



# Applications of Large Language Models in Finance

# General Applications

# In place of search


 how ISO20022 was going to impact my bank

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**ISO 20022 Changes the Future of Financial Transactions - Finzly**  
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Under ISO 20022, financial institutions are changing the payment messages they send and receive via Swift from the legacy MT (message type) format to the new MX (message type XML) format, which is more transparent, holds more data and is expected to boost interoperability between banks. May 29, 2024

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**Swift and ISO 20022: The impact on payments explained**

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**ISO20022 Impact on Banks - What You Need To Know**



ISO 20022 is a global standard for electronic data interchange between financial institutions. It impacts banks in several significant ways:

## 1. Improved Data Quality and Richness

- **Enhanced Messaging:** ISO 20022 messages carry more data and are more structured, providing better information for processing payments.
- **Greater Detail:** More detailed and rich data within messages enable better compliance with regulatory requirements, fraud detection, and reconciliation processes.

## 2. Operational Efficiency

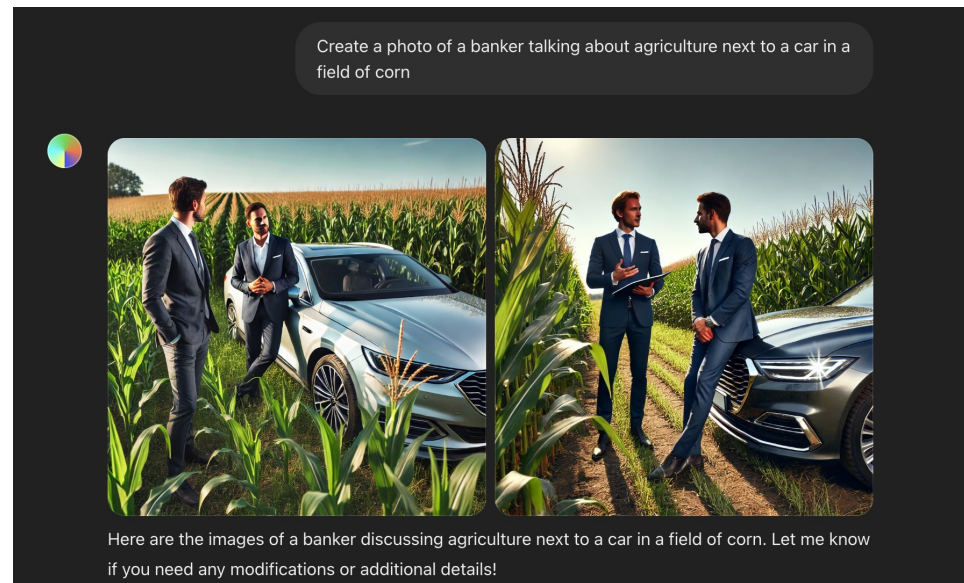
- **Standardization:** The use of a single, global standard simplifies processes and reduces the complexity associated with handling multiple message formats.
- **Automation:** Enhanced data quality supports higher levels of automation, reducing manual intervention and errors in payment processing.

## 3. Cost Savings

- **Reduced Operational Costs:** Simplification and automation of payment processes lead to cost savings.
- **Legacy Systems:** Over time, ISO 20022 helps banks migrate away from costly, outdated legacy systems.

# Copy and graphical work product (DALL-E)

- *Design a lightning bolt icon for a loan sweep product.*
- *Make a mobile banking wireframe so a customer can report a problem at a specific branch.*
- Create a photo of a banker talking about agriculture next to a car in a field of corn



# Create code

- *Write python code that you can use to create a graph of their current month's spending.*
- *Write C+ code that will match an email address to the one on file.*
- *Write Java code to create a poll for our website.*



write python code that will create a graph of a customer's monthly spending by day



This code uses the Python library Matplotlib to create a graph of a customer's monthly spending by day. It assumes that the data is stored in a list called "spending\_data" where each element is a tuple containing the date (in the format "YYYY-MM-DD") and the corresponding spending amount.

```
import matplotlib.pyplot as plt

# Get data from spending_data list
dates = [data[0] for data in spending_data]
amounts = [data[1] for data in spending_data]

# Create the graph
plt.plot(dates, amounts)
plt.xlabel("Date")
plt.ylabel("Spending Amount")
plt.title("Customer's Monthly Spending by Day")
plt.show()
```

Please note that this is a basic example, and you may want to include more data, such as different colors for different categories of spending, and or include more details on the x-axis and y-axis.

