Early Performance Analysis &
Action Plan System for Insurance Agents
Data Strom 6.0

Team: Data Nexus

Table of Contents

Early Performance Analysis &
# Action Plan System for Insurance Agents

1.0 Executive Summary

Based on our feature importance analysis, we've identified key factors that most strongly predict an insurance agent's policy sales performance. Our analysis shows that early performance patterns can accurately identify at-risk agents who may need intervention and support. The recommendation system uses these insights to generate personalized action plans that target specific performance gaps.
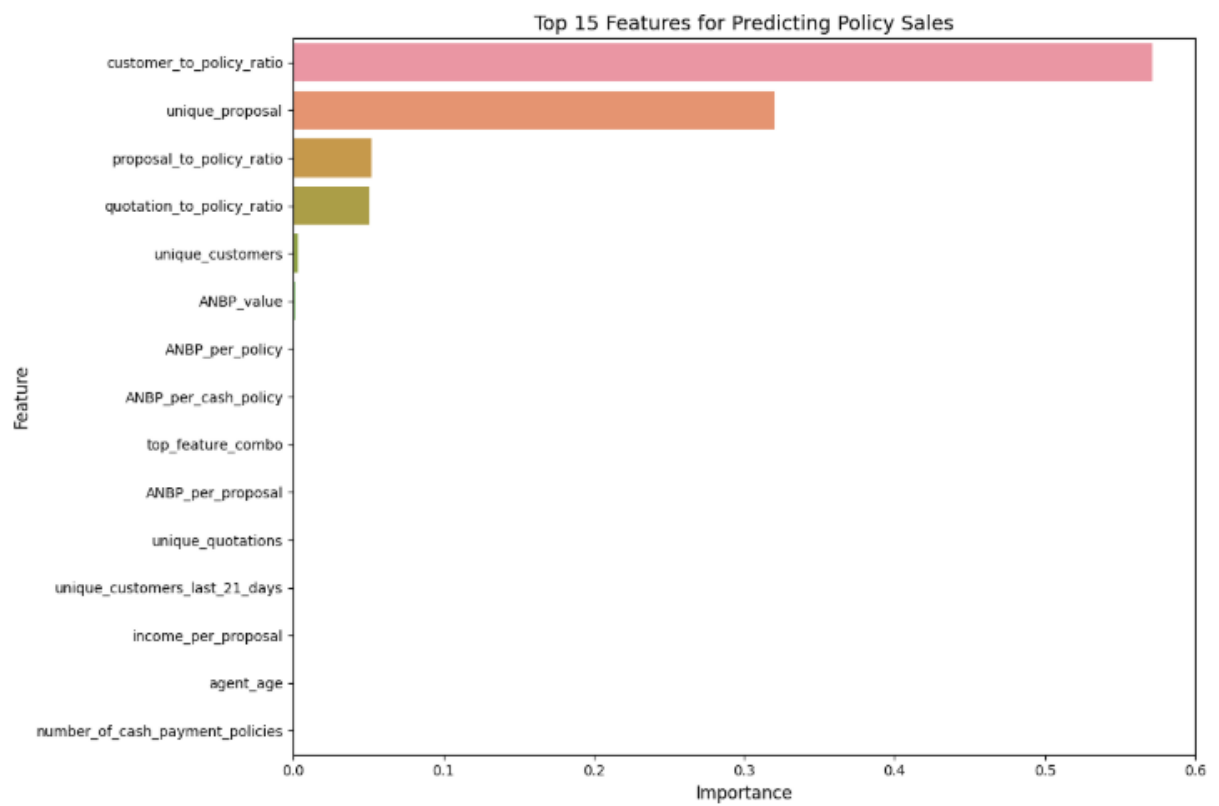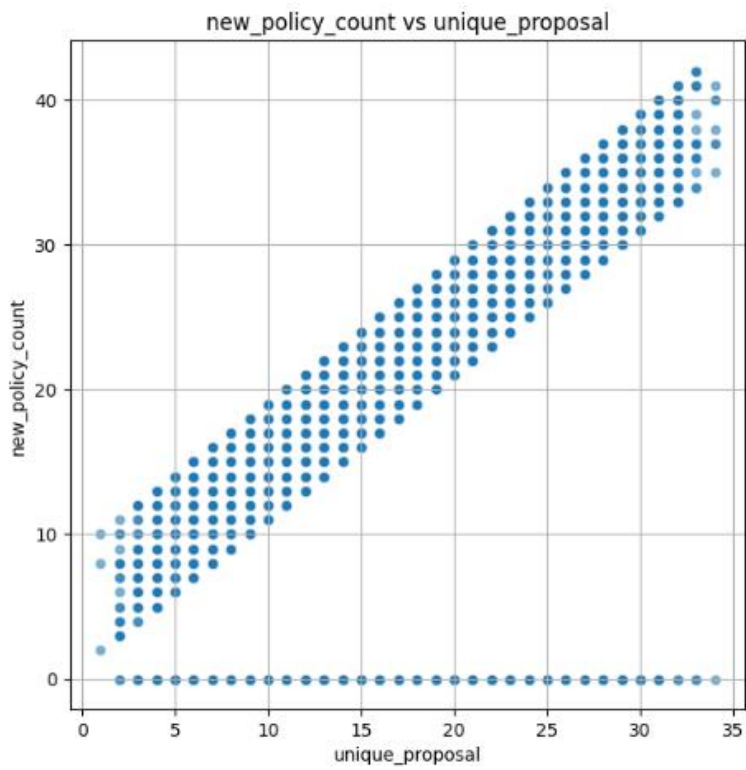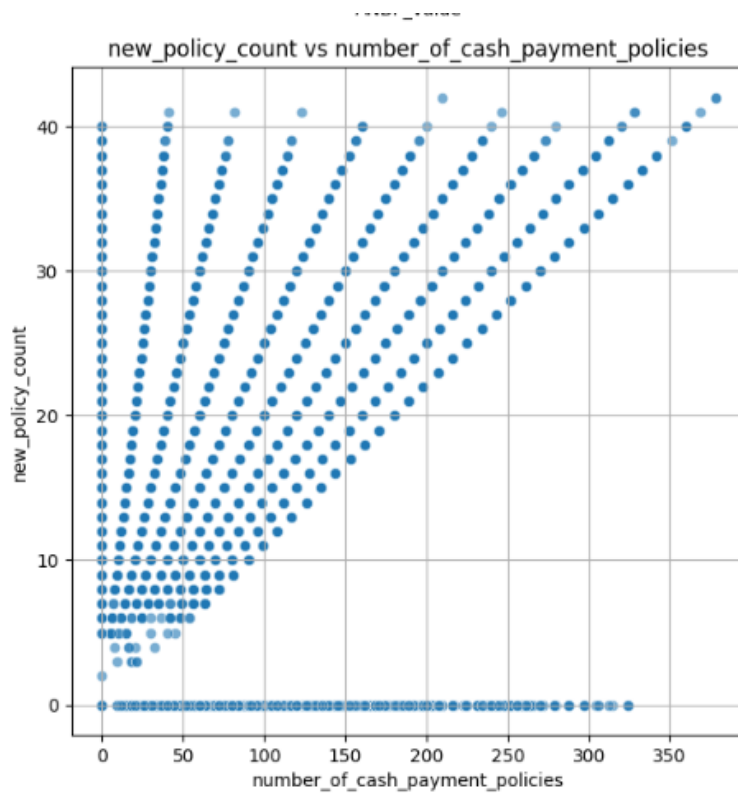
2.0 Key Performance Factors

