

Banking on Behavior

The Engineering of Hyper-Personalization

● AI/ML Technical Documentation ● Production Systems ● Fintech Innovation ●

Technical Documentation Series

December 2024

Executive Summary

Banking segmentation is dying. The 'Segment of One' era has arrived - infrastructure that ingests a user's entire financial life and assembles bespoke products in milliseconds. This is the cognitive architecture of Monzo, Addepar, and Credolab.

Segment of 1 Personalization	10M+ Behavioral Features	Orders of Mag Conversion Lift
Monzo Intent Data Engine	Addepar Generative Reports	Credolab Behavioral Biometrics

The Death of Average Customer Segmentation



Traditional banking groups customers into broad buckets (Mass Market, Affluent, HNW). Products designed for the average fail individuals. Hyper-personalization requires real-time context and predictive intelligence.

Monzo: The 'Borrowing Data' Architecture

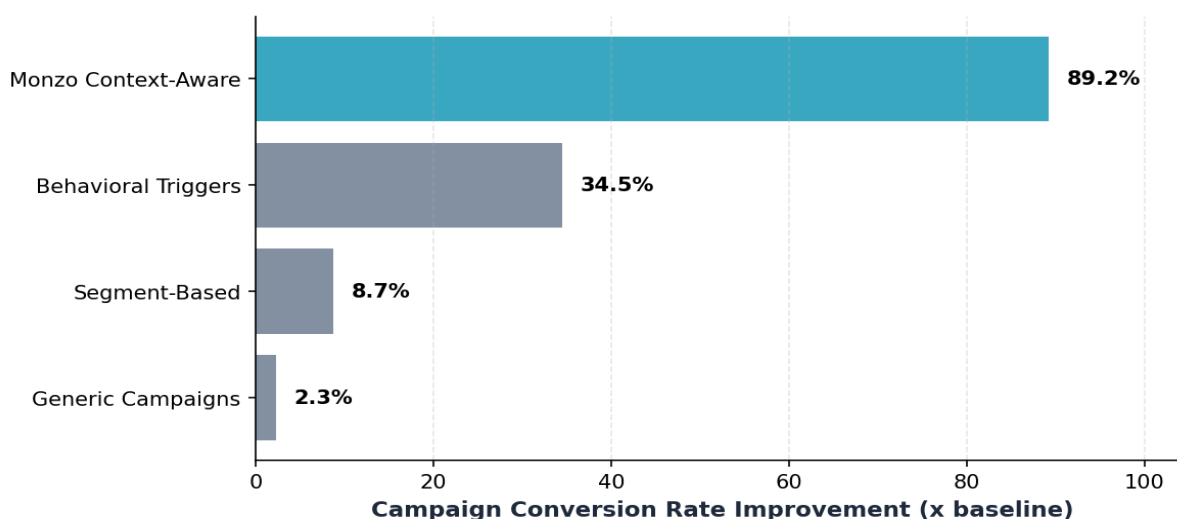
• Topic Modeling & The Pots Engine

- **Intent Data Goldmine:** Users name savings 'Pots' (Wedding, Ibiza, Emergency)
- **Unsupervised NLP:** Clusters free-text into semantic categories

- **Contextual Intervention:** Waits for relevant moments to offer products
- **Conversion Lift:** Orders of magnitude higher than generic campaigns

• Machine Learning Platform (MLP)

- **Model Registry:** Tracks every version for governance and explainability
- **Shadow Mode:** Test new models with live traffic before deployment
- **Go/Python Split:** High-performance serving with flexible experimentation
- **Regulatory Compliance:** Reload exact model version for loan denials



Monzo's Breakthrough: By merging Data Science and Credit Engineering into 'Borrowing Data' team, they unified intent detection with product delivery. Shadow Mode allows aggressive algorithm iteration without breaking user experience.

Addepar: Generative Reporting for Ultra-Wealthy

• The Common Language of Data

- **Data Graph:** Normalizes messy data from thousands of sources
- **Asset Types:** Equities, PE, art, crypto across multiple custodians
- **Clean Data Layer:** Prerequisite for meaningful AI personalization

• Storyline & Generative Narratives

- **Video Generation:** Personalized quarterly reviews, not 50-page PDFs
- **Performance Attribution:** 'Your portfolio up due to Japanese tech stocks'
- **Agentic Insights:** AI highlights impact on specific client goals
- **Netflix Experience:** Wealth management as engaging as entertainment

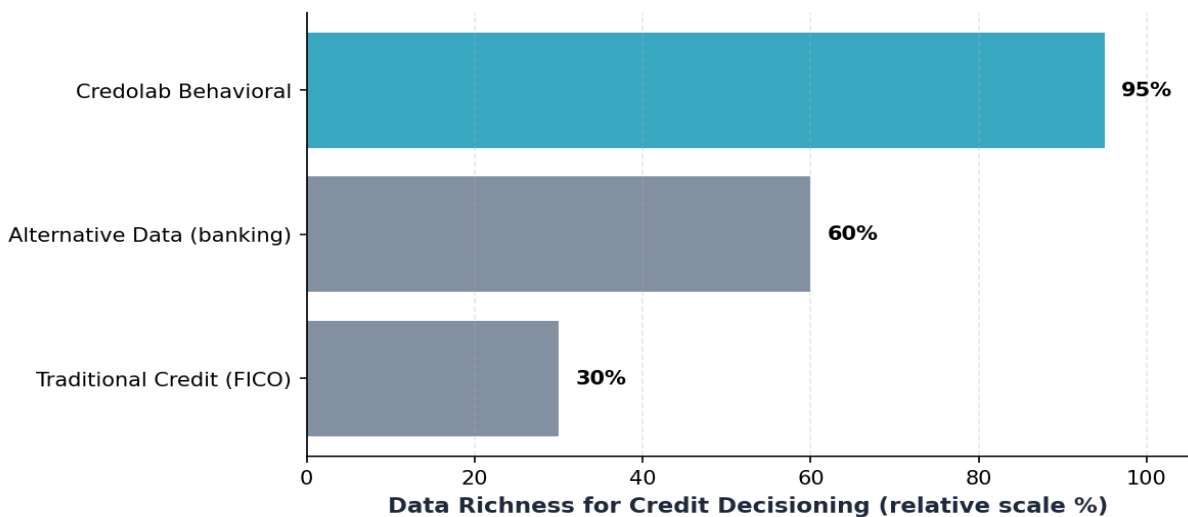
Credolab: Behavioral Biometrics as Credit Score

• Metadata Analysis at the Edge

- **10M+ Features:** Typing speed, gyroscope, calendar, app usage
- **Psychology of Risk:** Typing consistency predicts creditworthiness
- **Fraud Detection:** Copy-paste patterns suggest instability
- **Privacy-Preserving:** Analyzes metadata, not message content

• Thin-File Credit Scoring

- Gig workers with no credit history have rich behavioral data
- 'Trust Score' based on digital behavior patterns
- Expands lending to underserved populations



Contextual Intelligence: The bank of 2025 is invisible - an intelligence layer that anticipates needs. Winners predict customer needs before customers know them. Monzo predicts holidays, Addepar narrates performance, Credolab vouches character.

The Invisible Bank Future

- Anticipation over reaction - predict before request
- Context over demographics - understand moment, not segment
- Narrative over numbers - tell stories, not show spreadsheets
- Behavior over history - judge character through actions