



# Revolutionizing Small Business Banking with AI

A Strategy for Capital One

Team #1180



# Executive Summary



CASE  
STUDY



## Case Prompt

1. How will AI change the financial services industry?
2. What is one way Capital One can leverage AI to improve its business?

## Problem

Small business owners need a platform to access analytics, accounting, and predictive tools in order to save time, improve business operations, and increase efficiency. **Capital One can provide this all in ONE tool.**

## Opportunity

By offering this innovative platform solution, Capital One can solidify its position as a pioneer in supporting small business growth, while expanding its footprint in the financial industry as a leader in technological innovation.

## Feasibility

Capital One can leverage its existing data, partnerships and technologies to provide an AI product tailored for small businesses which focuses on assisting in operations, forecasting financial analysis and projecting demand.

# Capital One's Position: An AI First Business



Created the Financial industry's first natural language SMS chatbot.



Capital one leads the financial sector with 967 AI patents filed since 2021.



Capital One ranked 1st in AI Talent and 2nd overall on Evident Insights 2023 AI index.



Capital One partnered with Snowflake to create Slingshot, an internally developed database management tool.



In 2020, Capital One became the first US bank to fully migrate to the cloud.

# AI Perception: Pain Points and Opportunities



## Opportunity: Lack of Financial Literacy

>50%

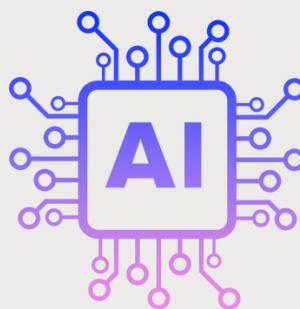
Of American Adults report feeling anxious about handling personal finances

40%

Of Americans currently turn to family, friends, or coworkers when they have a question about finances

17%

Of Americans currently use a financial advisor



## Pain: Distrust of AI Outputs

Overview

Market Landscape

Proposed Opportunity

Challenges

Final Remarks



## Both: Personalization

### INTUIT CASE STUDY

- **Problem:** Upon implementation of AI in TurboTax in 2017
  - Intuit customers opted to call customer support over trusting AI outputs
- **Solution:** Intuit integrated “**ExplainWhy**” in AI
  - Intuit’s AI now displays the factors, numbers, and processes used to generate the output
- **Result: Decreased customer service calls**
- In 2020 the number of TurboTax Live customers in season grew nearly **70%** while average handle times declined **15%**.
- Success rate of small businesses on QuickBooks is **10 points** above industry average.

