Finance

Operations Research

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Overview

Franklin Mint Federal Credit Union strives to deliver **Speed, Service, and Convenience** to its members and be their number–one choice for life. They provide an array of personalized individual and business services to their members, with 141,000 members and 6,121 branches and partner organizations. They offer services in three major areas: **personal banking, business banking, and wealth management**. FMFCU is with its members every step of the way, and they can help them with the following:

CHANGING JOBS	RETIREMENT SAVINGS	LIFE EVENTS	SAVING FOR COLLEGE	BUYING A HOUSE	ESTATE PLANNING

Purpose

The purpose of this research project is to develop a strategic plan to introduce and expand the use of artificial intelligence (AI) at Franklin Mint Federal Credit Union. We have collaborated with FMFCU to analyze current AI strategies and practices and develop a plan for AI usage. We identified areas for improvement within the credit union and vitalized them with the use of AI solutions.

Research Methods

Interviews
- FMFCU Executives
- External Consultants

Surveys
- Employees
- Members

Financial Analysis
- Assets
- Loans
- Investments

Online Research
- AI Business Solutions
- Competitor AI Usage

AI Testing
- Implementation
- Accuracy
- Efficiency

Findings and Conclusions

Overarching Findings	Overarching Conclusions
AI tools such as AI wealth management and AI fraud detection are trending and highly demanded by consumers of financial services.	Integrated trending, in-demand AI tools will help FMFCU maintain a competitive edge and boost member satisfaction
Manual tasks such as scouring portfolios for information and lengthy data entry significantly decreases FMFCU's efficiency.	By using AI to reduce or eliminate time-consuming manual tasks, FMFCU can streamline its operations.
FMFCU's most unique aspect is its financial literacy services, but they are not personalized or scalable.	By integrating AI into its educational program, FMFCU could make it personalized.
Franklin Mint requires much stronger risk protection techniques to protect their assets.	FMFCU can leverage AI's tracking and anomaly detection capabilities to minimize the risk of losing assets.
FMFCU's current marketing strategies do not have a targeting method, meaning they are not maximizing their consumer appeal.	AI that analyzes member spending habits can be used for targeted marketing strategies.
Members are concerned about privacy and ethics in AI implementation.	FMFCU's AI plan must include ethical guidelines to ensure member satisfaction.

SWOT

Strengths

Financial education with Berenstain Bears and adult education center

Codie AI and call center efficiency highlight FMFCU's customer orientation

Weaknesses

Loan approval process is time taking and the loan fulfilment rate can be improved

Finding the information used for a portfolio analysis is time consuming and is tedious for employees who could use their skill for something more productive

Opportunities

Using AI in wealth management is currently trending among consumers, and could attract a larger member-base

AI can be beneficial to use to prevent security breaches and improve fraud detection

Threats

Large competitors such as Trumark, JP Morgan, and TD Bank already use high-tech AI solutions

Potential for member lash back in regards to AI privacy and ethical usage

Strategic Plan

M

Manage Portfolios
We plan to integrate an AI that scans client portfolios and highlights key points to assist employees in decision-making. Eventually, it will learn and be able to also offer suggestions based on the information in the portfolio.

I

Improve Efficiency
We intend to develop an AI tool to streamline data entry processes and increase work efficiency. Over time, we will develop this into a fully automated data entry process to boost FMFCU operational speed.

N

Nurture Learning
We aim to create an AI that converts financial literacy content into engaging videos to teach financial literacy to all age groups. The AI technology for developing videos based on given content already exists, so FMFCU can buy it and tailor it to their specific needs rather than developing one from scratch.

T

Track Trends
We will be tracking member spending trends in order to have AI be able to detect fraudulent activities, detect warning signs in loans before they go bad, and provide marketing suggestions. This is an AI that needs to be developed and tailored to FMFCU.

Activities Timeline

2026	2026	2027	2028
M	D A	T	A
I	D A T	A	
N	D A	T	A
T	D A	T	A

Each of the bars in the timeline represents a different phase of the AI learning process, which we simplified using the acronym DATA. The first phase is Develop, meaning the actual AI model is developed or tailored to FMFCU in this phase. The next phase is Analyze, where the AI analyzes FMFCU databases and learns how to conduct tasks. After that is train, where the AI automates basic tasks with heavy human oversight while learning from its mistakes. The final phase is Automate, where AI will independently automate FMFCU operations with occasional check-ins.

Key Performance Indicators

Indicators of excellent results from AI implementation plan

M **Portfolio Management**
Earnings per portfolio increase by 10%

I **Data Entry**
10% more efficiency
Loan approval
<1 day approval

N **AI videos**
>1k views on videos

T **Fraud tracking**
>95% detections accurate
Targeted Marketing
>70% advertised services bought
Loan Alerts
>50% less loan delinquency

Overall AI incorporation – >80% members satisfied with services

Proposed Budget

Manage

Development and training costs

Feedback and Iterative Learning

System Integration

Performance Evaluations

Total Cost: $510,000

Improve

Basic Automation Setup

Error Detection and Learning

Automation and System Integration

Performance Evaluations

Total Cost: $385,000

Nurture

Purchase of AI Video Tool

Customization of AI

Interactive Features

Pilot Testing and Refinement

Total Cost: $175,000

Track

AI Development and Training

Flagging and Feedback Process

Full Implementation and Automation

Performance Evaluations

Total Cost: $405,000

Revenue and ROI

Manage	Improve	Nurture	Track	Total
$183,000	$10,399,00	$1,733,000	$5,150,000	$17,500,000

FMFCU costs deducted:
- Expenses
  - Interest on Borrowed Money
  - Provision for Loan Losses
  - Noninterest Expenses
- Dividends

Total revenue from AI project **+ $17.5 MILLION**

Total costs of AI project **− $1.0 MILLION**

FMFCU costs to be deducted **− $12.3 MILLION**

$$ROI = \frac{4,120,668}{1,475,000} \times 100 = 279\%$$

Amount of investment (Total cost of AI project)

A. Description of the business or organization

History

Franklin Mint Federal Credit Union opened in 1970, and since then, has been offering its services to businesses and individuals throughout the Greater Philadelphia region and beyond. This credit union is the largest financial institution headquartered in Delaware County, Pennsylvania, and has been ranked eighth largest in asset size in the entire state.

