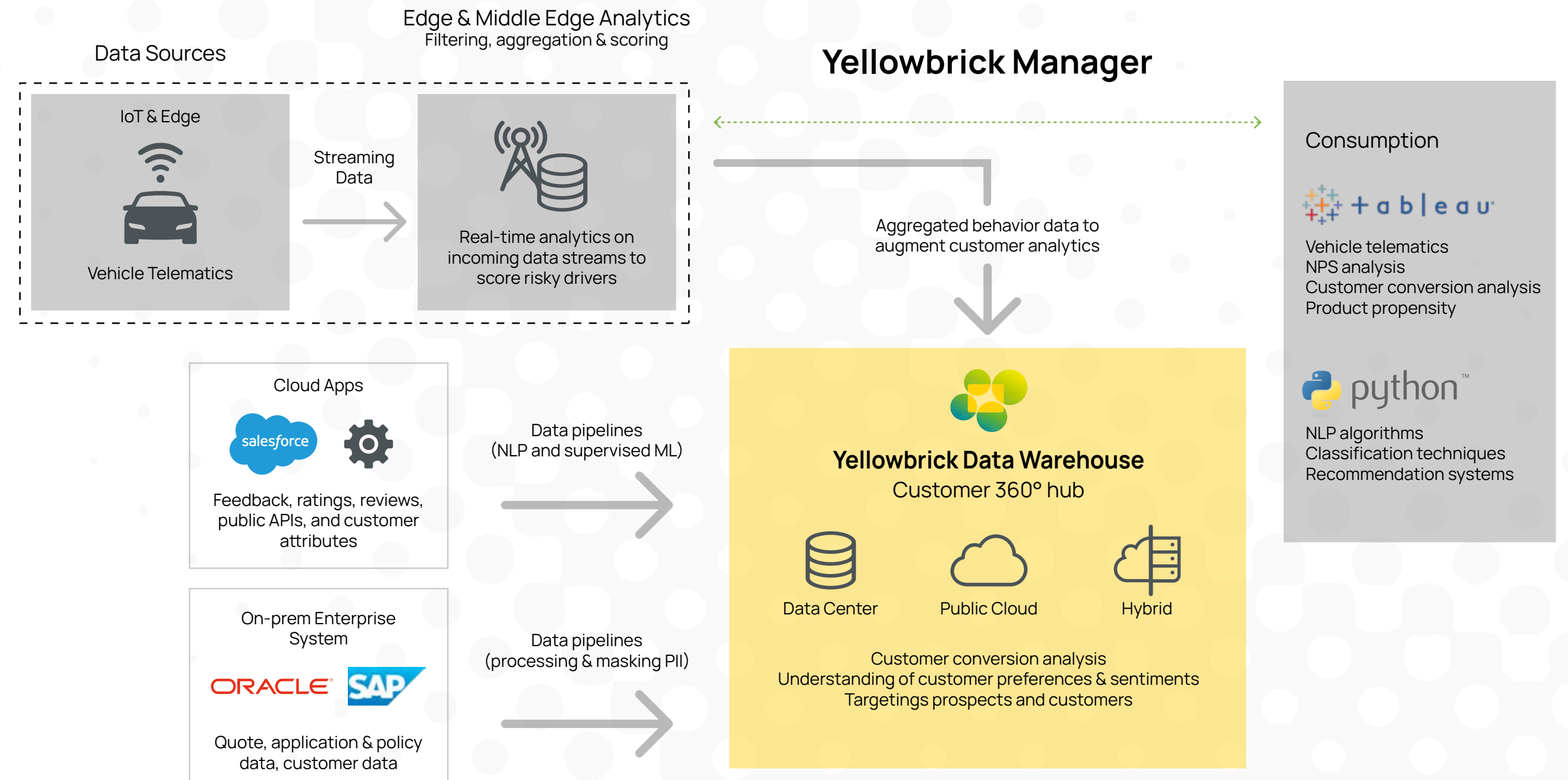
- **Vehicle telematics:** Data can be collected and processed at the edge running a cloud-native version of Yellowbrick and a central data warehouse instance stores aggregated data. Behavioral data can also be used in conjunction with external data that captures school zones, crime zones, etc.

- **Customer NPS:** Customer review data from external sources can be ingested into Yellowbrick and techniques such as NLP and machine learning are used to analyze customer sentiment.

- **Customer conversion:** Quote data from other enterprise systems can be ingested into Yellowbrick and regression models are used to identify the key factors impacting customer conversion. Yellowbrick provides always-on encryption and PII data can be ingested without compromise. Additionally, Yellowbrick integrates with security platforms such as Protegrity that provide data tokenization capabilities without impacting analytics performance.

- **Product propensity:** Existing customer and policy data can be ingested into Yellowbrick and regression models help identify suitable candidates for cross-selling.

Summary

Analytics are at the core of digital transformation and getting more insights into customers with a 360 view provides a competitive advantage to insurance companies. This whitepaper explored four use cases of insurance customer 360 analytics and how they can be delivered with Yellowbrick and Tableau for real-time visual insights.

Data and analytics best practices and technology are the single most valuable tool in defining digital business strategies. The success of a connected, digital enterprise is driven by a modern data platform and Yellowbrick and Systech Solutions, Inc. can help you transform into a modern digital business.

Edge & Middle Edge Analytics
Filtering, aggregation & scoring

Data Sources

Yellowbrick Manager

IoT & Edge

Streaming Data

Vehicle Telematics

Real-time analytics on incoming data streams to score risky drivers

Aggregated behavior data to augment customer analytics

Consumption

tableau
Vehicle telematics
NPS analysis
Customer conversion analysis
Product propensity

python
NLP algorithms
Classification techniques
Recommendation systems

Cloud Apps

salesforce

Feedback, ratings, reviews, public APIs, and customer attributes

Data pipelines (NLP and supervised ML)

Yellowbrick Data Warehouse
Customer 360° hub

Data Center   Public Cloud   Hybrid

On-prem Enterprise System

ORACLE SAP

Quote, application & policy data, customer data

Data pipelines (processing & masking PII)

Customer conversion analysis
Understanding of customer preferences & sentiments
Targetings prospects and customers

Additional Resources

To learn more about real-time analytics for insurance and how Yellowbrick delivers a data warehouse for distributed clouds, download the following resources:

Real-time Analytics in Insurance (Systech & Yellowbrick)
Data Warehousing for Distributed Clouds
Yellowbrick Data Warehouse Architecture

About Systech

Systech Solutions delivers measurable value, fast. They accomplish data and analytics initiatives 2x faster for 2x lower cost than most providers. With an unsurpassed technical breadth and depth along with 25+ years of industry experience, Systech is a leader in their field, having executed thousands of data strategy and management projects for businesses across verticals with a 100% success rate. To learn more about Systech, please visit: **www.systechusa.com**.

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