### INTUIT CASE STUDY

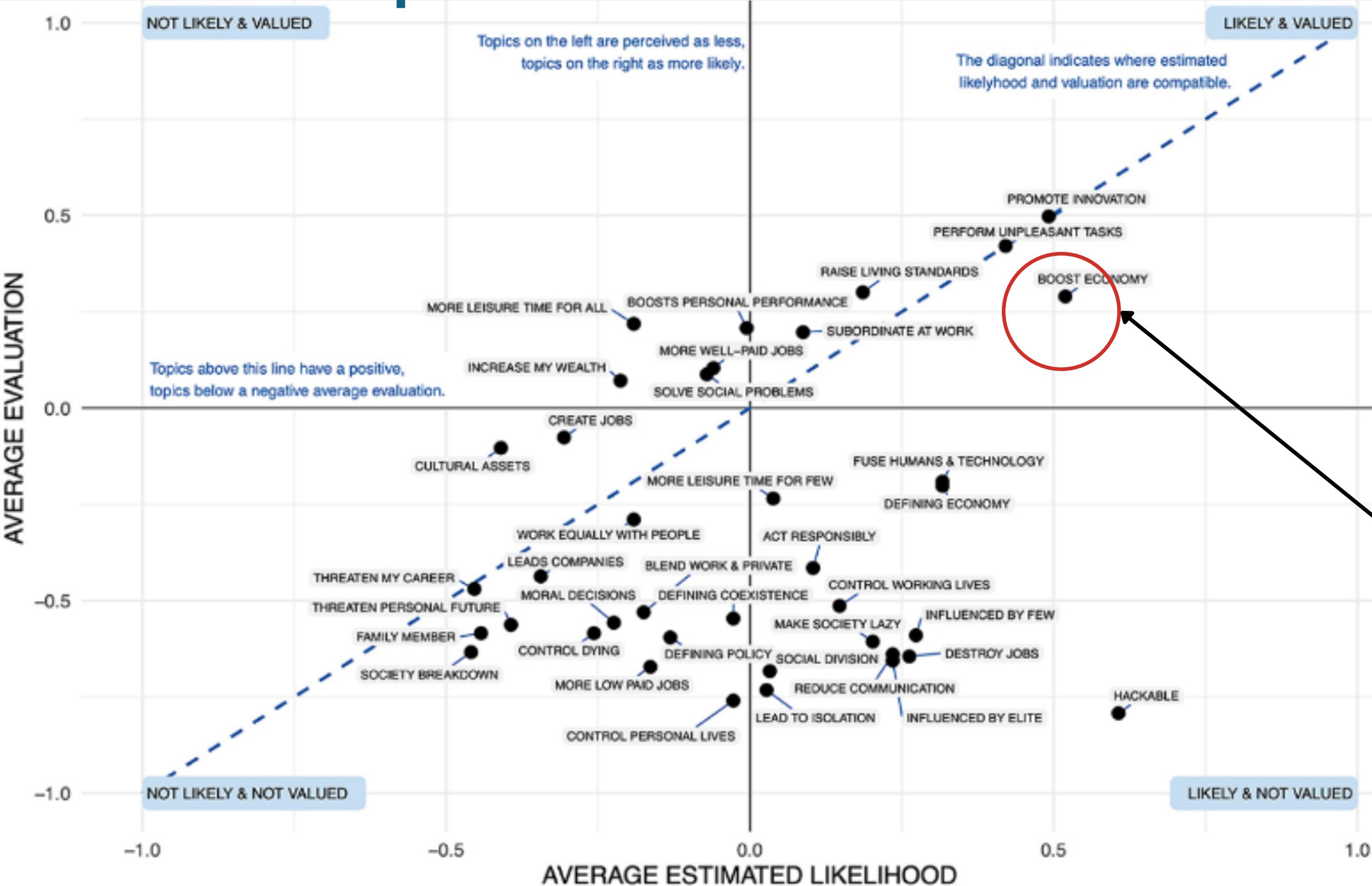
Intuit’s AI assistant personalizes user’s experiences through the use of historical data, previous customer service chatlogs, and knowledge graphs.

Building up characteristics from previous experiences gives each user a personalized journey and will improve from tracking metrics to adjust, improve, and expand.

Digital assistances help with a process of disambiguation which helps narrow the uncommon questions to provide more confidence in the user’s experience continually.

Sources: [Forbes](#), [CNBC](#), [Wired](#)

# Public Perception and Demand for AI in Banking



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Source: [Frontiers](#)

