



Iris Brook



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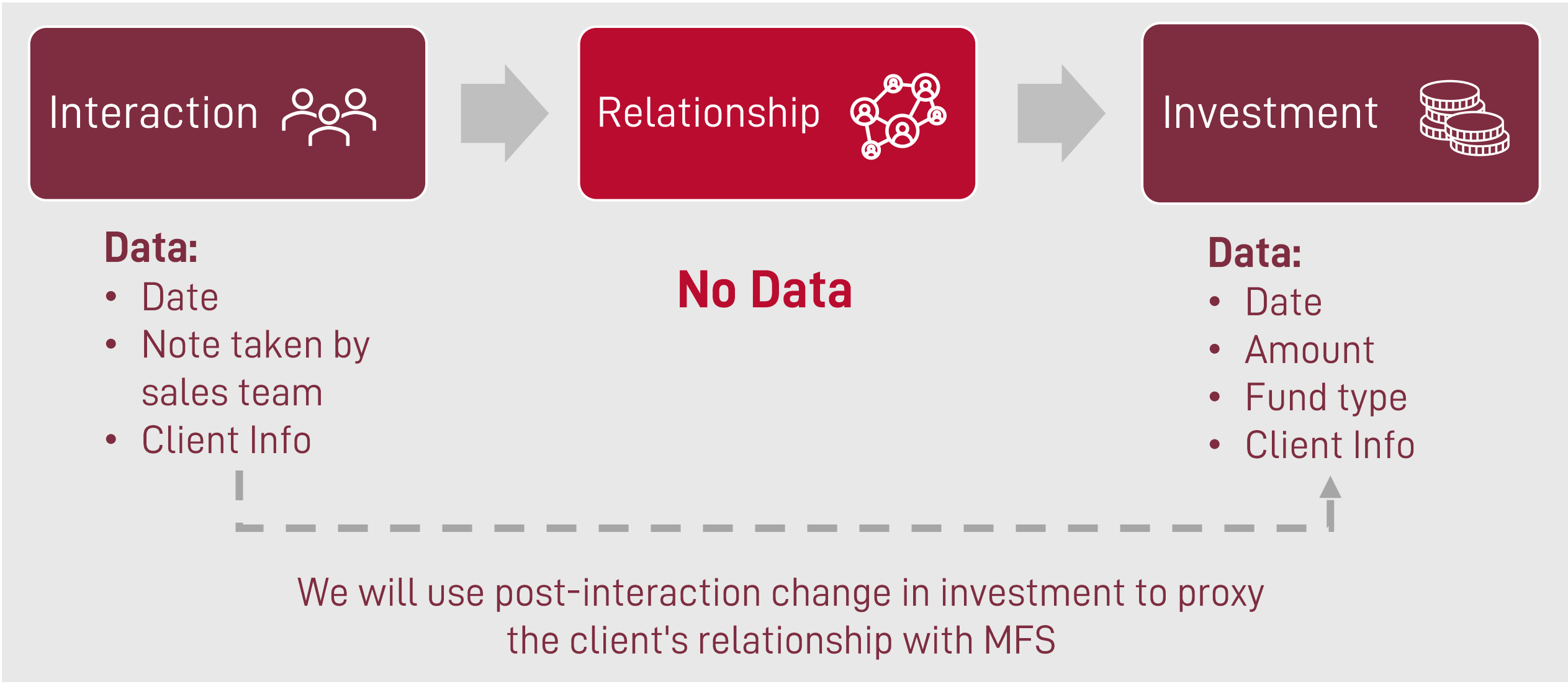
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## 1. Context:

**Company:** MFS Investment Management stands as a leading global asset manager. The firm oversees \$615.1 billion in assets and employs over **350 sales professionals who sell investment products to financial institutions and advisors** through meetings (virtual and in-person), calls, and emails.

