# Business Summary Report: Predictive Insights for Collections Strategy

## 1. Summary of Predictive Insights

Based on the exploratory data analysis and the predictive model outcomes:

• High-risk customer segments: Customers with high credit utilization (>80%), low credit scores (<600), and frequent missed or late payments were identified as having the greatest delinquency risk. Unemployed or self-employed individuals also showed higher default probability.

• Top predictive variables: The model highlighted Credit Utilization, Missed Payments, Debt-to-Income Ratio, and Credit Score as the most influential drivers of delinquency. These variables captured customers’ financial pressure, repayment behavior, and credit health.

• Observed patterns: A negative correlation between income and delinquency suggests that customers with lower income levels struggle to maintain repayments, while behavioral payment patterns over six months strongly predict future defaults.

Top 3 Risk Factors:

1. High credit utilization (>80%)

2. Low credit score (<600)

3. Frequent missed or late payments

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| Key Insight | Customer Segment | Influencing Variables | Potential Impact |
| Customers with heavy credit utilization and poor payment history show the highest delinquency probability | High-utilization, low-income, or self-employed customers | Credit Utilization, Missed Payments, Debt-to-Income Ratio, Credit Score | Enables proactive risk management by targeting high-risk customers with financial counseling or repayment plans |

## 2. Recommendation Framework

Restated Insight: High credit utilization significantly increases the likelihood of delinquency.

Proposed Recommendation:

• Specific: Implement a Credit-Utilization Management Program that notifies customers when their usage exceeds 70% of their credit limit.

• Measurable: Aim to reduce the average utilization ratio among flagged customers from 85% to 60% within six months.

• Actionable: Introduce personalized repayment plans, automatic alerts, and in-app recommendations to encourage healthier credit behavior.

• Relevant: Reducing utilization directly improves repayment capacity and aligns with Geldium’s goal of maintaining portfolio health.

• Time-bound: Launch and evaluate the initiative within six months of model deployment.

Justification and Business Rationale: By addressing high utilization early, Geldium can lower default rates, strengthen customer trust, and enhance overall financial stability. The initiative converts AI insights into tangible customer-centric actions.

## 3. Ethical and Responsible AI Considerations

• Fairness and Bias Risks:

1. Income bias: Low-income customers may be disproportionately flagged as high-risk. Mitigation: Exclude direct income thresholds from decision rules and use fairness-adjusted weighting.

2. Employment bias: Unemployed or self-employed individuals may be over-penalized. Mitigation: Compare TPR/FPR across employment types and adjust thresholds to equalize outcomes.

• Explainability: Model predictions are supported by SHAP values, which clearly show how each feature (e.g., credit utilization, missed payments) contributes to the risk score. This makes it easy to explain results to non-technical stakeholders in plain terms.

• Responsible AI Use: Predictions are designed to support, not replace, human judgment. All recommendations encourage responsible borrowing, transparent communication, and adherence to data-privacy and fairness standards.