Insurance Risk & Claims Analysis

Business Requirement Overview

The insurance company aims to strengthen its data-driven decision-making by analyzing policyholder behavior, vehicle risk factors, and claim patterns. Currently, data is distributed across multiple systems, making it challenging to track performance metrics and identify risk trends. To address this issue, a centralized and interactive Power BI dashboard is required. This solution will provide a consolidated view of policies, claims, and customer demographics, enabling stakeholders to monitor KPIs, detect high-risk segments, and optimize underwriting strategies.

Key Performance Indicators (KPIs)

- Total Policies – Measures the size and growth of the active customer base.
- Total Claim Amount – Tracks overall financial exposure due to claims.
- Claim Frequency – Indicates how often claims are filed, reflecting risk behavior.
- Average Claim Amount – Assesses claim severity and potential loss per claim.
- Gender-wise Total Policies – Supports demographic segmentation and targeted marketing.

Visualization Strategy & Analytical Approach

Beyond KPIs, advanced visualizations are essential to uncover hidden patterns and relationships within the dataset. All dashboard visuals are built around two dynamic core measures: • Total Claim Amount • Total Policies These measures allow flexible filtering, segmentation, and comparative analysis across demographics, vehicle attributes, and geographic zones.

Detailed Visualization Requirements

- By Car Use (Donut Chart) – Compare Personal, Commercial, and Commute usage to evaluate exposure risk.
- By Car Make (Bar Chart) – Identify brands with higher claims and maintenance costs.
- By Coverage Zone (Donut Chart) – Assess regional performance and geographic risk concentration.
- By Age Group (Histogram) – Analyze claim trends across age brackets for risk-based pricing.
- By Car Year (Area Chart) – Examine impact of vehicle age on claim frequency and severity.
- By Kids Driving (Ribbon Chart) – Evaluate household risk exposure from young drivers.

- By Education (Pie Chart) – Study correlation between education level and claim behavior.
- Education & Marital Status (Matrix Heat Grid) – Identify combined demographic risk profiles.

Advanced Enhancements & Strategic Additions

- Dynamic slicers for interactive filtering (Age, Zone, Car Make, Income Band).
- Risk segmentation scoring model using claim frequency and severity.
- Loss ratio and profitability tracking metrics.
- Fraud detection indicators based on abnormal claim patterns.
- Predictive analytics integration for future claim forecasting.
- Drill-through pages for deep-dive customer-level analysis.
- Executive summary page for senior management insights.

Conclusion

This enhanced Power BI dashboard provides a unified analytical platform for monitoring insurance performance, identifying high-risk segments, and improving underwriting decisions. By leveraging structured KPIs and advanced visual storytelling, the organization can optimize premium pricing, reduce losses, and strengthen customer segmentation strategies.