## Value Generation Blueprint



**Problem Statement:** To boost **MFS sales team's communication efficiency** with financial advisors, we want to develop a tool that provides **interaction history and recommends conversation topics that would drive sales.**

## 2. Summarization:

### Topic Assignment Model:

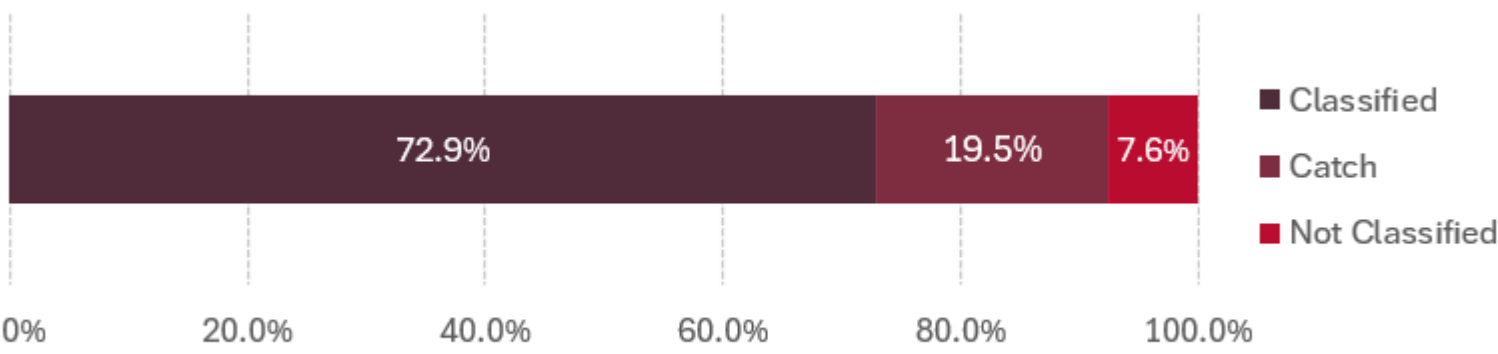
- Analyzes meeting notes between sales employees and clients
- Assigns topics to meeting notes based on keyword presence and subject line content
- Catch – interactions without substance (out-of-office, scheduling, voicemail)

### Example note with topic assignment:

Great having lunch with Joe, always good to catch up with him. Discussed our thoughts on current **credit quality** and **ppm**. Sent over **fact sheet** on **municipal** bonds vs taxable bonds.

Fixed Income   Muni   Literature   SMA General

### Classification of Interactions:



## 4. Model Performance:

We recommend **EASE + B** (despite its worse evaluation metrics) because it captures a topic's resulting impact, unlike metric A.

Model	Recall @ 3	Recall @ 10	NDCG @ 10
Baseline A	0.005	0.351	0.185
EASE + A	0.355	0.543	0.425
EASE + A + Clusters	0.376	0.562	0.444
Baseline B	0.101	0.304	0.156
EASE + B	0.263	0.386	0.246
EASE + B + Clusters	0.249	0.371	0.237

$$\text{Recall}@k = \frac{\# \text{ good items in } k}{\min(k, \# \text{ good items})}$$

