

# Don't Let Your Clients Leave You

## An Analytical Approach

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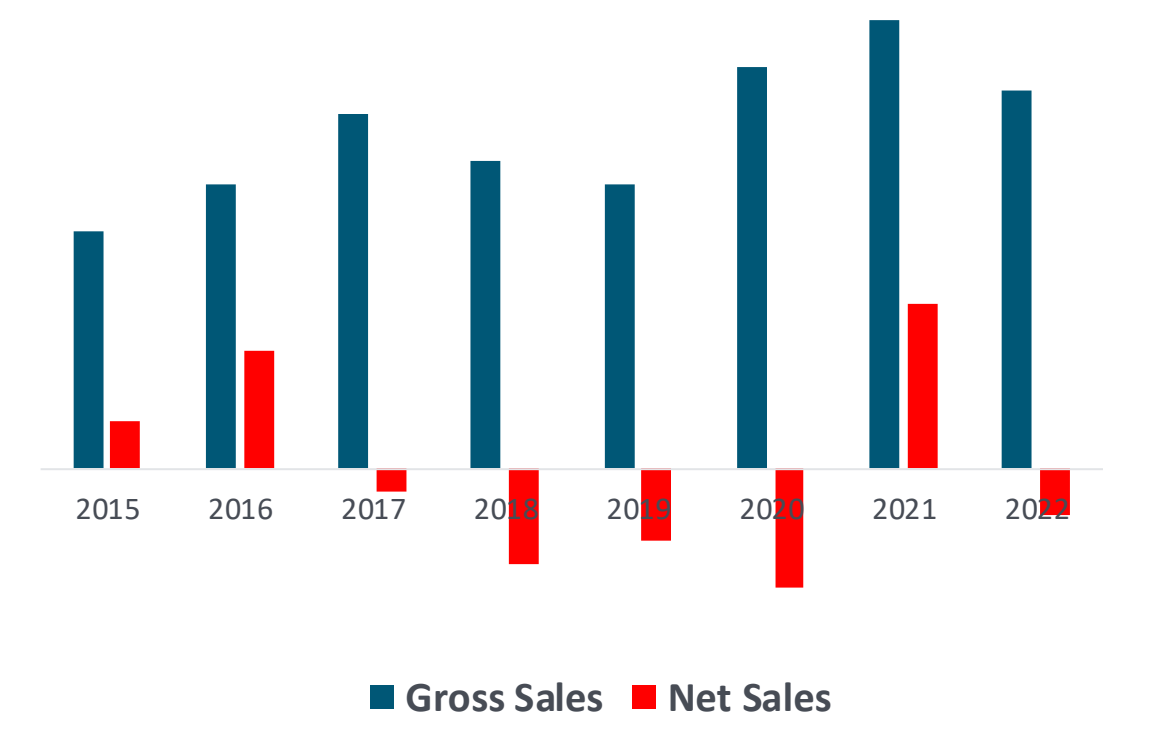
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### Problem Statement

**Company:** MFS Investments is an Asset Management Company. In the Retail segment, investors entrust money to financial advisors who, in turn, come to MFS to buy financial products.

**Problem:** MFS, despite having strong sales in the last several years, close the years net negative – having more withdrawals (redemptions) than sales. We are interested in identifying the reasons for these redemptions and how can we mitigate them.

