Leveraging Advanced Analytics and Optimizing Big Data
An efficient approach for global insurers

The marketing and sales of products/coverage and the entire service spectrum in the insurance business are impacted by several factors such as digital technologies, demographic shifts, dynamic risk management techniques and evolving customer expectations. This necessitates using the huge data explosion to enhance product design, marketing, customer segmentation based selling, risk pricing and claims.

Today insurers are at the cross roads of digital transformation and the underlying data explosion which is disrupting the traditional sales, servicing and marketing models with new technologies such as social, mobile, Cloud, Internet of Things (IoT), and cognitive.

The hyper-connected, influential and well informed customers demand the highest standards of information and transparency. In addition, significant margin pressures demand lower cost structures, and the need for ‘advanced analytics’ becomes a major strategic focus.

The ability of insurers to deliver data driven decisions in the following core operational areas is critical:

- Leveraging underwriting/pricing and big data for risk-based pricing and improved risk selection
- Capturing customer sentiment, buyer behaviors, product affinity models, segmentation, etc.
- Improving operational efficiencies through cost reduction, activity based costing, automation, reporting, etc.
- Preventing claim leakage and fraud and capturing enhanced service improvement metrics
- Enhancing commission, channel and distribution effectiveness using multiple data points
Chief business analytics themes for insurers

Figure 1: Analytics overview
Insightful and critical data is generated at these stages which also represent interactive touch points between the customer and the insurer. In addition, historical data internally available (demographic, transactional) as well as that sourced externally (third party/social) constitute a wealth of information that can potentially be leveraged better to yield significant pay-offs.

As the customer traverses through the various stages in the journey, there are several business challenges that the insurer tries to address. Customer analytics can help in addressing these challenges -

- Identifying individuals with the highest propensity to buy
- Classifying prospects based on needs to create right product affinity models
- Uncovering hidden insights in customer data to create more personalized experiences
- Identifying veiled patterns and predictive models to run targeted campaigns, promotions and offers
- Lowering marketing promotion campaign costs and increase in effectiveness of campaigns
- Measuring the potential lifetime value of customers to improve sales forecasting and profitability
- Identifying these existing customers who have high propensity to churn and ways to retain them
- Ascertaining customer sentiment to detect emerging trends among homogenous customer clusters
LIFE CYCLE STAGES

Research
- Profile customers
- Evaluate prospects
- Reach right prospects

Explore
- Analyse customer interest/ need
- Optimize marketing mix
- Test marketing inputs

Purchase
- Target right customer segment with proper products and services
- Expand wallet share

Use
- Capture perception of product, service, brand
- Drive deeper product use

Ask
- Learn about drivers of engagement
- Respond to service and claim requests
- Understand customer satisfaction factors

Engage
- Engage customers using the right channel
- Examine lifetime customer value

Renew
- Manage defection
- Pre-empt and prevent churn

BUSINESS OBJECTIVES

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- Ask
- Engage
- Renew

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Customer Interaction Analytics

ANALYTICS AT PLAY

- Segmentation
- Lead Scoring
- Campaign Mgmt.
- Marketing Mix & Spend Optimization
- Prospensity Modeling
- Behavior / Sentiment Analysis
- CLTV
- Attrition Modeling
- Cross sell/ Up sell using NBO
- NPS Survey Analytics

Figure 2: Customer analytics services across life cycle stages
**Operational analytics**

This focuses on all aspects of running the insurance operations and the associated performance management across people, process, and reporting with visualizations. Operational Analytics entails the assessment, monitoring and improvement of operational processes and workflows, team workload management and workforce planning, KPIs and metrics tracking, data definition, adequacy and operational dashboard views. It is anchored on the following 5 foundational pillars.

<table>
<thead>
<tr>
<th>Process</th>
<th>People</th>
<th>Information</th>
<th>BI and Reporting (KPIs)</th>
<th>Visualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow routing</td>
<td>Team alignment</td>
<td>Data adequacy</td>
<td>Operational KPIs defined</td>
<td>Dashboards Defined</td>
</tr>
<tr>
<td>Work volumes and response time</td>
<td>Work origination points and volumes</td>
<td>Sources of Data</td>
<td>Reporting requirement / matrix</td>
<td>Stakeholder wise view details</td>
</tr>
<tr>
<td>Potential issues and bottlenecks</td>
<td>Opportunities for Improvement</td>
<td>Systems and Data Review</td>
<td>Reporting requirement for business area</td>
<td>Delays, bottlenecks, exceptions mapping</td>
</tr>
</tbody>
</table>

**Figure 3: Operational analytics overview**

**Operational Analytics delivers the following benefits**

- **Efficient Internal Operations**
  - Cycle Time reduction
  - Effort reduction
  - Operations Costs reduction
  - Call volumes reduction

- **Improved Reporting**
  - Performance measurement
  - Unified view of customer
  - Sliced & diced views per business area, process/ function, team

- **Enhanced Customer Centricity**
  - Cross/ Up sell
  - Retention
  - CSAT improvement
  - Referral

- **Higher Growth**
  - Revenue upside
  - Profitability improvement

**Figure 4: Benefits of operational analytics**
Distribution strategy and metrics impact core decisions such as staffing, agency/intermediary recruitment, product design, persistency, and expense and commission management. Intensifying competition between channels and spurt in the number and type of channels further add to the complexity of these decisions. Channel data analytics empowers insurers to make better distribution decisions.