Overview

nearing
$2B
in assets

Franklin Mint is the credit union of choice for QVC, Mainline Health, Drexel University, and many more businesses, and it is considered a banking resource as well as a job benefit for the thousands of employees at these companies. Mainly, they are a resource for client business' employees to utilize as banking services for car loans, savings accounts, CDs, wealth management, etc., but FMFCU can do employee seminars and provide banking services for the businesses as well.

FMFCU is the credit union for
7500+ businesses

FMFCU Mission Statement

" FMFCU strives to provide the products and services our members need and want. Building relationships with our members makes their personal and business finances a little easier. In addition, our members are informed of new FMFCU information and industry developments via direct mail, email, and our website. An informed member makes better decisions! "

Company Values

Franklin Mint's commitment to providing financial education ensures that its members can make informed decisions, which creates successful clients. They not only provide financial education for their members but also for their potential members. They have a **unique partnership with the Berenstain Bears family**, a show known for teaching valuable lessons to children through entertainment and humor. This partnership offers an appealing financial education program for the young generation. Franklin Mint's Bear County Credit Union mobile unit goes out to their partner schools to teach financial literacy using a full Berenstain Bear environment, from the tree they live in to the bus. Franklin Mint also has an Adult Financial Literacy Department that hosts seminars for its adult community. This can range from college planning for younger adults up to wills, estate planning, and long-term care planning for older individuals. Their commitment, evident through these programs, fosters financial literacy for all generations.
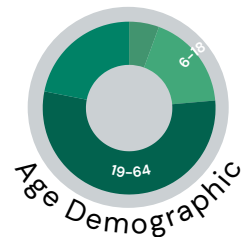
Geographics

Franklin Mint's main branches are in Delaware County, Pennsylvania, but they have more than a twenty-mile reach through ATMs, CO-OP ATMs, and a few more branches. This county is between the city of Philadelphia and the state of Delaware and has a population of approximately 575,000 people.

Demographics and Psychographics

The median household income of the 216k households in Delaware County is $89,015. The main source of employment in this area is through the sectors of health care and social services, education, retail, and manufacturing. These people are likely financially secure, family-oriented, and community-minded.

Average Income

575k
County Population

6-18
19-64
Age Demographic

FMFCU Expectations

▶ Franklin Mint's total membership is currently **140,000** members and businesses. ◀

Members

Demographics: The members mainly consist of employees at Franklin Mint's large corporate partner groups who are offered the credit union's services as a work benefit. Franklin Mint provides its members with services such as financial literacy programs, personal loans, retirement planning, college savings plans, and estate planning, along with the regular services of credit unions such as savings and checking accounts.

Psychographics: Most of the members are middle-aged, in their 30s to 50s. This means that they are likely to have families and stable jobs. People in this demographic generally have financial goals related to saving for retirement and their childrens' college education, which need lots of planning. They likely also find financial literacy an important skill for their kids.

Businesses

Demographics: Franklin Mint's target business clients are businesses with a small to medium cap size. Specifically, they aim to provide their services to businesses with 5 to 25 million dollars in annual revenue. Some of their current business clients are QVC, Mainline Health, and Drexel University.

Psychographics: These businesses are typically very growth-focused, and want reliable, trustworthy financial service providers that have flexible, customized solutions for managing cash flow, funding, and risk. They likely prioritize innovation and efficiency while maintaining a strong sense of community and collaboration. They likely choose their financial service provider based on reputation.

The Forgotten Target Market

For AI incorporation, the actual **employees** who will be using and working with AI are an important target market to consider as well. At Franklin Mint, most of the employees have substantial experience working in financial services, but a majority of them are middle-aged, which means that although they are not completely detached from technology, they may still find AI difficult to grasp or trust. The fact that they are **financial experts and not technological experts** also plays into this since these employees will not be able to efficiently use the AI if it requires a high level of technological experience. It is of utmost importance to keep this in mind when developing an AI implementation plan since the people who will directly work with the AI on a day-to-day basis need to be comfortable with it, and it needs to be **user-friendly** to increase work efficiency.

Target Market Expansion

After incorporating AI, the target market with both members and employees will expand. The AI implementation will attract more of the younger generation of future members and employees, due to their familiarity with AI. Newer technology and artificial intelligence have a special appeal to younger generations, since these make a firm appear more up-to-date, and therefore seem more reliable to new generations who have grown up relying on technology.

C. Overview of the business or organization's current artificial intelligence strategies and usage

Codie can assist with:

✓ Account Balances
✓ Account Number Information
✓ Applying for a Loan
✓ Branch Hours
✓ Deposit Status
✓ Digital Wallets
✓ Direct Deposits
✓ FMFCU's Routing Number
✓ Loan or Credit Card Payments
✓ Money Transfers
✓ Online Statements
✓ Opening an Account
✓ Rates
✓ Resetting Digital Banking Password
✓ Scheduling an Appointment
✓ Status of an Application
✓ Transaction History
✓ Zelle Payments

Franklin Mint currently uses AI only regarding member services. They have an artificially intelligent chatbot named Codie which is a member service solution. When Franklin Mint receives a call to their call center, an AI "person", Codie, initially responds, in place of a call center employee, and if the caller needs further help, it can transfer the call to a human. Codie has been trained to understand and be able to respond to FMFCU-related questions, and it successfully helps members with their queries. The AI is programmed to sense emotion and can detect when someone is upset. The credit union keeps track of how members are responding to Codie and so far, Codie has been received fairly well by the member base. The chatbot helps offload simple tasks from the call center team, and it also allows Franklin Mint to cut down on its call center staff. However, this does not cause people to lose their jobs, since the money is repurposed to other member services and all employees, meaning the credit union can hire more people in areas that will be more beneficial, and they are also able to increase current employee salaries.

A. Description and rationale of research methodologies selected to conduct the research study

Primary Research Methods

Interviews

Description: We conducted interviews with 3 executives at FMFCU (Chief Relationship Officer Marc Ernest, Vice President and Chief Retail Officer Michael Mastrangelo, and Chief Technology Officer Eric Paladino) via Zoom meetings, and discussed FMFCU's operations, AI usage, and future goals.

Rationale: The interviews provided credible facts from executives of the credit union, and are the most reliable way to get accurate information about the credit union, specifically qualitative data.

Surveys

Description: We sent an employee survey to be taken by FMFCU employees, and a customer survey to a base of adults who use financial services like credit unions.

Rationale: The surveys provide direct, quantitative information from employees and members/customers/clients. The employee survey offered insight into what the employees could benefit from and need assistance with to reach maximum efficiency. The customer survey was not sent solely to FMFCU members, as we wanted to know what the entire market expects or wants from their financial services provider, not just people who already know and love FMFCU.