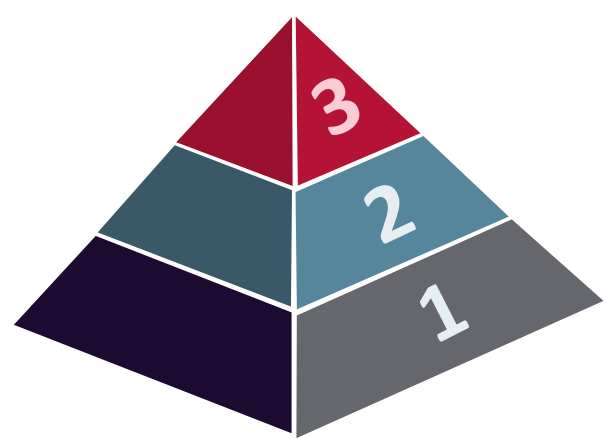


### Data

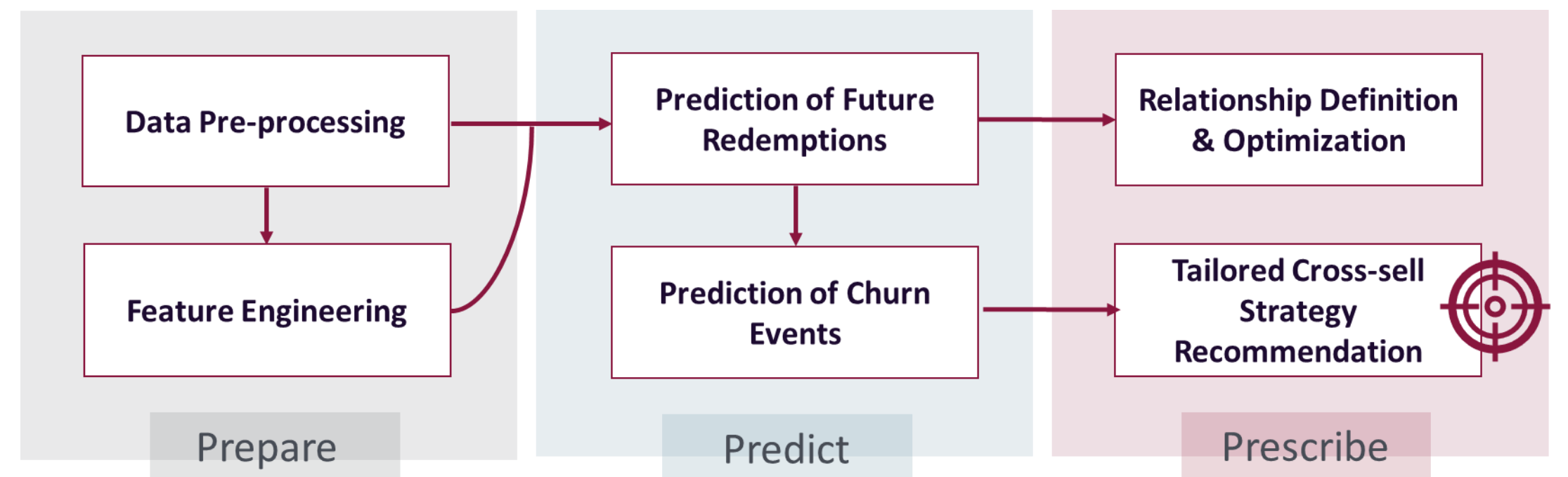
4 years of data from multiple sources

- Past Transactions Data
- Advisor Interaction Data
- Fund Performance Data
- Advisor Profile Data