# To aggregate emails

- You return from a vacation and find several long email threads in your inbox. Instead of reading through each one, you provide the email thread to ChatGPT and ask it to summarize it. Instantly, you have a three-sentence summary complete with prioritized action items.

# Write bank marketing copy

One huge advantage here is the ability to hyper-personalize the copy at scale. Thus, banks can combine ChatGPT's API interface and feed the platform a variety of prompts. Here are our recent examples:

- *Re-write this IT job opening to appeal to new college graduates, introverts, Aries, and employees who just got laid off at Google.*
- *Write a button copy that will get undecided customers to purchase a certificate of deposit.*
- *Redesign this webpage to better appeal to people with vision impairments.*
- *Create copy for this hero image that appeals to small business owners that have strong cash flow.*
- *Write a short message to explain to a user that their financial statements cannot be uploaded because the system only accepts CSV, Xls, doc, or pdf files.*

# Write copy based on data

ChatGPT can also analyze data and produce output based on that data

- *Generate a headline for a landing page based on the following survey results [insert survey results].*
- *Analyze this ACH data and give me trends [insert daily data for the past year]*
- *Write a title for this blog article [note – it did for this]*



# Email Automation



Write an email thanking this vendor for their introductory email and let them know that while we don't have a need right now, we will get back to them in the future when a need arises.



Subject: Thank you for your introduction

Dear [Vendor Name],

Thank you for reaching out to us and introducing your company's services and products. We appreciate the time and effort you took to share the information with us.

At the moment, we don't have any specific need that aligns with the services you offer, however, we would like to keep your contact information on file for future reference. We will definitely get back to you in the future when a need arises.

We are impressed with the range of services and products that you offer and we believe that you could be a valuable asset for our future projects. We look forward to the possibility of working together in the future.

Please let us know if there is anything else we can assist you with or if you have any updates on your services that we should be aware of.

Best regards,

[Your Name]

[Your Company]

# Keywords and Sentiment Analysis

- *What are the keywords for this competitor bank's webpage [insert webpage link]?*
- *What are keywords in popular job postings for bank digital marketing vice presidents [insert]?*
- *Conduct sentiment analysis on this performance review [insert performance review]*