# Current Landscape of AI in Financial Services

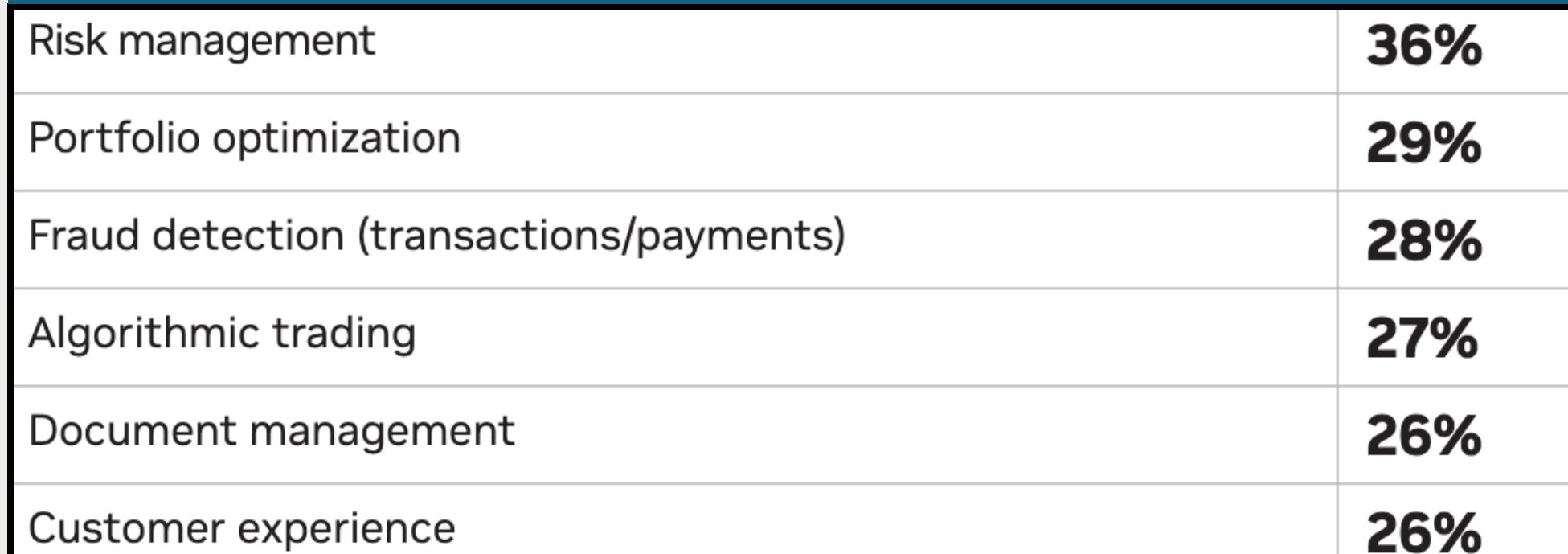


Data from survey of 400+ financial services professionals (Data scientists, developers, engineers, IT specialists) about trends, challenges, and opportunities of accelerated computing, AI, and machine learning in the industry.

## What are the AI workloads your company is utilizing today? (excluding China)



## What AI use cases is your company investing in today? (excluding China)



91%

Of financial service organizations in survey are already assessing AI or deploying AI in production

**Risk Management:** AI-powered models for credit risk assessment and market risk analysis much more accurate due to wide array of data capturable by AI and ML predictive techniques.

**Portfolio Optimization:** AI can rapidly assess market conditions and identify risks and opportunities within portfolios.

**Fraud Detection:** Leverage continuous learning to adapt to new fraud patterns. Flag unusual transaction amounts, locations, or patterns with much greater efficiency.

**Algorithmic Trading:** ML models can make informed trading decisions as soon as financial filings or earnings reports drop.

**Document Management:** NLP allows AI to extract, analyze, and report financial documents reducing human error.

**Customer Experience:** Chatbots and virtual assistants delivering faster, more personalized, consistent service to customers.

Source: [NVIDIA](#)

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# Proposal: AI-Powered Predictive/ Descriptive Solution



Capital One can expand on its Slingshot software platform and its partnership with Snowflake to create a descriptive and predictive, all in one (One. Ai) AI platform, providing a solution for small businesses to easily understand business metrics.