### Approach



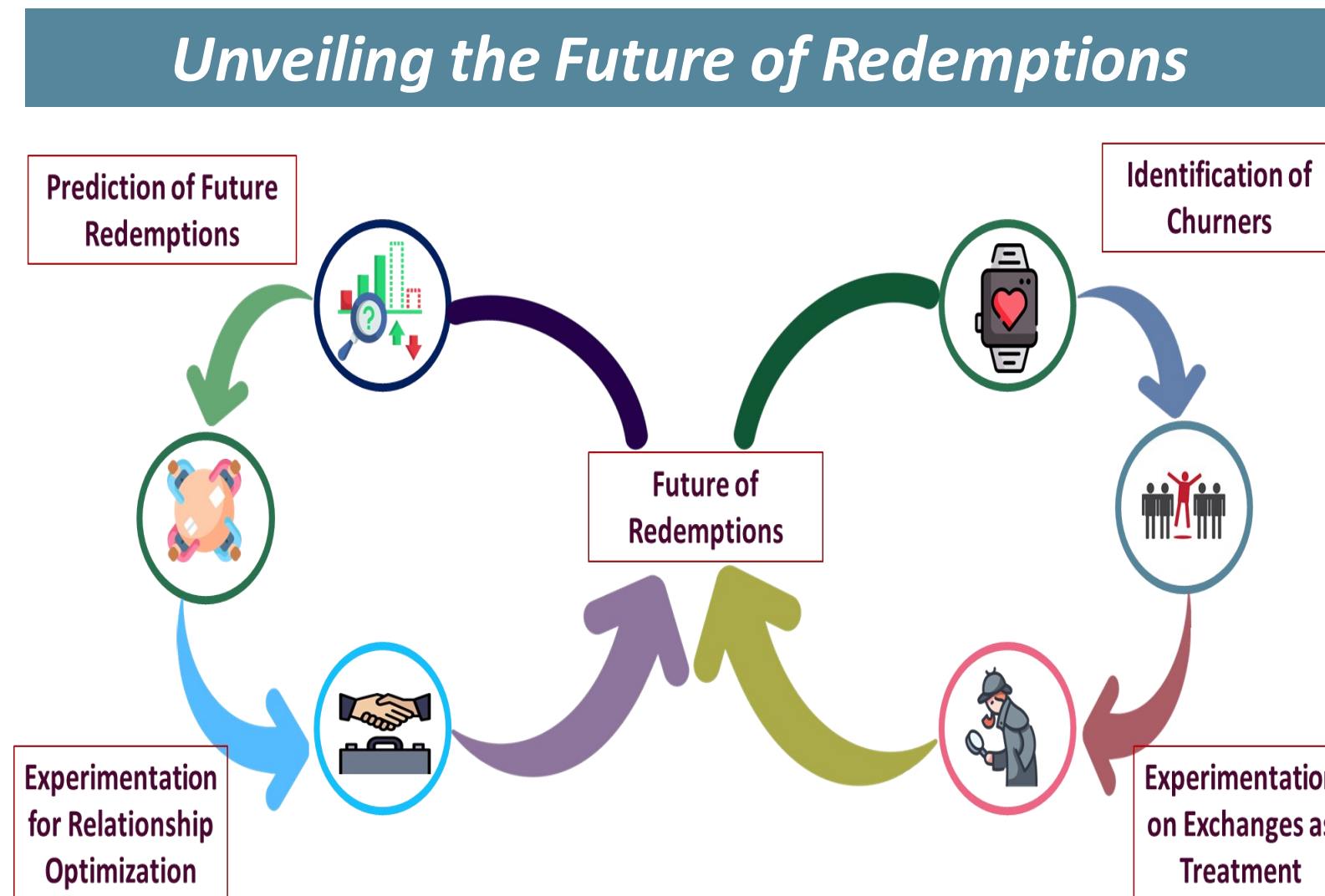
- **3-Step Approach:** Prepare the Data, Predict and Prescribe
- **End-to-end Pipeline:** From raw data to a final recommendation
- **Experimentation:** Solution as foundation for future experimentation



### Impact

We aim to equip MFS with data-driven tools and strategies to enhance operational efficiency, reduce risk, and strengthen client relationships. Our findings shed light on areas of improvement and lay the foundation for future exploration in understanding client behavior and devising more tailored strategies.

*We propose an Analytical Experimentation Framework to mitigate future redemptions*