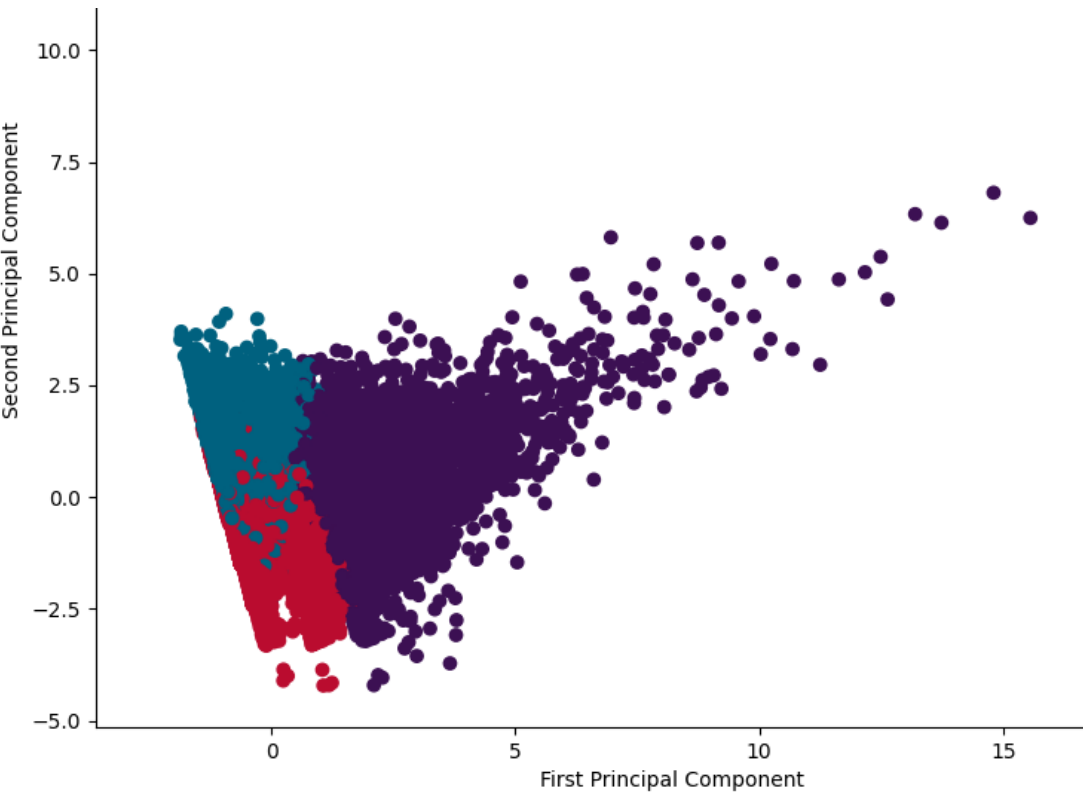
**Normalized Discounted Cumulative Gain (NDCG):** Takes into account order of ranking

$$\text{DCG}@k = \sum_{k=1}^K \frac{2^{\mathbb{I}(k^{\text{th}} \text{ ordered item is good})} - 1}{\log(k + 1)}$$

**NDCG:** DCG normalized  $\in [0,1]$

## 3. Recommendations:

### Clustering Clients:

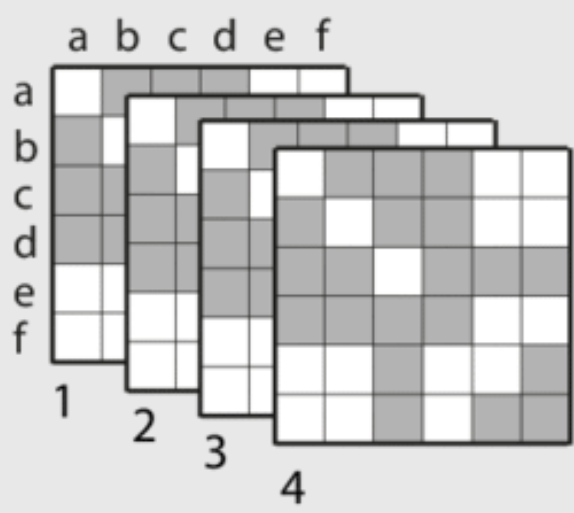


Cluster 0 – very experienced & low holdings  
Cluster 1 – experienced & high holdings  
Cluster 2 – less experienced & low holdings

### EASE (algorithm):

- A collaborative-filtering neighborhood-based approach that minimizes loss between historic data and predicted scores
- Less computation and training time than other collaborative-filtering approaches
- Competitively viable – similar results to other approaches