Secondary Research Methods

Market Research

Description: We conducted online searches to see what AI business solutions are currently trending in financial institutions as well as how our competitors are using them. We also did some extra research on AI ethics and privacy in addition to the Coursera course and found studies on consumer preferences regarding financial services.

Rationale: This provided us with a broader range of research to be able to extract only facts using an array of sources, and detect and eliminate biases, so we can have the most accurate information for our AI implementation plan.

AI Research

Description: We used a common AI platform, ChatGPT, and asked it to do some tasks that we were hoping to use AI for in our implementation plan, and we analyzed what the AI was actually capable of, and how accurately it completed the task.

Rationale: This was a real-life implementation of the plan that got us qualitative and quantitative data for our research study, with solid proof of what AI can and cannot do, as well as a demonstration of our ideas.

Financial Analysis

Description: We looked at the financial and income statements in FMFCU's 2023 Annual Report, and analyzed both of these, specifically looking at what exactly makes up their assets and liabilities, as well as where the majority of their money comes from.

Rationale: This gave us quantitative data for our research study, and we were able to gain insight into FMFCU's financial position, and how we could customize our AI implementation plan to boost their financial standing.

B. Process used to conduct the selected research methods

September 2024 – Conducted Background Research: We met with Franklin Mint's Chief Relationships Officer, Marc Ernest, and discussed FMFCU's values, goals, and general functions. We also visited their website and researched services, locations, and geographical scope.

September 2024 – Outlined Research Objectives: Based on our meeting with Mr. Ernest and the research we did on the website, we outlined the main objectives of our research to have a clear idea of what goal we were working towards

October 2024 – Pushed out surveys: With Mr. Ernest's help, we sent out a survey to FMFCU's employee base, as well as a survey to a financial institution's customer base, and began collecting quantitative data for our research.

October 2024 – Online research: Based on the survey results we began to get, we started researching some of the things that the employees and members wanted AI implemented .

November 2024 – Financial analysis: We analyzed FMFCU's financial reports on their general spread and compared them to those of other financial institutions to identify weak areas in Franklin Mint's finances. We also used this to determine how to structure the proposed budget.

November 2024 – Interviews and plan formation: We interviewed the Chief Retail Officer, Michael Mastrangelo, and the Chief Technology Officer, Eric Paladino, to discuss their current and future AI aspirations, as well as some more insight into FMFCU's operations.

November 2024 – Compiling and analyzing research: We took all of our research and analyzed it, finding key points and drawing conclusions from them, and we used this to create a tentative AI implementation plan for the credit union

December 2024 – Sample testing: We took our tentative plan and created a demo of it using ChatGPT, to see if what we hope to do is feasible and worth implementing. We found the results to be fairly positive in terms of feasibility.

December 2024 – Final creation of plan: We used the results from our testing to tweak some of our ideas and finalized the AI implementation plan.

A. Findings of the research study

With the rapid incorporation of AI in the financial sector, it is of utmost importance that financial institutions stay up to date with the latest AI business solutions to appeal to members while also remaining fairly competitive in terms of operational efficiency. Businesses that fail to do this put themselves at high risk of losing valuable customers and opportunities for growth. While researching Franklin Mint, it became more and more apparent that the credit union's current approach to AI is insufficient to fully take advantage of AI's possibilities. Therefore, FMFCU needs to take action by incorporating AI into operations related to loan approval, data entry, and member services to remain efficient as a financial services provider, but also some more creative approaches in education and marketing to stay on top of the competition.

94.7%
of members believe AI–driven fraud detection and security alerts to be the most valuable addition to their financial institution

79.1%
of customers said it is very important that their financial institution offers AI–enhanced services

94.8%
of customers said it is very important to have human oversight in AI–powered financial tools at their financial firms

100%
of employees said AI–driven tools for fraud detection would improve the safety and compliance of their operations

Key Findings

Key Finding #1

Automated wealth management is a major AI trend in the financial sector.
In our online research, we discovered that **91% of financial service firms use AI to analyze member portfolios** and make suggestions for decisions. FMFCU provides wealth management and advising services, so using this type of AI would help them **stay up to date with trends and strengthen their reputation as a modern credit union.**

Scouring through member portfolios for information decreases employees' efficiency.
Based on the information we gathered from our interviews, we discovered that **reading through lengthy member portfolios decreased employee efficiency**, and hindered their ability to complete tasks quickly.

Key Finding #2

Key Finding #3

Manual organization of financial data decreases FMFCU's operational speed.
In our employee survey, **63.6% of employees said that they hoped to see data entry automated with AI**, since it was busy work that consumed time that could be used for other tasks where they could better apply their financial acumen.

FMFCU's most unique aspect is its financial literacy services, but they need improvement.
In our interview with Mark Ernest, we learned about Franklin Mint's **childhood and adult financial education services.** This community–focused approach **distinguishes them from competitors**, and with AI, we believe they could take this core value a step further and truly help the community.

Key Finding #4

Key Finding #5

Current marketing strategies do not have a broad targeting method, resulting in potentially wasted resources and missed opportunities.

Based on our interviews, we have had **multiple complaints about advertising financial services not reaching the intended market** with members who receptive to the service. The marketing team has been looking for targeted marketing tools.

Key Finding #6

AI-use in fraud detection and security is in high demand.

Our customer survey revealed that **94.7% of members favor AI-driven fraud detection**. Additionally, industry reports indicate that AI can significantly enhance the speed and accuracy of identifying security threats, and is currently very popular in financial security.

Key Finding #7

Manual loan tracking processes are time-consuming and inefficient, and require staff to monitor loan performance and identify potential defaults.

FMFCU's current loan approval process takes time and it is difficult to confidently ensure loan fulfillment. Through our online research, we discovered **AI can make the process more reliable** through trend tracking and flagging risky loans. Loans make up the majority of FMFCU's current assets.

Key Finding #8

FMFCU must balance AI and human oversight, and take into account privacy and ethics when implementing the AI.

In the customer survey, **94.8% of members said that it was highly important to have human oversight with the AI**, and many doubted its reliability and ability to maintain privacy. This must be kept in mind when developing the plan to ensure that the AI increases membership rather than decrease it.
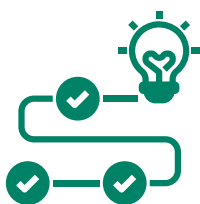
All of these key findings were extracted from our research. We tried to make the findings incorporate data across multiple different research methods to come to more holistic and cohesive conclusions based on our findings.

