

# Business Summary Report: Predictive Insights for Collections Strategy

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## Geldium – Credit Delinquency Predictive Insights Report

**Prepared for:** Head of Collections

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### 1. Summary of Predictive Insights

Our predictive analysis of the delinquency dataset identified key customer patterns and drivers of repayment risk.

#### High-Risk Segments

- **Young customers (<30 years)** with **multiple missed payments** in the last 6 months
- Customers with **high credit utilization (>80%)** and **low monthly income**
- Customers with **recent delinquency history** and high debt-to-income ratios

#### Top 3 Risk Factors *(based on feature correlations & domain relevance)*:

1. **Credit Utilization Rate** – Higher utilization significantly increases delinquency likelihood.
  2. **Number of Missed Payments (last 6 months)** – Strong positive relationship with default risk.
  3. **Debt-to-Income Ratio** – Higher ratios indicate repayment strain, leading to higher delinquency rates.
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### 2. Recommendation Framework (SMART Goal)

#### SMART Goal:

*Launch a targeted 6-week SMS and email outreach program for customers under 30 years old with 2+ missed payments and credit utilization above 80%, aiming to reduce 30-day delinquency within this segment by **10%**.*

### **Rationale for Stakeholders:**

This recommendation directly addresses a high-risk group identified in our predictive analysis. By providing timely payment reminders, flexible repayment options, and financial guidance, we can reduce short-term delinquency, improve recovery rates, and protect long-term customer relationships while maintaining operational efficiency.

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## **3. Ethical and Responsible AI Considerations**

### **Fairness Risks & Mitigations**

1. **Demographic Bias** – The model could unintentionally penalize certain age, income, or regional groups.
  - *Mitigation:* Conduct fairness audits across demographic subgroups, adjust thresholds or retrain with bias-mitigation techniques.
2. **Over-reliance on Historical Data** – Past discriminatory patterns could be reinforced.
  - *Mitigation:* Regularly refresh training data, remove features that act as proxies for protected attributes, and review decisions for disparate impact.

### **Explaining Predictions to Non-Technical Stakeholders**

We will present predictions in plain language, e.g., *“This customer is at high risk of delinquency due to high credit utilization and recent missed payments,”* supported by visual explanations (SHAP charts) showing the top contributing factors.

### **Responsible AI Commitment**

We will maintain transparency in model design, ensure compliance with financial regulations, continuously monitor for bias, and document all decision-making processes.

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### **Next Steps:**

- Approve targeted outreach campaign plan
  - Schedule fairness audit and bias checks before rollout
  - Implement ongoing performance monitoring of the model
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