From our analysis of feature importance scores and mutual information values, we've identified six critical factors that have the strongest impact on agent performance:

1. **Customer-to-Policy Ratio** (Most important): This measures how many customers an agent has relative to policies sold. Lower ratios indicate more efficient conversion of prospects to customers.

2. **Unique Proposals**: The diversity and quantity of proposals an agent creates. Higher numbers strongly correlate with better performance.

3. **Proposal-to-Policy Ratio**: Measures conversion effectiveness from proposals to actual policies. Lower values indicate better conversion efficiency.

4. **Quotation-to-Policy Ratio**: Shows efficiency in converting quotations to sales. Lower values indicate better performance.

5. **Number of Cash Payment Policies**: The quantity of policies with cash payment options sold.

6. **Cash Policy-to-Proposal Ratio**: The proportion of proposals that result in cash payment policies.

Mutual Information Scores
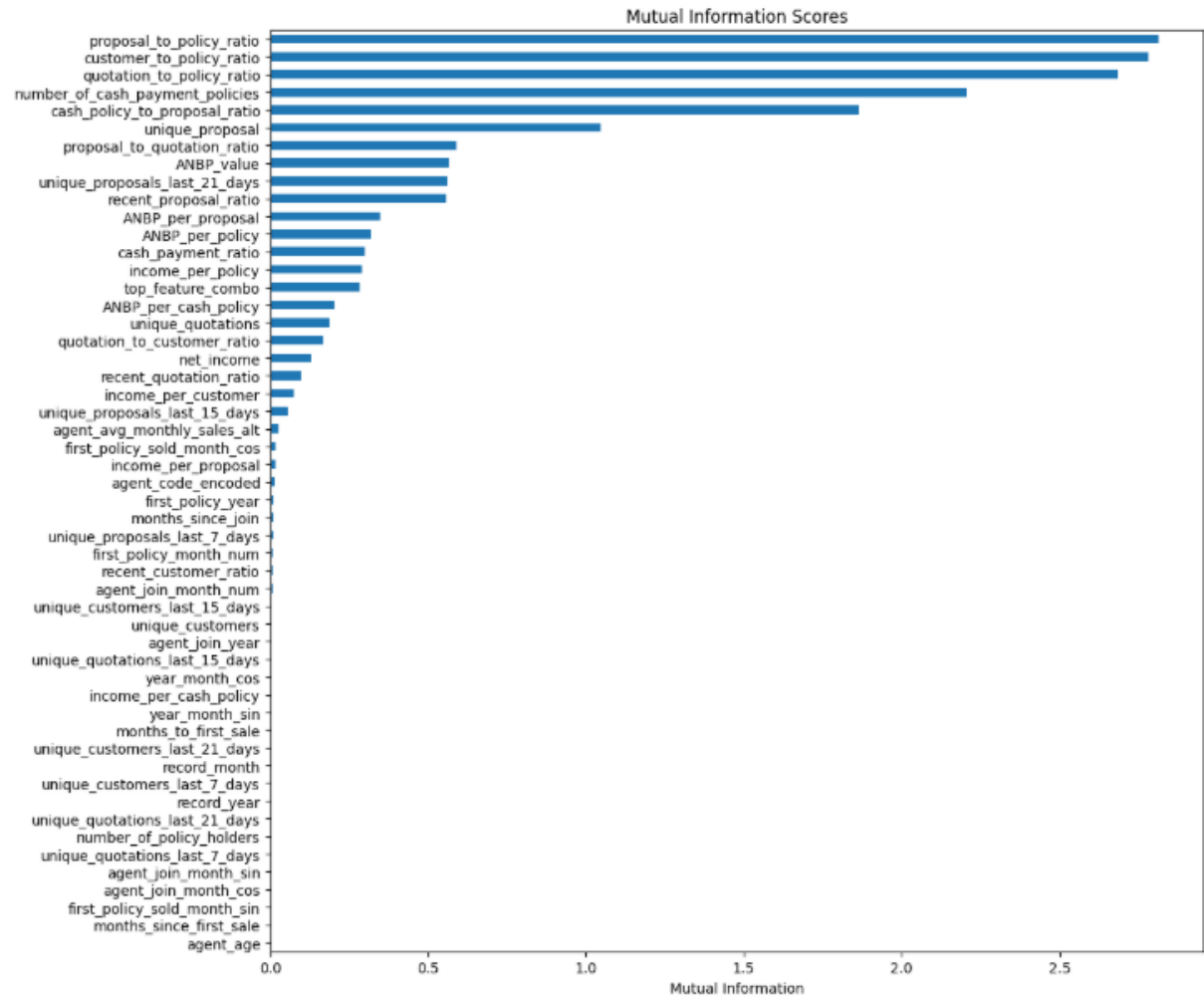
The random forest feature importance chart shows which factors most strongly predict policy sales.

Top 15 Features for Predicting Policy Sales

new_policy_count vs number_of_cash_payment_policies

new_policy_count vs unique_proposal

3.0 Relationship Patterns

Our partial dependence plots reveal important relationship patterns between these factors and sales performance:

1. **Customer-to-Policy Ratio**

- **Key Finding**: There's a sharp performance decline when this ratio exceeds 5

- **Insight**: Focus on quality over quantity - agents should convert existing customers rather than continually expanding their customer base without closing sales

2. **Unique Proposals**

- **Key Finding**: Linear positive relationship with performance

- **Insight**: Diversity and customization of proposals consistently drives better results

3. **Proposal-to-Policy and Quotation-to-Policy Ratios**

- **Key Finding**: Both show sharp declines in performance when exceeding ratios of 5:1

