ORACLE

Improving Claims and Lapse Experience by Unlocking Great Value from Data

An Approach Paper

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BRIEF SUMMARY

The recent outbreak of COVID-19 has highlighted the need for insurers to step up their efforts on using their most valuable asset–data, more efficiently and effectively in response to handling claims and managing policy lapse. The accelerated spread of infectious diseases can heighten the challenge of the public health response system. Core to the problem of rapid response is the ability to manage data in order to scale according to the speed of any virus outbreak, for that matter. Social distancing and lockdowns are practiced as prohibitory measures for this pandemic. However, rapid response systems are also evolving on other preventive measures based on data and technology.

Enabling timely alerts, diagnosis, and managing availability of health care

Many of the symptoms of COVID-19 can be recorded using wearable devices and this IoT data can be a valuable leading indicator for infectious diseases. Leading Insurance companies are starting to incorporate this data to help mitigate future risks.

Data and analytics play an important role to help insurance companies reduce their claims experience. Insurance companies have access to a variety of data sources, including policy or contractual data from policy administration systems, data from wearable devices with policyholders, historical data from claims and medical data related to policyholder and family members. In addition, medical researchers can now refer to standard COVID-19 databases, such as John Hopkins and Kaggle.

Representative diagram of data flow:

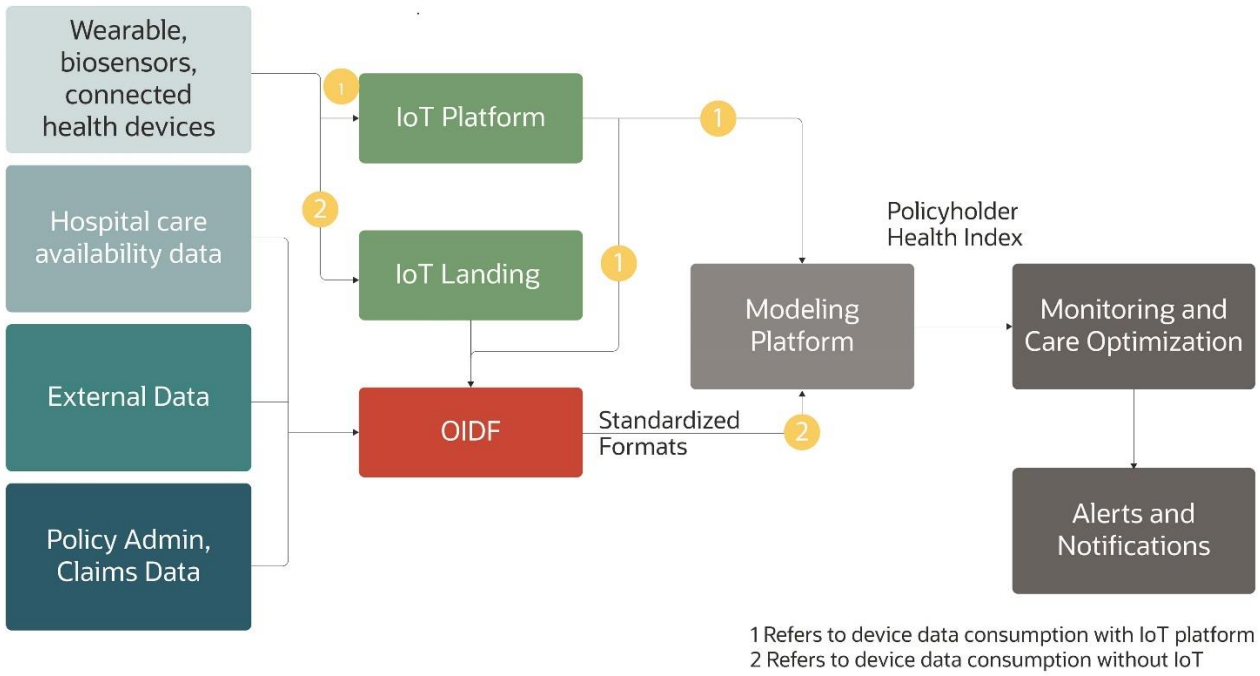


Figure 1. Illustrative Data Flow for Health and Pandemic Data Management

Availability of historical data is one of the most critical inputs to statistical modeling which provides a mechanism to raise alerts and distinguish between remedial measures. By utilizing the Oracle Insurance Data Foundation customers can readily build models for creating such alerts and identify the availability of healthcare within insurance policy coverage.