B. Conclusions based on the findings

Overall, the key findings have shown that FMFCU currently needs to **boost efficiency** and have employees put their financial acumen to better use than things considered busy work. It would also like to be able to **increase sales** through targeted marketing and **reduce loan risk** when loaning to businesses. Finally, the thing that makes FMFCU unique is its **dedication to community financial education**. AI has great potential in enhancing these areas and helping Franklin Mint rise to the top.

We used our findings and conclusions to conduct a **SWOT analysis**. Categorizing both of them into specific strengths, weaknesses, opportunities, and threats can efficiently evaluate FMFCU's current position and potential for improvement. The strengths and opportunities can be built upon to create a **larger dominance**, while the weaknesses and threats need to be addressed with a **contingency plan** (proposed strategies). Both of these give us goals for **strengthening the credit union from the inside**. The external opportunities emphasize specific points that FMFCU could take advantage of and turn into its strengths, and threats provide **factors to be cautious of** and prevent them from becoming weaknesses.

Conclusions

Conclusion #1
Integrating wealth management AI at FMFCU is essential for maintaining competitiveness since it will reinforce FMFCU's reputation as a **forward-thinking institution** that stays aligned with industry trends.

Conclusion #5
AI that analyzes member behavior can be used for data-driven, targeted marketing strategies. This would ensure financial services reach the right audience, **optimizing outreach efforts** and maximizing resource efficiency.

Conclusion #2
AI is needed to **streamline portfolio management** at FMFCU so that employees are able to contribute more directly to member focused tasks and accomplish **higher value tasks.**

Conclusion #6
With its ability to **identify fraudulent activity** and security threats, AI would be a valuable tool for FMFCU to protect its members. Implementing this solution would **strengthen security measures and build trust with customers.**

Conclusion #3
Manual data entry is an **obstacle that slows down operations at FMFCU**. Implementing **AI for data entry** would reduce busy work, increase efficiency, and allow staff to better leverage their financial expertise.

Conclusion #7
FMFCU's **manual loan tracking is inefficient** and limits risk detection. This could lead to **major losses** since loans are their largest asset. **AI-driven loan tracking** is essential for better risk management and efficiency.

Conclusion #4
By **integrating AI into its educational program**, FMFCU could increase personalization, member engagement, and accessibility in financial literacy, and **strengthen its impact on financial education.**

Conclusion #8
To **build trust** and address concerns about privacy and reliability, FMFCU must ensure that **AI is used responsibly**, maintaining a balance that enhances member confidence and preserves privacy while driving growth.

S
Financial education with Berenstain Bears and the adult education center has created a positive company image.

FMFCU has highly skilled and knowledgeable employees with vast financial acumen.

Codie AI and call center efficiency highlight FMFCU's member orientation.

Loyal member base, as a majority of them have been with FMFCU for over 5 years.

W
Data entry is time consuming and detracts from time better spent in areas requiring more skilled work

The loan approval process is time taking and the loan fulfillment rate is not optimal.

Finding the information for portfolio analysis is time consuming and employees could use their skills for more productive tasks.

O
Using AI in wealth management is currently trending among consumers, and could attract a larger member base.
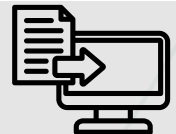
Predictive modeling with AI can be used for a multitude of creative advancements in marketing and loans.

AI can be beneficial to prevent security breaches and improve fraud detection.
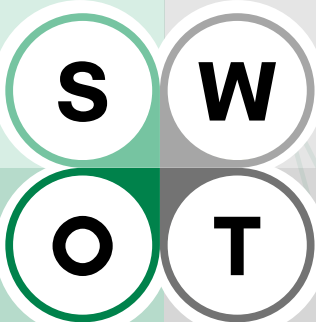
T
FMFCU's competitors already use high-tech AI solutions.

There is potential backlash regarding AI privacy and ethical usage.

Financial security issues have skyrocketed with the advancement of technology

AI might provide incorrect information or make errors in computing data, possibly hindering operations.

V. PROPOSED STRATEGIC PLAN

A. Objectives and rationale of the proposed strategic plan

Based on our research, findings, and conclusions, we have developed a strategic AI implementation plan for FMFCU. The plan is represented by the acronym MINT, standing for manage, improve, nurture, and track. The plan is associated with four additions to Franklin Mint's AI resources, which will revolutionize FMFCU's financial processes. Artificial intelligence will enhance efficiency, empower employees, and deliver value to members while staying true to FMFCU's core values of speed, service, and convenience.

MANAGE
Portfolios

Short Term Objective

Develop an AI-powered analytics tool that identifies patterns and anomalies in a portfolio, and highlights trends for analysts to act on. This AI will use historical data and analyst preferences to analyze portfolios

Long Term Objective

Implement a fully AI-driven portfolio management system that synthesizes financial data, predicts future trends, and provides personalized suggestions to analysts, enhancing efficiency and accuracy.

Rationale

AI-driven insights will reduce the time analysts spend manually reviewing reports, allowing them to focus on higher-value tasks. By automating this system, efficiency, accuracy, and responsiveness are enhanced, potentially reducing manual workload by 30%.

IMPROVE
Efficiency

Short Term Objective

Introduce an AI-powered data validation system that automates data entry from structured forms but still requires human validation for accuracy and error correction.

Long Term Objective

Develop a centralized AI system that automates data entry and conducts real-time data audits, ensuring accuracy, compliance, and consistency in financial records across all operations.

Rationale

Data accuracy is critical to financial institutions, as even minor errors can impact compliance and decision-making. Automating data validation will enhance reliability and efficiency, potentially reducing error rates by 50% while increasing processing speed.

NURTURE
Learning

Short Term Objective

Develop an AI-powered interactive financial literacy tool featuring animated educational content, such as AI-generated Berenstain Bears videos, to engage children and increase participation by 15%.

Long Term Objective

Expand AI-driven financial literacy programs by introducing learning platforms that personalize financial education based on the user's preferences, and cater to both children and adults.

Rationale

Financial literacy is key to long-term economic well-being, FMFCU's current program reaches 7,500 people, and AI-based tools can make learning more interactive and scalable. AI education can increase engagement, preparing future generations for informed financial decision-making.

TRACK
Trends

Short Term Objective

Develop an AI-based trend detection system that identifies and tracks trends in transactional data. Employees can use these to identify fraudulent activity, loan risks, and marketing opportunities.