### Success Metric A: Topic Counts



**Data:** 1 if specific topic was discussed with client on that day, 0 otherwise

**Limitations:** Does not consider financial advisor's perspective

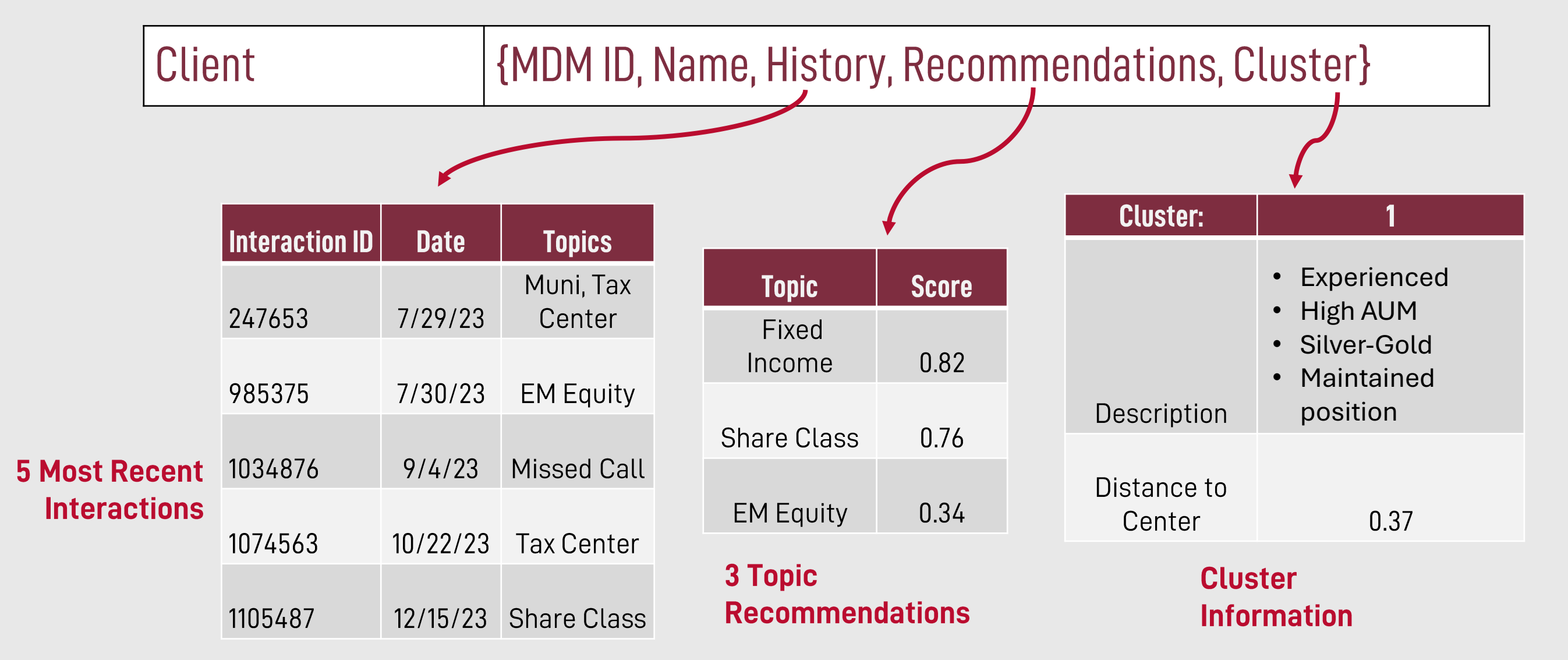
### Success Metric B: Post-interaction Investment

	2020	2021	2022
Muni			
EM			
Equity			
Tax Center			
SS			
FI			
General			
Webinar			

**Data:** Attributes a percentage of each client's flow to their recently discussed topics

**Benefit:** Captures financial advisor perspective

## 5. Final Output:



## 6. Potential Business Impact:

37.5%

time back for sales employees

\$3.4 million

of generated value for MFS annually

### Future Work:



Implement tool & collect user feedback on recommendation quality



Compare EASE to more powerful algorithms with temporal factors