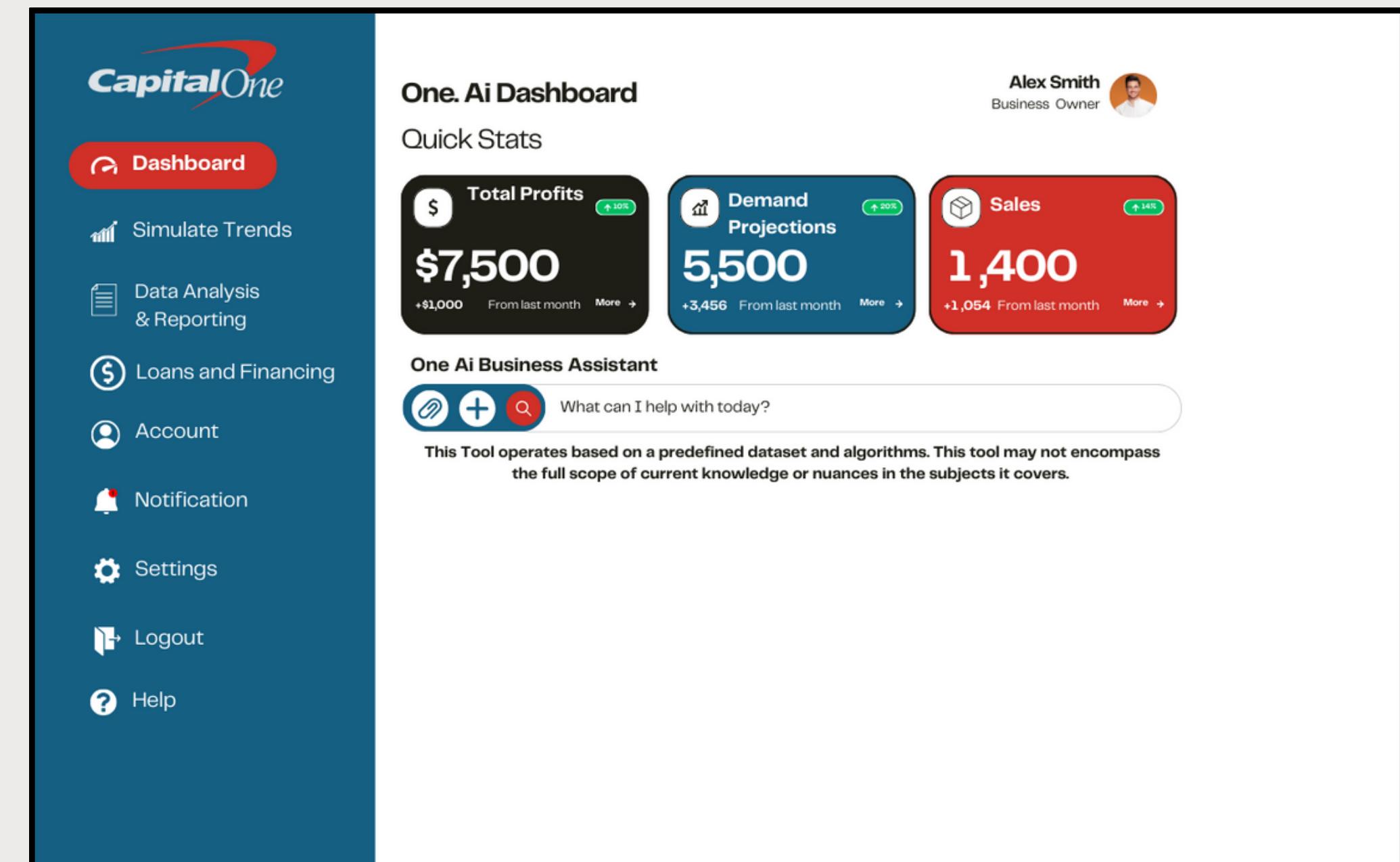
## AI Business Assistant Features:

- Predictive Financial Data Modeling
- Product Research and Development Analysis
- Analyzes data from Capital One' Slingshot, Data Lakes and databases
- Predicts inventory demand

The One. Ai Business Tool Dashboard shows custom metrics and data for business owners to visually see sales trends, demand changes, projections and total profits

**Short-Term:** Interactive, descriptive chat bot will be available in the short term as projection accuracy improves with training data.

**Long-Term:** Visualization and projection features.



# Proposal: AI Features Cont.



## AI Business Assistant Features:

- The tool will help business owners save time by retrieving and analyzing financial data.
- Utilize Slingshot to schedule data retrieval and analysis in real time.
- Incorporate Eno into its response with enhanced features such as graphing and visualization for predictive projections.
- Customers can import their own data sets and reports to improve output quality and accuracy.
- One. Ai will always warn users of potential factors for data validation, accuracy and potentially false reports.

The dashboard features a sidebar with icons for Dashboard, Simulate Trends, Data Analysis & Reporting, Loans and Financing, Account, Notification, Settings, Logout, and Help. The main area shows a question from a user asking about sales projections, followed by a disclaimer, and a bar chart titled "Sales Projections" showing projected sales for five products.

**One. Ai Dashboard**

**One Ai Business Assistant**

What are my sales projections for this quarter?

Based on the past quarter data analysis, incorporating historical sales data, seasonal trends, market dynamics, and current inventory levels, the projected sales for the next month are estimated as follows:

- **Total Sales Volume:** Estimated at **57** for all products, with a confidence interval of **65% to 78%**.
- **Revenue Projection:** Approximately **\$6,500**, factoring in current product mix and pricing strategies.

**Disclaimer:**

Please note, these projections are generated by a model trained on historical data and external factors deemed relevant at the time of analysis. The accuracy of these projections is subject to change based on unforeseen market shifts, economic factors, or changes in consumer behavior. These projections should be considered as one of many tools in your decision-making process. We recommend complementing these insights with your market analysis and expertise to make informed business decisions.