### Channel analytics

<table>
<thead>
<tr>
<th>Commission Leakage</th>
<th>Agent Fraud</th>
<th>Lead Allocations</th>
<th>Operational Views</th>
<th>Agency Duplication</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tracks overpayment of commissions to the agents, which has to be clawed back.</td>
<td>• Detects cases of selling unethically for getting commissions and then cancelling policy after payout</td>
<td>• Enables Lead generation and mapping</td>
<td>• Provides a holistic operational view of agent productivity</td>
<td>• Provides replication analysis for identification of same agency across agency systems</td>
</tr>
<tr>
<td>• Detects commission underpayments due to inaccurate commission calculations</td>
<td>• Reveals cases of omissions and deliberate attempts by agents to withhold premium payments</td>
<td>• Helps classification of leads and allocation to the right channels</td>
<td>• Offers dashboards for insights into profitable/non profitable business sourced by agents</td>
<td>• Detects duplication of commission statements and payments</td>
</tr>
<tr>
<td>• Enables Commission Reconciliations</td>
<td>• Identifies spurious policies created by agents purely for commission payout objectives</td>
<td>• Ensures optimal allocation of right channel to the right client based on affinity models</td>
<td>• Enables comprehensive view of customer profile/last purchase/sum total of money accumulation</td>
<td>• Eliminates difficulty in getting a single view of the intermediary’s portfolio</td>
</tr>
</tbody>
</table>

Figure 5: Channel analytics overview
Underwriting analytics

What if underwriters had complete data related to the historical decisions made by a carrier with regard to underwriting (or declining) of risks along with the pricing details? What if they also had the additional knowledge of how those decisions turned out?

Underwriting Analytics helps mine this knowledge from historical data enabling underwriters to dramatically improve decision making with regard to the following key questions:

- How can the insurer create customer classification profiles based on social, demographic and other factors?
- Which of these customer clusters should the insurer prioritize for marketing and sales to create a profitable book?
- Which risk/customer segments should be avoided or written with high precaution based on carrier risk appetite?
- What coverages should be provided to each segment of customers?
- How should the risks be priced for optimal conversion in case of prospects & for retention of existing customers?

Underwriting and Pricing Analytics help insurers with favorable risk selection (new and renewal), accurate pricing to ensure a sustainable competitive advantage, and the agility as insurers cannot afford slow underwriting cycles in an intensely competitive market.

Figure 6: Underwriting analytics overview
Claims analytics

Typically about two thirds of the premium dollar goes toward losses. Claims administration and settlement impact the insurance bottom-line and any small reduction in these costs could improve margins significantly. Claims leakage can also happen in several ways including paying exaggerated amounts as indemnification due to lack of complete and accurate information in a timely manner or missing an opportunity for subrogation. Claims fraud is not uncommon. Business intelligence (BI) and analytics can make a substantial difference in controlling claim costs and leakage.

Measuring time service is also critical -to ascertain if industry leading best practices in claim service responsiveness are being adopted -

- Whether additional training or support is required?
- What are the minimum, maximum, median and average settlement times on claims, line of business-wise?
- Are there any other relevant metrics?

Report & Descriptive Analytics

1. Next Gen Claims Scorecard
   - Ability to Implement in a command center environment.
   - Metrics to support operations
   - Performance tracking including compliance to regulations.
   - Actionable insights for real-time remediation

2. Claim Subrogation Analytics
   - Helps detecting possibilities of claim recovery through subrogation
   - Ascertain & improve quantum of recoveries
   - Helps prevention of leakage by identifying probable claim recoveries
   - Reduce loss ratios by improving recoveries

3. Claim Litigation Analytics
   - Reduce litigation by identifying inadequate claims pay-out or unjustified claims rejection.
   - Predict the probability of litigation for a given LOB using existing claim data
   - Creates segmentation with attributes that identify litigious claims

4. Claims Triaging & Workload Planning
   - Smarter Claims Allocation Strategy based on accurate complexity clustering
   - Improve claims workforce planning
   - Helps in faster claim assessment and settlement thereby improving claim servicing experience

5. Claims Fraud & Leakage Analytics
   - Study patterns of historical claims to create predictive modelling
   - Quantification of root causes of claim leakage occurrences
   - Flags outliers based on claim patterns for further investigation

Figure 7: Claims analytics overview
IoT enabled analytics

IoT is increasingly becoming a rich source of data from a human machine interface. If leveraged optimally, it can enhance security, efficiency and user experience of products and services. The insurance industry is looking to use insurance data for-
- Better risk control
- Better service enablement
- Cost control

IoT’s power of real-time data collection and sharing is creating significant new opportunities in product development and revenue generation, and predictive modeling to better assess risk, improve loss control and accelerate growth.