Long Term Objective

Develop an AI-driven system identifies problems such as anomalies or negative trends. It will also suggest solutions like transaction holds or adaptive fraud prevention measures.

Rationale

This allows financial institutions to address fraud, loan risks, and market opportunities. This boosts members' trust in FMFCU, which is highly beneficial for a financial institution, as people prioritize the safety of their assets. The targeted marketing will help increase sales.

Proposed Activities: MINT

Manage

Activities
- **Portfolio Scanning & Flagging** – The AI scans client portfolios and highlights potentially relevant information.
- **AI Decision Suggestions** – AI progresses to making suggestions for decision-making, with employee verification and commentary.

Benefits
- **Enhanced Decision Support** – AI provides key insights, allowing advisors to make more informed decisions.
- **Improved Efficiency** – Reduces time spent on data analysis, enabling employees to focus on client interactions.

Improve

Activities
- **Initial AI Integration:** Introduce AI to handle basic data entry using Optical Character Recognition (OCR) to extract data from forms and documents.
- Full Automation & System Integration – AI is integrated into FMFCU's infrastructure to autonomously manage complex data entry and cross-check data across systems.

Benefits
- **Increased Efficiency** – Automating repetitive data entry reduces errors, employee workload, and processing time, allowing staff to focus on higher-level, value-added tasks that improve overall productivity and job satisfaction.
- **Scalability** – Full automation allows FMFCU to process larger volumes of data without increasing staffing needs.

Nurture

Activities
- **Personalized Content** – AI tailors financial literacy content based on age group and comprehension level, and answers children's questions.
- **Interactive Learning Tools** – AI integrates comprehension checks by pausing videos to ask questions, reinforcing retention and engagement.

Benefits
- **Scalability & Accessibility:** AI-generated videos make financial literacy education widely accessible to diverse age groups.
- AI Appeal – AI-generated videos use modern, digital content formats that appeal to younger audiences, making financial literacy more engaging and accessible.

Track

Activities
- **Real-Time Monitoring** – AI flags suspicious activity and potential loan risks, with employees verifying and providing feedback to refine accuracy.
- **Trend-Based Marketing** – AI analyzes member behavior trends to generate targeted marketing suggestions and autonomously detect risks related to loans and fraud.

Benefits
- **Proactive and Informed Risk Management :** AI detects fraud and loan risks early and accurately by analyzing transactional patterns and learning from employee responses, allowing FMFCU to act before issues escalate.
- **Competitive Advantage** – A tailored AI tool sets FMFCU apart in its ability to preemptively manage risk and market more intelligently.

AI Learning Process

Function

This phase is where the customized AI system will be built or an existing AI solution purchased by FMFCU will be tweaked to fit FMFCU's needs. This involves configuring the AI to align with FMFCU's operational needs, ensuring seamless integration with existing systems, and setting up the necessary infrastructure for efficient deployment.

In this, the AI will gain insights into FMFCU by analyzing operational data, understanding workflows, and recognizing patterns in previous suggestions and decisions. This phase is centered on observing the company's current operations without implementing any immediate changes.

This phase involves two key components: training the AI to execute operations based on learned patterns and best practices, and educating employees on how to effectively use AI tools. The goal is to create a collaborative system where AI enhances efficiency while employees retain oversight and decision-making power.

In the Automate phase, AI will transition to full automation, handling tasks with minimal oversight. Initially, it will be closely monitored for accuracy and reliability. As it proves effective, human involvement will decrease, but regular check-ins and updates will maintain performance, address issues, and refine capabilities.

D — DEVELOP
A — ANALYZE
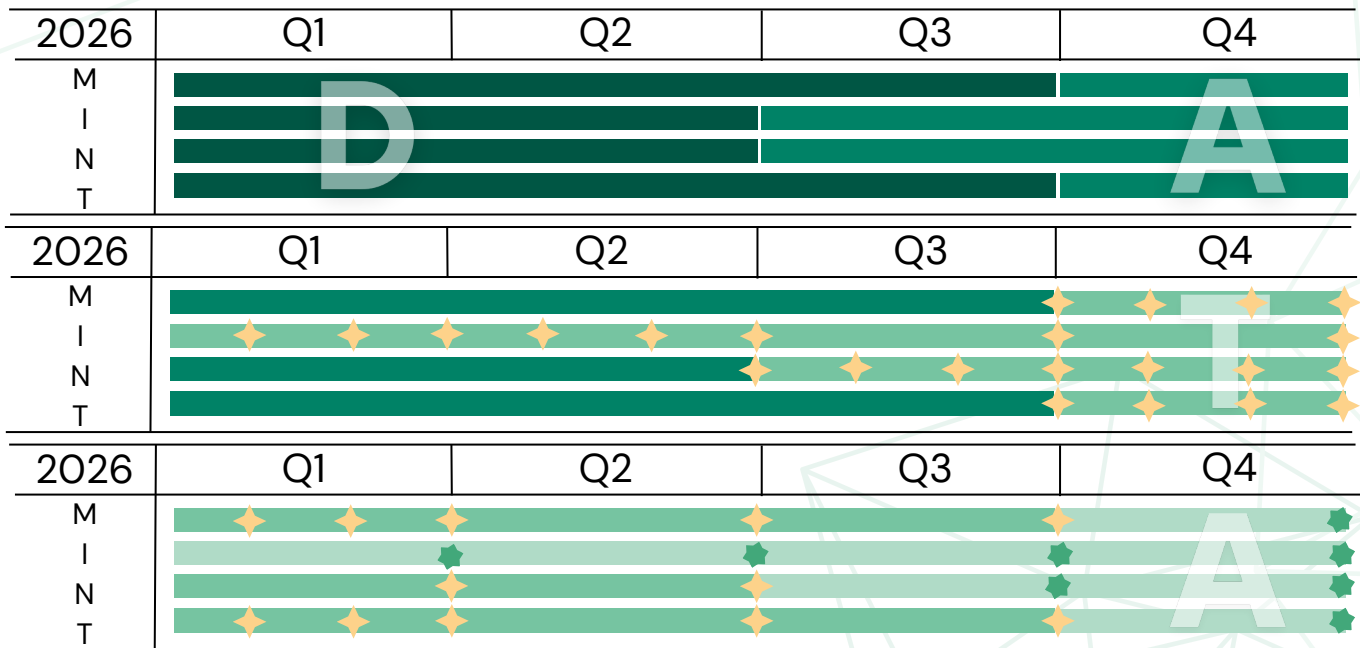**T** — TRAIN
A — AUTOMATE

Rationale

The development stage is necessary so that the base AI structure is customized to FMFCU's needs, and this makes it easier to integrate the AI into the credit union's operations. Based on our research, this stage will take about 2 to 3 quarters based on whether it is being custom developed or purchased and personalized.