**Sales Projections**

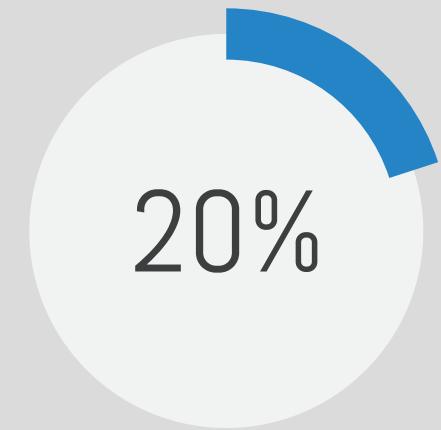
**\$6,500** +20%

+2,532 Expected from last quarter

Product	Projected Sales
Product 1	5
Product 2	8
Product 3	10
Product 4	14
Product 5	20

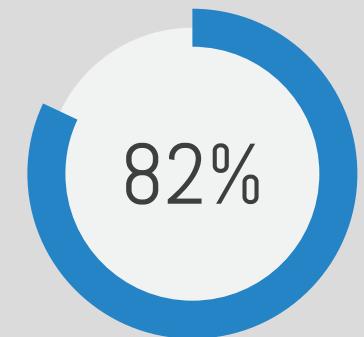
Source: [Capital One](#)

# Customer Painpoints



**Over 20% of small businesses fail within their first year**

One. Ai equips customers with proper expectations and key insights taking the guess work out of starting a small business.



**82% of small businesses fail due to cash flow mismanagement**

One. Ai allows business owners to confidently forecast costs, demand, and expenses, resulting in better financial management.

Sources: [Bureau of Labor Statistics](#), [US Bank](#)

# Differentiating Factors



## Exclusive Market Data

Customers are provided exclusive insights from Capital One's proprietary data sets.



## All-in-One Solution

One. Ai is a variety of new and pre-existing AI tools seamlessly integrated into a single service.



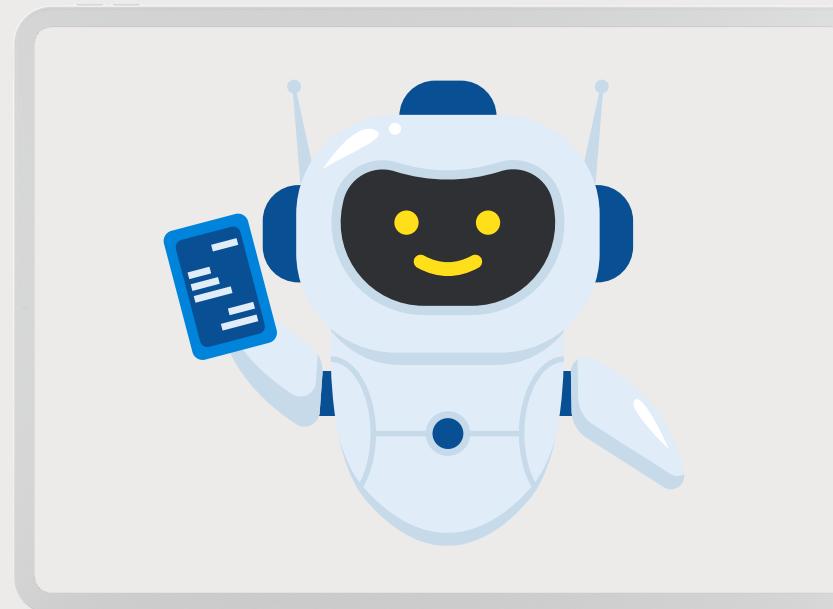
## Capital One Borrowers

All Capital One business loan borrowers are automatically granted access to One. Ai's offerings.