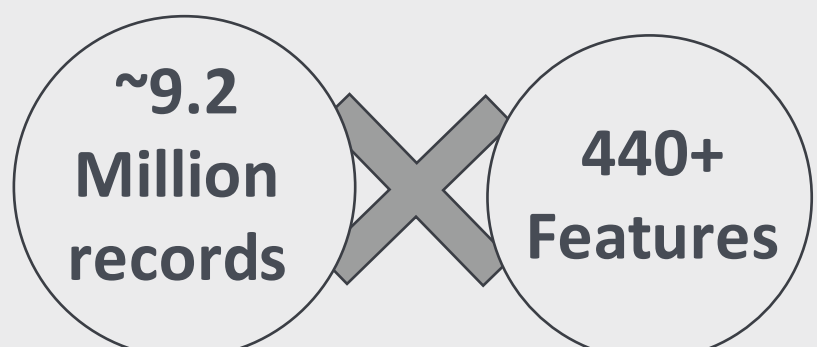


### Next Steps

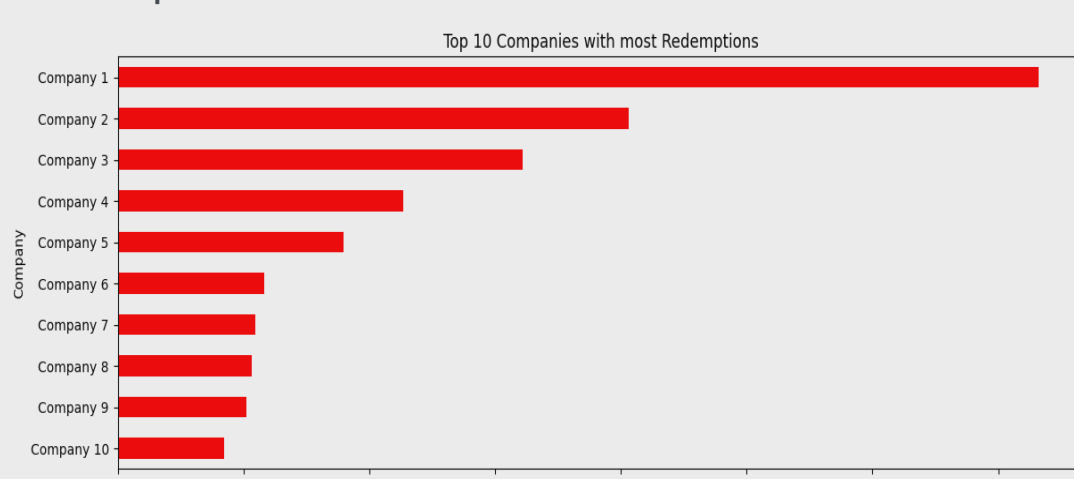
- Enrich Predictive and Survival Models to improve performance and address company needs.
- Empirical Testing of Exchange Strategy by implementing well designed A/B tests
- Development of an Advance Relationship Metric with optimized features and weights through a recursive experimentation process
- Involvement of Salespeople in the Process to further enhance advisor understanding, incorporate feedback to analytical methods and expedite redemptions mitigation

### Phase 1: Prepare and Explore the Data

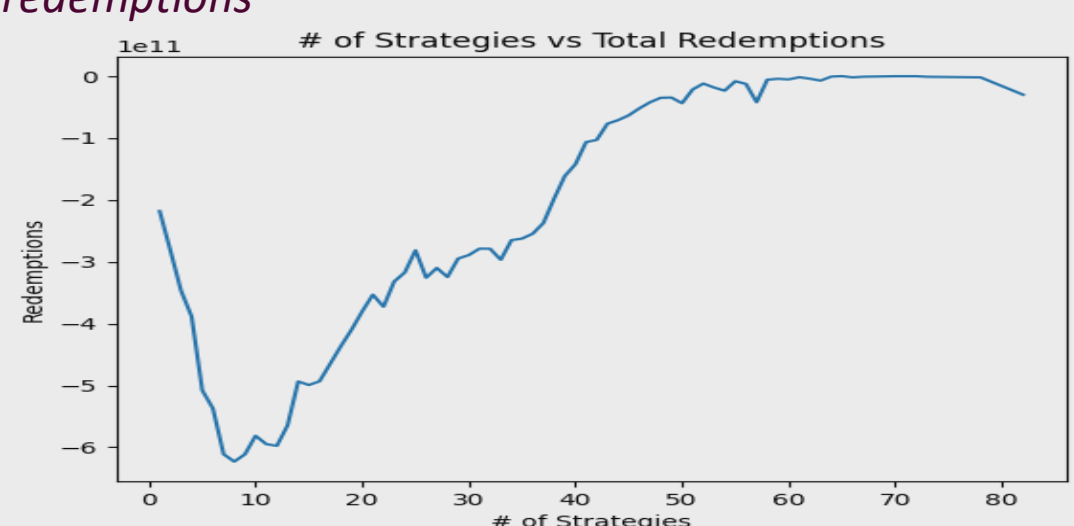
We aggregate all our features by advisor for each month