Individuals covered by life insurance, who have opted to share wearable device data with their provider can benefit from better healthcare action. Policyholders showing symptoms of irregular breathing and blood pressure associated with fever can be immediately alerted for remedial action. Patients with previous history of respiratory issues can be provided with suggested medical assistance over telemedicine compared to a patient with similar symptoms but without history of respiratory issues.

Insurance companies can use their data on the availability of critical care units, intensive care units across the coverage network of hospitals, and proposed booking to help policyholders choose the right place for care.

Needless to say, such analysis needs huge and rich set of data elements to dive deep. Oracle Insurance Data Foundation provides ready-to-use extensive data structures, including:

ORACLE INSURANCE DATA FOUNDATION	DATA STRUCTURE
Party	• Party Identification • Location • Employment • Financials
Underwriting	• Application • Quote • Life Style Activity • Medical tests • Medical treatments • Medical conditions • Family history • Party crime • Party substance usage
Claims	• Claim summary • Claim occurrence • Claim investigation • Claim break up • Reserve details
Pandemic Research Data	• Pandemic data • Hospital Availability
ACORD compliant IoT device data	OIDF provides ready to use structures as well as stores the placeholder for feed definition whereby customers can add or modify the feed structure easily.
Assumptions	Demographic and financial assumptions like Mortality, morbidity, lapse, Cost of Living Adjustments – COLA etc.
Other analytical use cases covered are IFRS17, profitability, Solvency II.	

Table 2. Oracle Insurance Data Foundation data structure

Insurers can compare the data within and outside their organization with elements like International Classification of diseases. This information on party medical and claims makes the data truly comparable for insurance companies. Availability of consistent and accurate data is backbone of all decisions made using the process. As business requirements evolve, rapid response to extend the data model requires much needed flexibility and strong data model management.

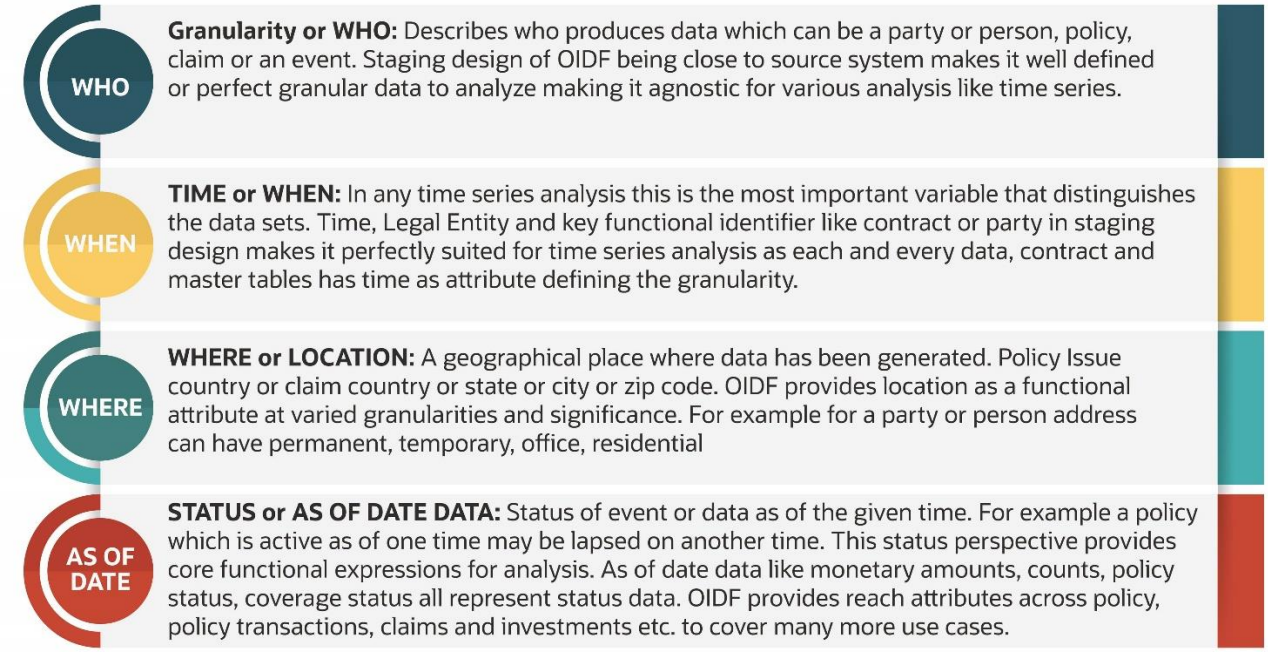
PREVENTING POLICY LAPSE

Pandemics come with financial instability. This results in policy lapse and reduction in overall profitability. Regulators are relaxing due dates for premium payments, extending grace periods, waiving late fees and penalties, and allowing premium payment plans to avoid lapse in coverage. Data science proactive alerts and actions are necessary to address policy lapse.