# Use Cases and Application

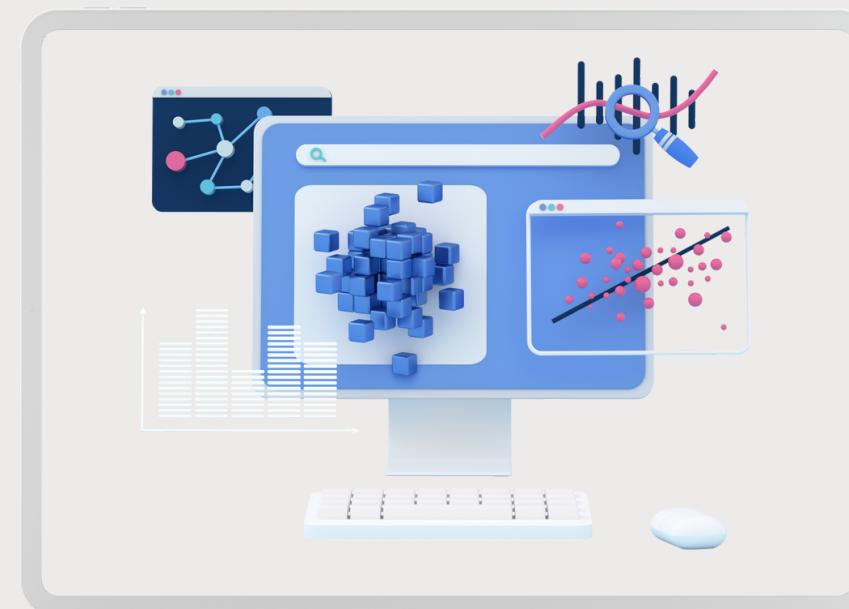


One. Ai is a customer-facing innovation making small business financial analysis and predictive analytics easier than ever before.



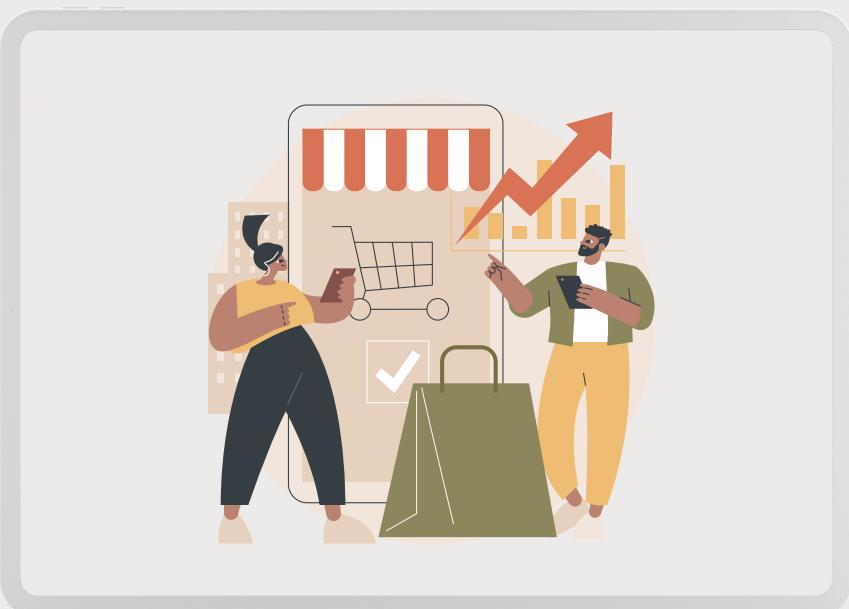
## Personalized AI Business Assistant

Within One. Ai Capital One can leverage their existing NLP system and chatbot **Eno** that deeply understands financial services terms. Repurposing Eno to act as a small business assistant that allows customers to query financial data about their business will limit small business barriers of entry and increase Capital One loan visibility.