Since AI is a machine that learns, the Analyze stage is crucial as it will help the AI actually become "intelligent" in terms of being able to carry out FMFCU's processes effectively and efficiently. This phase will enable the AI to work just like FMFCU employees do by learning from their decision making, and maintain FMFCU service quality.

The Train phase minimizes errors in the AI's work by helping it learn what mistakes it makes and how to improve or fix these mistakes. It also allows for seamless integration by giving FMFCU employees time to adjust and learn how to work with AI, so that the MINT initiative aids efficiency rather than causing delays due to confusion.

This is included in the AI learning process as it is essential to consider the steps that need to be taken after the AI is fully developed and automated. Regular check-ins to gauge the AI's performance will be held in this phase to ensure the AI is working properly and to gain data for assessing performance based on the performance indicators.

Timeline

Timeline Key

- ▰ = Develop
- ▰ = Analyze
- ▰ = Train
- ▰ = Automate
- ✦ = Employee training days and system updates
- ✦ = Automation Check Ins

The total development and learning portion of our AI implementation plan will span over three years, as seen in the timeline above, as this is the most optimal and most efficient time spread to implement all the initiatives. The AI will continue to learn and grow after these three years, but this timeline is the majority of its development and learning. Employee training days and check-ins will be intermitted throughout. Training days will consist of training employees to properly use and monitor the AI through workshops, and check-ins will allow FMFCU to keep track of how well employees are able to handle the AI tools. At the end of this timeline, an evaluation will be conducted to see if more time is needed in the learning and growth period.

C. Proposed metrics or key performance indicators to measure plan effectiveness

Activity	Excellent	Satisfactory	Poor
Portfolio Management	earnings per portfolio increase by 10%	earnings per portfolio increase by 4-9%	earnings per portfolio increase by 3%
Data Entry	>10% increase in efficiency	5-10% increase in efficiency	<5% increase in efficiency
Loan approval	<1 day approval	1-2 day approval	>3 day approval
AI videos	>1k views on videos	>500 views on videos	<500 views on videos
Fraud tracking	>95% detections accurate	70-95% detections accurate	<70% detections accurate
Targeted Marketing	>15% advertised services bought	5-15% advertised services bought	<5% advertised services bought
Loan Alerts	>50% reduction in loan delinquency	20-50% reduction in loan delinquency	<20% reduction in loan delinquency
Overall AI incorporation	>80% members satisfied with services	60-80% members satisfied with services	<60% members satisfied with services

*All metrics gauged on yearly basis

The data for the metrics mentioned above will be collected during the check-ins specified on the timelines above, as well as in regular FMFCU member and client surveys. The check-ins will entail FMFCU employees providing feedback on the AI's accuracy progression as it learns and grows. Excellency is expected after the three-year development period, but the check-ins will show if progression is on track. These accuracy check-ins apply to all the proposed activities except the teaching AI. We will also conduct efficiency checks for the data entry by calculating the revenue per employee ratio quarterly to see if it increases. The method for collecting the check-in data will be sending out surveys to get quantitative information, and interviewing employees at random to get qualitative feedback. For portfolio management, we will use the service ratings that FMFCU currently collects from members. For the AI-generated videos, Franklin Mint will track the amount of views on the videos, as well as the percentage of viewers that like the videos. The marketing department will provide feedback on the targeted marketing AI. They will report the percentage of members who interacted with the targeted marketing ads and actually ended up using the services. The overall AI incorporation feedback data will come from FMFCU's regular member satisfaction survey. If some of the AIs in our proposed strategic plan have poor performance, we will reevaluate and redesign a plan for AI in that area to ensure FMFCU's success.

VI. PROPOSED BUDGET

A. Costs associated with proposed strategies

Implementing advanced AI technologies allows Franklin Mint Federal Credit Union to increase productivity, enhance data-driven decision-making, and deliver more personalized, efficient service—all while staying true to its core values of speed, service, and convenience. These innovations position FMFCU to stay competitive and forward-thinking in an evolving financial landscape. By leveraging AI for fraud detection, customer support, and financial insights, FMFCU can strengthen security, improve operational efficiency, and elevate the overall member experience.

Manage

Item	Maximum Cost	Sources
Development and Training Costs		These numbers are estimated based on an article published on TechMagic by Anton Lukianchenko, a Senior Web Engineer, AI advocate, coach, speaker, and member of the CoE. It was also recently updated on July 8, 2024, which demonstrates the accuracy of the source based on its timeline.
Data preparation, cleaning, and input into AI systems	$100,000	
Machine learning model development and testing	$150,000	
Feedback and Iterative Learning		
Feedback Integration and Validation	$50,000 annually	
System Integration		
Software Integration	$50,000	
Biannual Evaluations		
Employee Training and Review Time	$20,000 annually	
Total Fixed Costs	**$300,000**	
Total Ongoing Costs	**$70,000 annually**	

Improve

Item	Maximum Cost	Sources
Basic Automation Setup		These estimates are based on Bruna Sofia Simoes's Infographic: How much does Robotic Process Automation (RPA) Really Cost? The source provides data and statistics about AI automation and implementation, and the author's 15 years of experience within the software field establish her credibility as a professional in this field.
AI Tool Purchase/License	$50,000	
Integration and Setup	$25,000	
Error Detection and Learning		
Employee Feedback Time	$40,000 annually	
Advanced Automation and System Integration		
Full Automation Development	$100,000	
Performance Evaluations		
Regular Updates and Feedback	$30,000 annually	
Total Fixed Costs	**$175,000**	
Total Ongoing Costs	**$70,000 annually**	

Nurture

Item	Maximum Cost	Sources
Purchase and Customization of AI Video Tool		The basis for these estimates is from an article published on Picsellia by Haziqa Sajid. The author uses her background in data science to write about data and AI from an IT perspective. Her master's degree in data science and work experience with IT and AI indicate her credibility.
AI Video Tool License	$30,000 annually	
Defining Goals and Content Creation	$30,000	
Interactive Features		
Development of Pause-and-Quiz Interactivity	$40,000	
Pilot Testing and Refinement		
Testing Costs	$15,000	
Total Fixed Costs	**$85,000**	
Total Ongoing Costs	**$30,000 annually**	