Figure 8: IoT enabled analytics overview

**Smart Vehicles**
A SaaS based, device neutral platform which connects the complete ecosystem of automobile OEMs, consumers, dealers and insurers by analyzing and generating insights from connected vehicle and driving data, and communicates via all digital channels.

- Does behavioral analytics
- Draws contextual inferences
- Generates big data insights
- Drives analytics, scoring and risk assessment - Usage based insurance
- Helps insurers across risk profiling, loss prevention, crash forensics construction etc.

**Smart Buildings**
Cloud based IoT platform serving the property telematics business case by enabling loss avoidance/loss minimization through real time risk monitoring, and optimal data leverage.

- Sensor devices capture and transmit real time data around perils
- IoT platform does data ingestion, activity logging and notification, visualization
- Helps insurers around accurate property risk assessment, loss prevention and reduction, improved claim servicing

**Smart Wearables**
A next generation healthcare platform that provides preventive care anytime, anywhere by generating vital health insights. Capturing and disseminating, medical grade information in real time, using IoT and analytics.

- Wearable connected devices measure vital body parameters
- Health indicator are monitored remotely as device is synchronized with the computers
- Cloud enabled data analysis that determines the health and fitness index of the patients
- Helps insurers by aiding in premium ascertainment based on health and fitness index of health insurance customers. Customers can be incentivized accordingly
Helping insurers tackle industry challenges throughout the insurance value chain, Insurance Analytics brings a unique combination of deep domain consulting competencies and data science and modeling capabilities. This is bolstered by several robust platforms built on the latest big data technology stack and hosted on the Cloud.

Deep insurance domain expertise, augmented by proven implementation and service record makes Wipro a strong partner in the analytics journey. We have extensive experience formulating analytics roadmaps and implementing advanced analytics solutions for some of the largest global insurers in Life and P&C.
Our solution – Data Discovery Platform

- Wipro’s insurance industry analytics apps are built on the Data Discovery Platform (DDP)
- The DDP is an integrated solution for aggregating enterprise wide data and merging with big data from external sources
- It ingests, cleanses and transforms data from multiple disparate sources to create an integrated comprehensive target dataset
- It is pre-configured with variable repository and pre-built industry data models which facilitate advanced algorithmic and statistical modeling

Insurance solutions enabled by Wipro’s Data Discovery Platform

- **Data Sources**: Internal/External (Sales, Inventory, Price, etc.)
- **Acquisition Layer**: Connects to data sources and stores the data for analytics
- **Data Integration**: Integrates standalone data to create a single view
- **Analytics Layer**: Data Discovery/Analytical Engine
  - The heart of value generation enabling data discovery, self-service advanced and visual analytics, modelling, testing etc., Machine Learning/Artificial Intelligence
- **Consumption Layer**: Insights accessed through BI & Visualization

Why are we unique

- Integrated Data and Analytics Platform
- Repository of Prebuilt and Reusable components for Data Engineering, Analytics and Visualization phase to reduce time to insights
- Can deliver predictive, prescriptive & real-time insights

Applications can subscribe to information on various subscription models

The event hub is a Processing engine that processes the data and creates "discrete sets of events" based on the rules, patterns and other identifiable aspects.

These discrete events are assembled and processed through an event correlation and syndication engine. Semantic information is extracted from the set of events based on the defined models from the set of events based on the defined models.

Clickstream Data
Customer/CRM Data
Market Research Data
Demographics Data

Figure 10: Data Discovery Platform for insurance
Business benefits

Through the course of pursuing prospects and converting them, onboarding new customers, servicing, engaging and retaining them, our comprehensive analytics offerings for insurance help carriers to:

- Ensure profitable customer acquisitions
- Differentiate through optimal pricing
- Improve customer experience through proactive profiling and customized Next Best Offer (NBO) recommendations
- Improve wallet share through incremental revenues generated from up sell/ cross sell recommendations
- Manage and price risks dynamically and conform to regulatory norms
- Ensure faster claims settlements at lower costs by achieving greater process predictability
- Facilitate accurate predictions of customer attrition
- Provide better quality and intelligent channel decisions
- Enhance customer loyalty resulting from improved and personalized customer experience

Why Wipro?

Wipro has the industry expertise, advanced analytics capability, and the skills to enable embedding analytical decision making into key organizational processes by generating useful, actionable insights from available data. Our integrated consulting, systems integration, comprehensive portfolio of solution and service offerings and vertically aligned business model, help achieve faster, more successful implementations, enabling insurers to outperform competition and deliver differentiated value to customers.
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