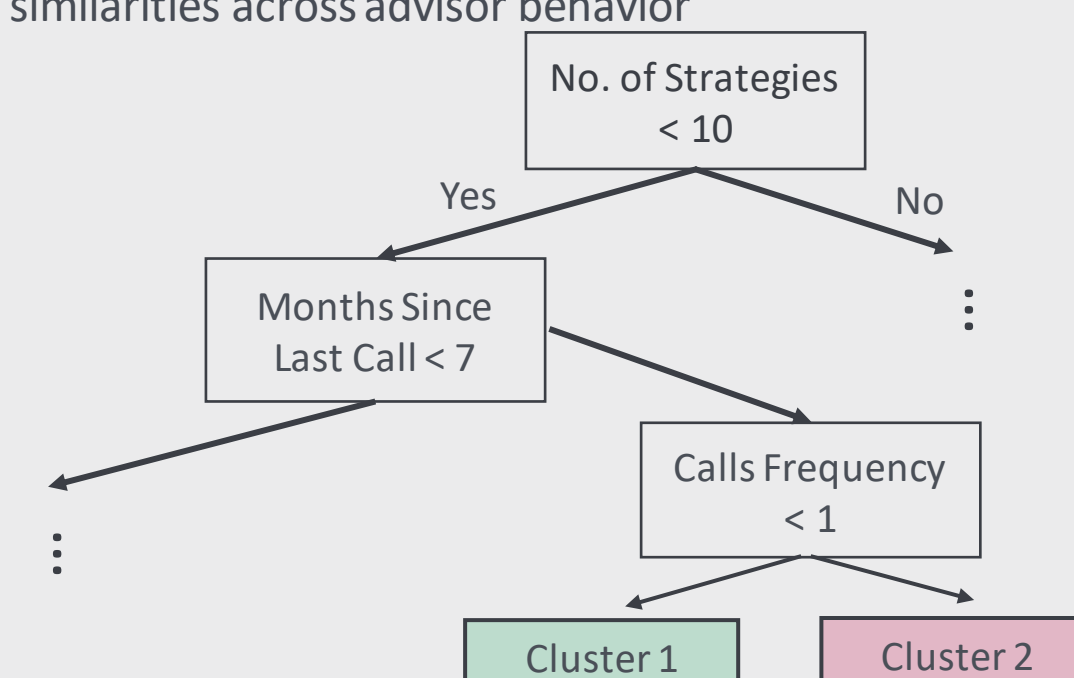
Exploratory Data Analysis phase indicates that 10 companies are responsible for ~75% of total redemptions.



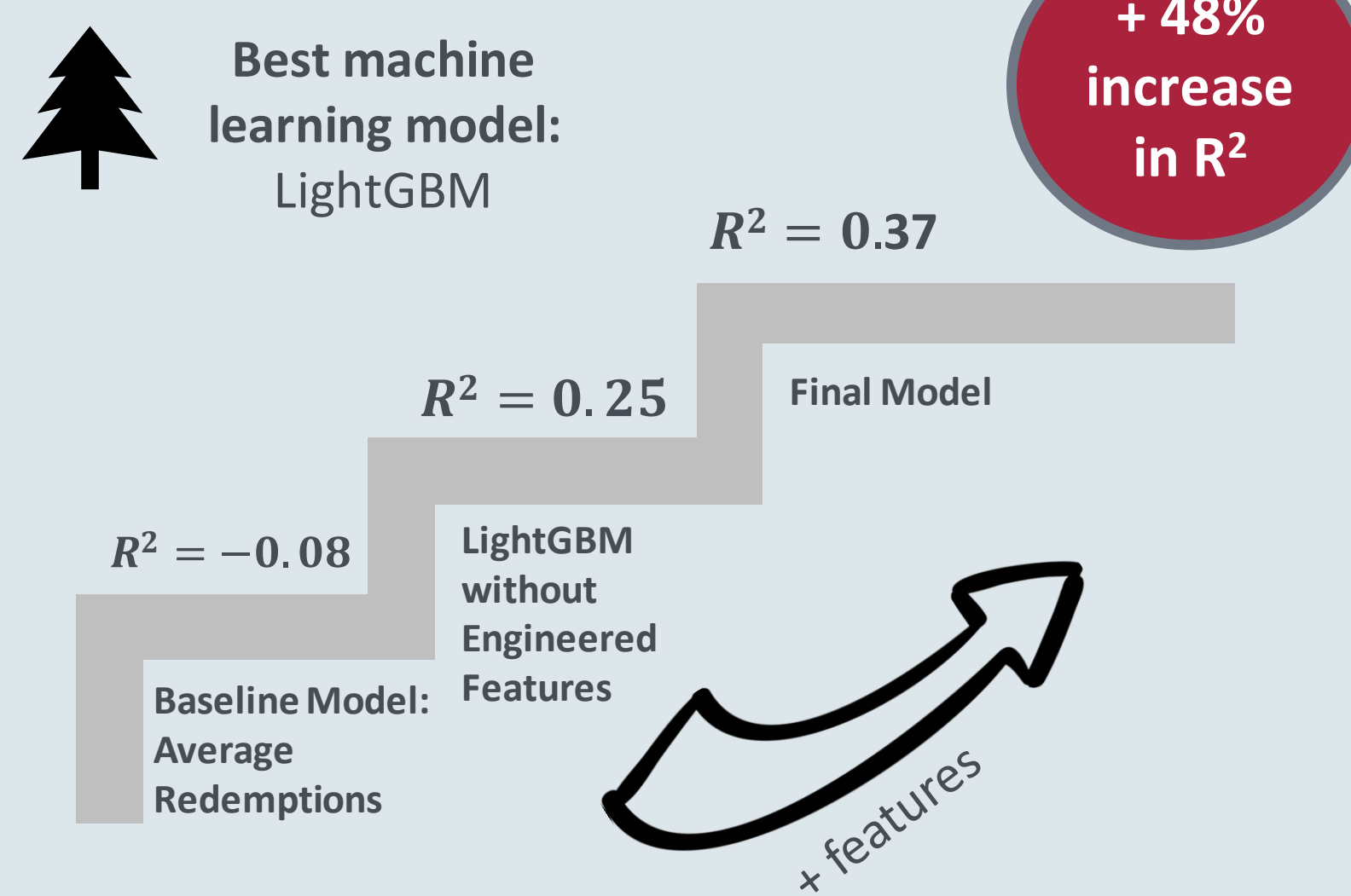
**Key Assumption @MFS:** Larger number of Strategies invested indicates stronger relationship, hence less redemptions