Item	Maximum Cost	Sources
AI Development and Training Data Preparation and Training	$125,000	These estimates are based on an article published on the Coherent Solutions website, a custom software development company. The company's rapid growth, and global presence establish its credibility. As the article was published by a company with a good reputation in the custom software field, the data and estimates are trustworthy.
Flagging and Feedback Process Employee Validation Costs	$40,000 annually	
Full Implementation and Automation System Integration and Expansion	$100,000	
Ongoing Evaluations Performance Review and Updates	$20,000 annually	
Total Fixed Costs	**$225,000**	
Total Ongoing Costs	**$60,000 annually**	

(Row label at left margin, vertical text: "Track")

Total AI Costs

Initiative	Maximum Initial Costs ($)	Maximum Annual Costs ($)
Manage Portfolios	300,000	70,000 × 3 year implementation
Improve Efficiency	175,000	70,000 × 3 year implementation
Nurture Learning	85,000	30,000 × 3 year implementation
Track Trends	225,000	60,000 × 3 year implementation
Total	**$785,000**	**$690,000**

These technologies are strategic investments that offer significant long-term advantages, despite the initial expenses involved in purchasing, integrating, and customizing them. By utilizing current systems and customizing AI solutions to fit the proposed requirements, FMFCU may optimize the impact while efficiently controlling expenses. Continuous costs will guarantee that the AI systems keep performing at their peak, including staff training, system upgrades, and routine assessments. The initial cost and ongoing expenses of the proposed plan are explained below with each initiative.

—— Cost Comparision ——

As we progressed through our research study, it became abundantly clear that AI is able to streamline operations and greatly increase company efficiency, although it does come at a high cost. However, this price is much cheaper than humans carrying out all the extra tasks that are designed for AI. This is only the minimum opportunity cost of not incorporating AI at all. In fact, it is like a discounted version of conducting the same processes at FMFCU that would be much slower and expensive with human employees. To emphasize how much money the AI plan would save, we are including how much it would cost Franklin Mint to onboard new employees to carry out the tasks that are featured in our AI implementation plan.

Total Human Costs

Initiative	Minimum Fixed Costs ($)	Minimum Annual Costs ($)
Manage Portfolios	6,000	330,000
Improve Efficiency	18,000	233,000
Nurture Learning	280,000	21,000
Track Trends	213,000	630,000
Total Human Cost	**$517,000**	**$1,214,000**

*All sources used to determine salaries, wages, and employee development costs are cited in the bibliography.

MINT Initiative Costs for First Year

Legend: ● MINT cost ● Human cost
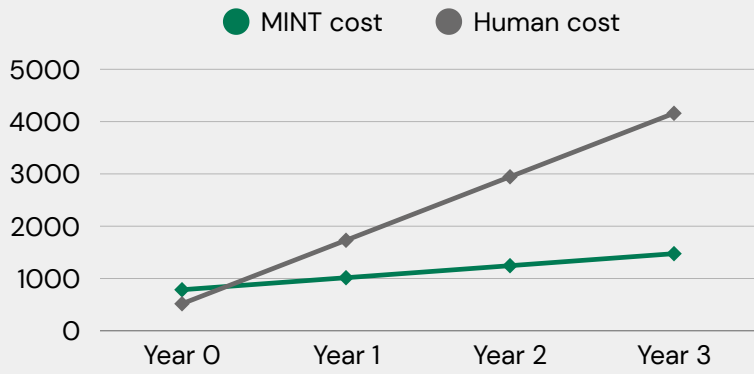
*Year 0 is the initial cost for each resource.

Although the initial cost for human-based implementation of the proposed activities could be lower than the initial cost for AI-based implementation, the annual costs are drastically greater, making AI a much more viable and efficient option. This is a form of indirect revenue for FMFCU, and AI significantly increases the ROI for this project. Not only will AI be cheaper in the long run, it will also be much more accurate and efficient. It is in fact inconceivable for humans to conduct certain activities, such as the AI-generated Berenstain Bears videos.

Affordability

FMFCU expenditure on Codie

FMFCU's existing AI costs them around $240,000 annually. This fee is based on the percent of calls fully automated by Codie. The technology and maintenance required for Codie is very advanced since the chatbot has a humanized voice and responds to vocal input.

Although our proposed MINT initiative costs more than Codie, it covers a much more vast area of operations and generates much more direct revenue. The annual costs for all four things combined are also less than the annual costs for Franklin Mint's existing AI.

Comparison of Codie vs MINT Costs

Legend: ● Year 1 ● Year 2 ● Year 3
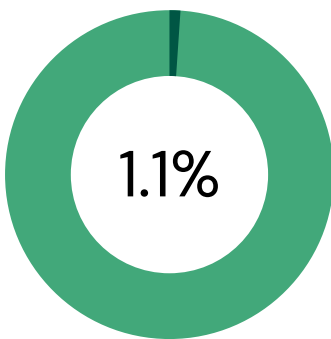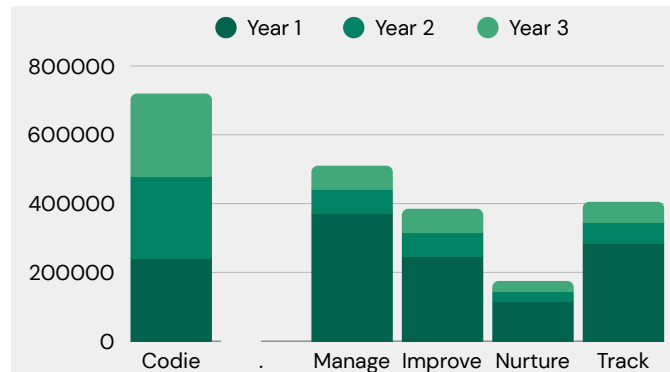
Percent of Current Retained Earnings

Calculating the Percent of Current Revenue shows that the MINT AI implementation cost is only 1.1% of FMFCU's retained earnings, demonstrating that the investment is financially manageable. This small percentage highlights that FMFCU can implement AI without significant financial strain while still achieving a high return on investment.1.1

1.1%

$$\frac{\text{Total MINT Initiative Costs}}{\text{Retained Earnings}} \times 100 = \frac{\$1,455,000}{\$137,936,000} \times 100 = 1.1\%$$

Expected Revenue

MANAGE PORTFOLIOS

Revenue Sources:
- New clientele will be attracted due to improved portfolio management
- Employee efficiency will be boosted
- Income from portfolio fees will increase