The standard approach is to devise a model ranging from simple regression to decision trees and NLP to predict the likelihood of lapse events. The provisions to be made in the future, profitability, and liquidity are all impacted by the assumption of lapse rates.

The basis of these models is strongly rooted in time series analysis which tries to identify patterns between historical lapse events and attributes, including economic variables and policy behaviors during those periods. On one hand there is general market data like interest rates, employment rates, and financial statements. On other hand there is contractual data like policy status, current amount invested, policy age and beneficiary age to name few.

DESIGNING THE DATA MODEL FOR TIME SERIES ANALYSIS



Ensure an analytical platform that provides a unique way for unified metadata management with the ability to load data from various sources. While data in staging is close to sourcing, metadata can provide other important features of clustering the columns for time series that belong to different granularity into one for further analysis. In addition, machine learning can add a layer of predictive analytics.

Enhancements to the data model design should be managed through a three-pillar system, including:

Business segment: Incorporates a large arena of insurance contracts (life and annuity, health, property and casualty, retirement and reinsurance, and group insurance).

Insurance product life-cycle: Extensively covers underwriting, application, quotes, claim process, and more.

Analytical use cases: Includes various analytical requirements (IFRS 17, profitability, Solvency II).

CULTIVATE A DATA CULTURE

Data Management

In a recent Gartner study[1] more than one-third of companies indicated they are using or are planning to use new, separate data management capabilities to support IoT, 61% of those surveyed expect to leverage and expand an existing data management infrastructure. Insurers are finding that many of the same data management infrastructure tools and technologies applied to more-traditional use cases can be a starting point to support IoT information.

Multiple Data Sources

There are multiple sources of data. Traditional data sources, including policy administration, claim management, and underwriting systems constitute one of the major areas of data collected over time. More recently, data from wearables [1]and other IoT devices has flooded the market. Data is added to public health databases each day and each point of data plays an important role in insurance analytics. However, data silos is a common error to effective data management. Siloes create additional work and time for various stakeholders to consolidate or integrate data for common use.

[1] Gartner study[1] https://www.gartner.com/smarterwithgartner/how-iot-impacts-data-and-analytics/

Data Integration

Consolidating data from a variety of source systems is one big challenge. While on one had there is traditional data which is working as a well-oiled machine for insurers over the years. On the other hand, piles of data from IoT devices has placed a wrench in the flow of things. Data consolidation is not only about ETL, but also about creating uniform data across all information users. This requires standardization of information or benchmarking against industry standard data models, such as the ACORD Reference Architecture.

Data Quality

While insurers integrate data from multiple systems and optimize it for analysis and business intelligence, data quality remains a significant challenge for many companies. Identifying the issues upfront, highlighting them to seek attention, and tying them up for use cases plays a key role in making the data quality process more effective.

Uniform Metadata

According to Gartner, one-third of IoT solutions will be abandoned before deployment due to lack of data management and analytics capabilities adapted for IoT. Uniform metadata is a critical component for any successful analysis, organizations must view information as a single truth when processing and reporting the information as well.

DEEPEN INSIGHTS WITH UNIFIED DATA

The best possible direction to focus efforts are on prevention, surveillance, and rapid response. However, modeling these efforts can become obsolete when data is not used or managed properly. The use of predictive analytics can play a huge role in these types of situations.

Actuarial teams have relied heavily on manual spreadsheets and legacy software for modeling. Languages like R and Python are useful and reliable for actuaries as they complement the core valuations in the legacy software. As an example, experience analysis uses and analyzes existing data to build actuarial inputs like mortality, lapse rate, and so on. For insurers to carry out such in-depth analysis, a scalable, data model is required to host data in various formats (SQL/NOSQL) and to consume this data optimally using statistical tools (Python, R, Mat lab). The experience of COVID-19 has reinforced the mindset of Insurers that taking any type of real-time action, starts with unified data. Coupled with emerging technologies, a unified data model can deliver deep insight for mitigating risks, understanding profitability, and supporting wider community and government needs.

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