We perform interpretable clustering to uncover similarities across advisor behavior

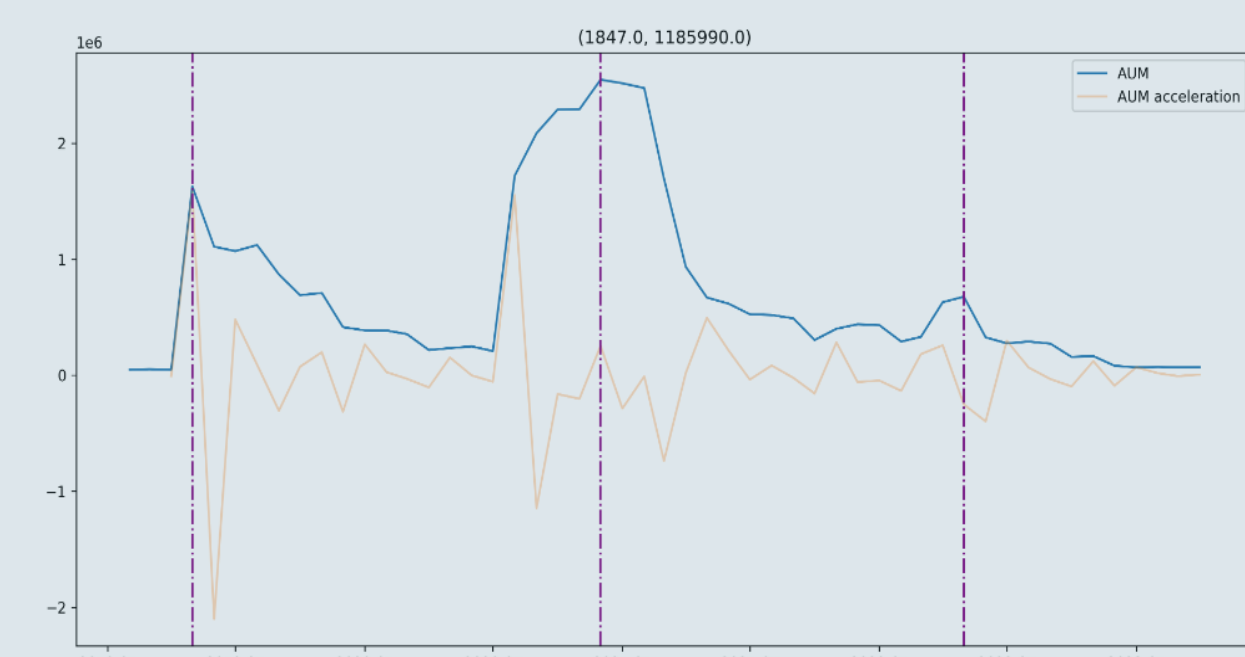


### Phase 2: Predict Future Redemption and Churn Events



### Churn Identification algorithm and Survival Analysis

Definition of Churn as large drops in Assets under management (AUM > 70%) and creation of an algorithm to identify the start



Vertical Lines Indicate Identified Churn

C-index: 0.84

1. At each point in time check the 3-month centered cumulative AUM acceleration for each advisor. If negative enough, mark the timestamp as potential churn point.
2. Moving backwards in time, check at all marked timestamps whether the AUM drop through time is greater than 70%. If yes, mark the timestamp as a churn event.
3. Perform Survival Analysis using XGBoost with Survival Embeddings to predict future churn.