- **Insight**: Efficiency in conversion matters more than volume of proposals or quotations
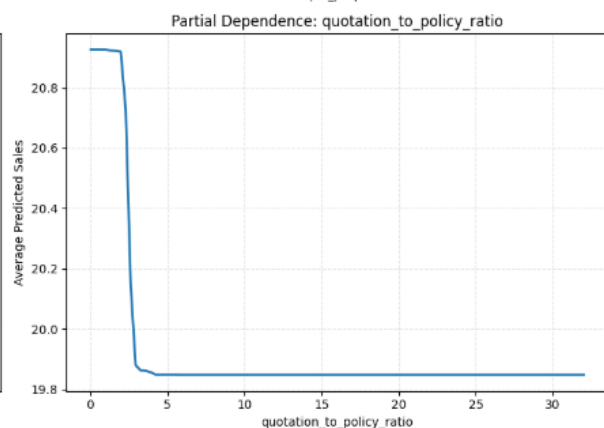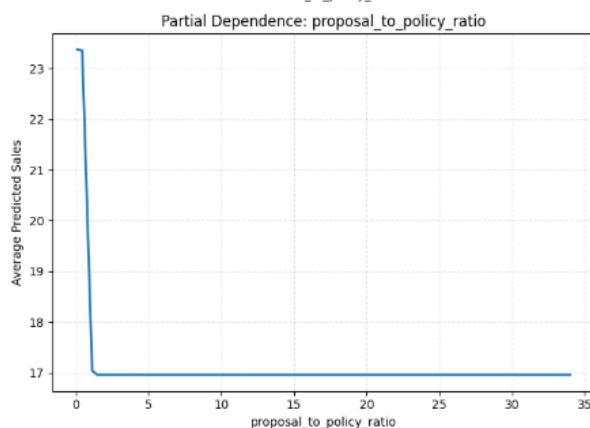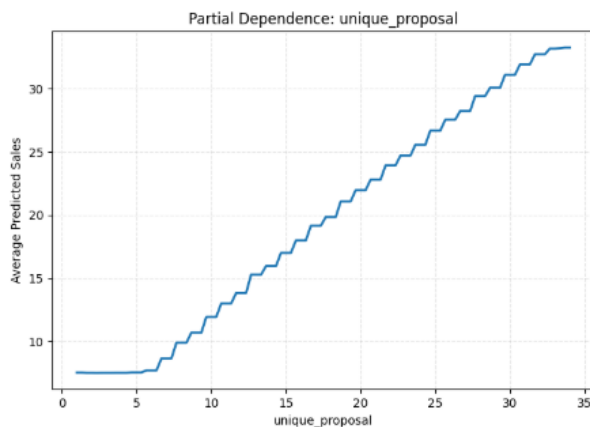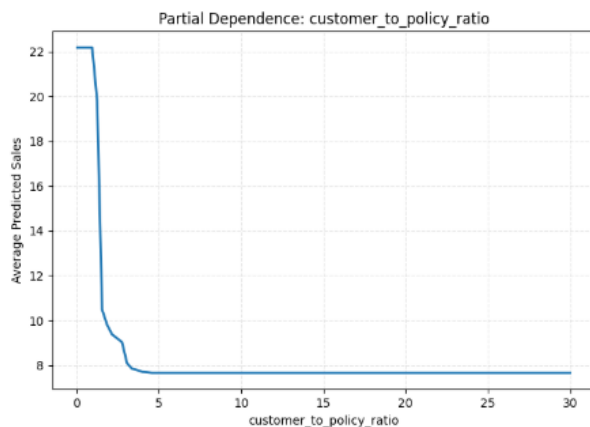
4.0 Action Plan Recommendation System

Our recommendation system identifies performance gaps by comparing an agent's metrics to optimal thresholds derived from our data analysis. It then generates personalized action plans focused on the areas with the greatest potential impact.

4.1 Example Recommendations

- **For High Customer-to-Policy Ratio:**

1. Focus on quality customer interactions rather than increasing customer volume
2. Implement follow-up system for existing customers
3. Review sales scripts to improve policy conversion discussions
4. Analyze which customer segments have higher conversion rates and prioritize them

- **For Low Unique Proposals:**

1. Increase proposal diversity by tailoring to different customer needs
2. Learn about full product range to offer more appropriate options
3. Create proposal templates for different customer segments
4. Study top performers' proposal strategies and adapt them

- **For High Quotation-to-Policy Ratio:**

1. Review quotation process to identify conversion barriers
2. Improve follow-up timing after quotation delivery
3. Address common customer concerns pre-emptively in quotations
4. Implement comparison tools to demonstrate value against competitors

4.2 Implementation Strategy

1. **Early Assessment**: Evaluate new agents after their first month using the six key metrics
2. **Gap Analysis**: Compare performance to optimal thresholds identified in our model
3. **Personalized Action Plan**: Generate recommendations focusing on highest-priority gaps
4. **Dashboard Integration**: Provide agents and managers with real-time performance tracking against optimal thresholds
5. **Progress Monitoring**: Reassess performance monthly to adjust recommendations as needed

4.3   Expected Benefits

- Early identification of at-risk agents before performance issues become entrenched

- Targeted interventions focused on specific skill gaps rather than generic training

- Data-driven feedback that helps agents understand exactly what drives success

- Improved retention of promising agents who might otherwise struggle

- Overall improvement in agency-wide conversion metrics and policy sales

5.0 Conclusion

By focusing on these six key performance indicators and using our recommendation system to provide targeted guidance, insurance agencies can significantly improve their agent onboarding, development, and retention processes. The system transforms complex data into actionable insights that directly address each agent's specific needs and challenges.