Revenue generated: $183,000

Revenue Calculations:
1. Calculate annual portfolio earnings without AI
   a. Multiply the average portfolio value by the average annual return rate
2. Calculate additional returns after AI implementation
   a. Multiply original returns by the estimated increase post-AI (10%)
3. Calculate FMFCU earnings from additional portfolio returns
   a. Multiply additional returns by FMFCU commission rate
   b. Multiply by the total number of portfolios

IMPROVE DATA ENTRY

Revenue Sources:
- **Employee efficiency** will reduce the cost of additional staff, and time redirected to higher-value tasks
- **Reduced errors** will reduce correctional expenditures

Revenue generated: $10,399,000

Revenue Calculations:
1. Calculate current **revenue per employee**
   a. Total annual revenue divided by the number of employees
2. Calculate revenue per employee after increased efficiency
   a. Multiply by **110%** (based of "Excellent" in performance metrics)
3. Calculate total revenue after increased efficiency
4. Multiply new revenue per employee by the number of employees
5. Calculate **revenue generated specifically by AI-induced efficiency**
   a. Subtract original revenue from new revenue

NURTURE LEARNING

Revenue Sources:
- **New clientele** will be attracted due to strengthened company image
- Will build **company presence** and **future member base**

Revenue Generated: $1,733,000

Revenue Calculations:
1. Calculated FMFCU's **revenue per retained member**
   a. Divided revenue by number of clients
2. Calculated the number of **future members**
   a. Expecting **2%** increase in members per year after the plan's implementation
   b. Multiplied current number of clients by 2%
3. Calculated the expected revenue from this initiative
   a. Multiplied revenue per retained member by the number of future members
4. Calculated the **revenue per year** from this initiative
   a. Divided expected revenue by time taken

TRACK TRENDS

Revenue Sources:
- **Reduced loan delinquency** rates
- Increased **savings from fraud prevention**
- Increased **income from product marketing**

Revenue Generated: $5,150,000

Revenue Calculations:
1. Identified **loan losses**
2. Determined that AI will **prevent 50% of the loan delinquency**
3. Calculate revenue from this initiative
   a. Multiply loan losses by 50%

*There is not enough data to accurately forecast the revenue from **fraud prevention** and **targeted marketing**, so these have been omitted from the revenue

Total Revenue = $17,465,000

As Franklin Mint Federal Credit Union is very community and charity-oriented, our AI was designed to have more community-focused value, making it difficult to represent the benefit gained from our AI implementation plan solely based of monetary values. This is especially applicable to the Manage and Nurture portions, as both of these aid community members in better handling their money.

Return on Investment

Statement of Activities
FMFCU MINT Initiative
For the year ended 31 December 2026

Sales Revenue	17,465,000
Cost of Sales	(1,475,000)
Gross Assets	15,990,000
Expenses	(9,639,000)
Assets (BIT)	6,351,000
Interest	–
Assets before Tax	6,351,000
Tax on Assets	–
Assets for Period	6,351,000
Member Dividends	(2,691,000)
Net Assets	3,660,000

Statement of Activities notes: There is no interest because FMFCU has sufficient cash reserves to implement the plan without a loan. Additionally, there is no tax on the profits as FMFCU is a credit union, so they are exempt from taxes. Them being a non-profit is also why some of the terminology is different, and we confirmed this by consulting a CPA. Expenses and dividends are a percentage of FMFCU's total expenses and member share dividends. Both of these values were calculated using Franklin Mint's 2023 general spread. The statement is for the first year of implementation after the development period.

$$ROI = \frac{Net\ Assets}{Cost\ of\ Investment} \times 100 = \frac{\$3,660,000}{\$1,475,000} \times 100$$

$$ROI = 248\%$$

The ROI for our project is 248%.

We calculated this using the maximum values for our costs, which means there is a high possibility for a higher return on investment since there is a possibility that the costs will be lower than assumed.

VII. BIBLIOGRAPHY

References

Online Sources	Interviews	Consultants	Other
1. ZipRecruiter 2. Delaware County Economic Development Corporation 3. F.Learning 4. Motifmotion 5. Forbes Finance Council 6. Coherent Solutions 7. US Census Bureau 8. US News	1. Ernest, Marc, Franklin Mint Federal Credit Union, Vice President and Chief Relationship Officer 2. Paladino, Eric, Franklin Mint Federal Credit Union, Chief Technology Officer 3. Mastrangelo, Michael, Vice President and Chief Retail Officer	1. Tomlinson, Mary Beth, Downingtown STEM Academy, IB Business Management Teacher 2. O'Brien, John, C3 Wealth Management, Partner and Private Wealth Advisor 3. Dixit, Amit, TCS, IT Business Relationship Manager 4. Simonelli, Suzzane, Senior Financial Director and CPA	1. FMFCU Employee Survey 2. Delaware and Chester County Financial Instituiton Customer Survey 3. RPA Cost Infographic 4. FMFCU 2023 Annual Report

VIII. APPENDIX

Note: AI generated responses were NOT used as content in our research paper. AI was solely used to TEST our AI implementation plan on a very small scale to gauge <u>feasibility</u>.

Prompt (M): Highlight key points from the given sample portfolio to be used for potential management or investment advice

Prompt (T.1): By analyzing the three customers' transaction history, identify which one(s) will pay their loan installments on time, and which one(s) have a chance of failing to pay the loan installments or even the loan as a whole.

Prompt (I): Organize the given data by customer and by the type of transaction. Output it in a data table format.

Prompt T.2): I will send you example transaction histories for 3 members of a credit union. By analyzing the three customers' transaction history, identify which one(s) may be dealing with credit card theft or identity fraud.

Prompt (N): Write a script to teach a five-year-old about the difference between credit and debit. Use the Berenstain Bears as an analogy, or use their videos as an example (use characters, places, and maybe even plot) to develop the script.

Prompt (T.3): I will send you example transaction histories for 3 members of a credit union. Based on the customer's past transactions, what is an FMFCU service you would recommend to market to the customer?

The QR codes are linked to our ChatGPT tests for all of the proposed activities. Our sample testing allowed us to gauge how realistic our expectations were with the AI, and it was a valuable insight into the potential success of our AI implementation plan. Overall, ChatGPT was able to give highly accurate and useful responses for our sample data, even without training of any sort, proving that our vision for FMFCU is to be highly feasible, and likely successful. To reiterate, NONE of the AI responses were used to create the research paper, we simply found it an interesting way to apply our theoretical plan and see a small scale demonstration.