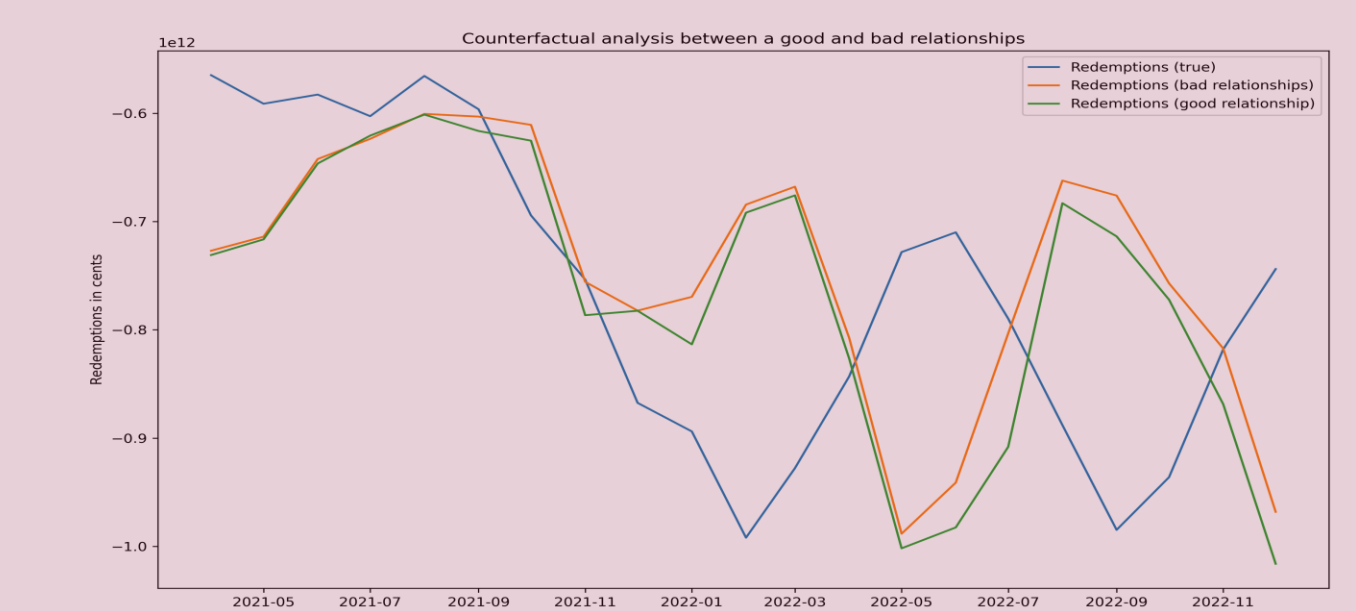
### Phase 3: Prescribe Actionable Strategies

We define a metric to quantify the relationship with Advisors utilizing the frequency of interactions and the topics discussed

$$R = \alpha \cdot x_1 + \beta \cdot x_2 + \gamma \cdot x_3 + \delta \cdot x_4 + \epsilon \cdot x_5 + \zeta \cdot x_6, \quad \alpha, \beta, \gamma, \delta, \epsilon, \zeta \in \{0, 1\}$$

Variable	Topic Category
X1	About MFS
X2	Insights
X3	Platform Discussion
X4	Practice Management
X5	Product and Strategies
X6	Resources

Calculate the counterfactuals on redemptions of having a great versus a bad relationship. Findings indicate minimal impact; relationship definition requires further refinement



### Prescribing Fund Exchanges to Mitigate Redemptions

1. Predict Upcoming Churn → Utilize survival model
2. Identify Similar Advisors → For each advisor:
  - Calculate L2 norm as similarity metric
  - Identify similar advisors
3. Predict upcoming trades within MFS funds → Utilize predictive model for classification to predict next exchange. (accuracy: 0.4)
4. Use Exchanges as a Treatment to Redemptions → Recommend exchanges to MFS funds as treatment