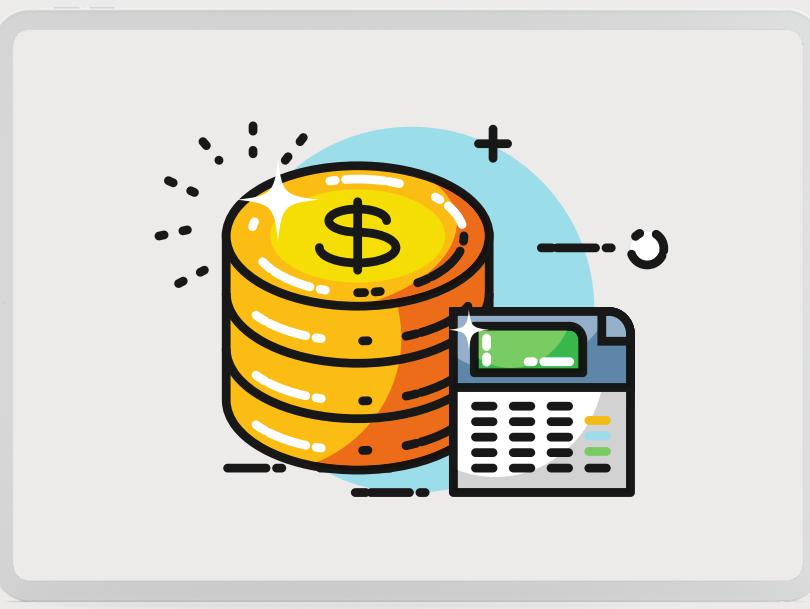
## Predictive Analytics

One. Ai will feature predictive analytics that will allow small business owners to forecast financial data and future inventory demand. This function will ensure financial planning and strategy is accessible to businesses owners who lack the acumen.



## Real-time market demand and trend analysis

One. Ai will scrape available web price data related to the products or services each small business is offering to provide real-time business analytics for product R&D and demand forecasting.



## Financial Data Modeling

One. Ai will track the financial performance of a small business and report KPI's that are tailored to the specific small business.

# Value Proposition for Capital One



## Value Proposition for Capital One

### One. Ai will cement Capital One as an industry leader in AI-integrated customer experience

- Small Businesses more accessible for Capital One customers and borrowers even if they lack the business acumen.
- Empowers business owners with custom metrics, descriptive and predictive analytics, and data visualizations for \$xxx a month.
- Incentivizes loan ownership with Capital One as One. Ai service comes with all small business loans.



**Price point rationale:**  
Further research into the cost structure, profit margins, and perceived value necessary.

# Competitor Offerings

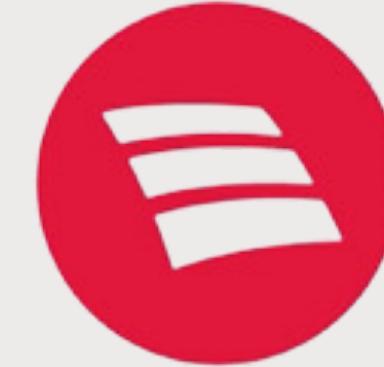
## INTUIT



- **Scope:** Utilizes AI to empower consumers and small businesses with financial expertise across the Intuit Ecosystem.
- **Functions:** Addresses various financial challenges such as budgeting, credit card debt, and retirement savings.
- **Tools:** Includes Intuit TurboTax AI Assistant and Intuit QuickBooks AI Assistant for personalized assistance in tax and accounting matters.

Offerings are limited to descriptive analytics surrounding finances, taxes, and accounting. Unlike One. Ai they lack predictive analytics, personalized business assistance, and advanced tools for financial management.

## erica



- **Scope:** Provides a range of banking and financial management services.
- **Functions:** Offers assistance with account security, payment scheduling, investment management, exploring financial benefits, and answering banking and financial questions.
- **Tools:** Enables users to manage accounts, schedule payments, explore investment options, and obtain information about banking products and services.

Sources: [Intuit](#), [BOA](#)

# Challenges and Considerations



## Model Confidence

Forecasting demand and reporting accurate small business financial data will require the utmost confidence.

### Mitigation strategy

Data-quality assurance, back-testing historical data for model testing, and clear and public methodology documentation.



## Omitted Variable Bias

Reporting predictive analytics utilizing snowflake and slingshot data may result in Omitted variable bias due to lack of consideration for external factors that are endogenous.

### Mitigation strategy

Disclaimers for use, report confidence level of prediction as well as standard error for the estimates.



## Regulatory Compliance

As the platform deals with sensitive financial and business data, must comply with relevant regulations surrounding data privacy.

### Mitigation strategy

Adhere to GDPR, PCI DSS, and similar regulations. Obtain explicit consent and clearly communicate the purposes for which the data will be used.

# Final Remarks



## One. Ai: Capital One's all inclusive tool to empower small business owners

Empowers business owners with custom metrics, descriptive and predictive analytics, and data visualizations.

Capital One small business borrowers are granted access.



Decreasing the barriers of entry for small business owners

Considerations surrounding Software integration, Talent Acquisition, and Database capabilities should be assessed.