# Proofreading

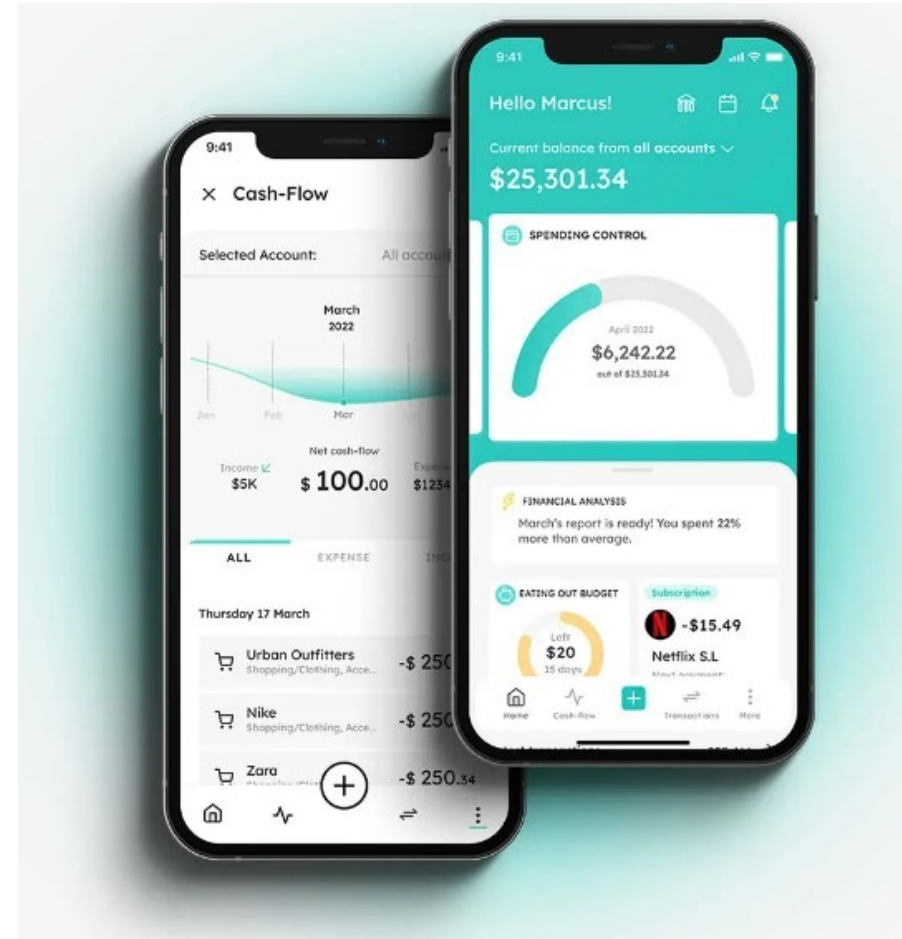
- Insert a block of text and ask ChatGPT to proof the message, and it is instantly done for free. Many bankers pay for Grammarly or Wordtune, but the advantage of ChatGPT is that it fixes all the text in one action instead of going through word by word.

# Automating customer service

- Bankers can use ChatGPT to automate responses to Yelp or Google reviews. Banks can build chatbots that answer common customer questions and perform simple tasks, such as checking account balances or scheduling appointments. This can free up time for human bankers to focus on more complex tasks.

# Providing personalized financial advice

- Bankers can use ChatGPT to analyze customer data and provide personalized financial advice. ChatGPT can be embedded in a bank's online and mobile application via API. For example, the model can analyze a customer's spending habits and recommend ways to save money at a level much more granular and helpful than most personal financial management (PFM) systems banks use today. Customers can better get data on subscriptions, brands, cash flow, and changes. This can be done at a fraction of the cost and with greater flexibility than most existing PFM banking applications.



# Legal Contracts

While not at a point where ChatGPT can write and analyze legal contracts, it is almost there. Already, ChatGPT can generate legal prose that is arguably better than many lawyers (see our test below and judge for yourself). We use it already to insert missing clauses about the return of information, venue, non-auto renewal, regulatory requests, and many other items into draft contracts to be reviewed by our legal team, thereby saving them time.

ChatGPT (Left) vs. Human Lawyer (Right) for Legal Contracts

 Can you write me a return of information clause for a contract?

 Sure, here is an example of a return of information clause for a contract:

"Upon termination or expiration of this contract, all confidential information and materials provided by one party to the other party shall be promptly returned or destroyed, at the disclosing party's option. Confidential information and materials shall include, but not be limited to, any documents, records, plans, sketches, drawings, models, equipment, software, data, inventions, know-how, trade secrets, and other proprietary information. Each party shall certify in writing to the other party within 30 days of termination or expiration that all such confidential information and materials have been returned or destroyed."

**4.2 Return of Information.** Upon the termination or expiration of this Agreement, each party will either return to the other all confidential information, as described herein, belonging to the other then in its possession or destroy all such confidential information and provide a signed certificate of destruction to the disclosing party.

# Firm Specific Applications

# Morgan Stanley

- AI @ Morgan Stanley
  - An OpenAI-powered tool that acts as notetaker, summarizer and first draft communication composer for client meetings, greatly enhancing efficiency and enabling scale for Advisors and their practices
  - With client consent, it generates notes on a Financial Advisors' behalf in client meetings and surfaces action items
  - After the meeting, it summarizes key points, creates an email for an Advisor to edit and send at their discretion, and saves a note into Salesforce



# JPMorganChase

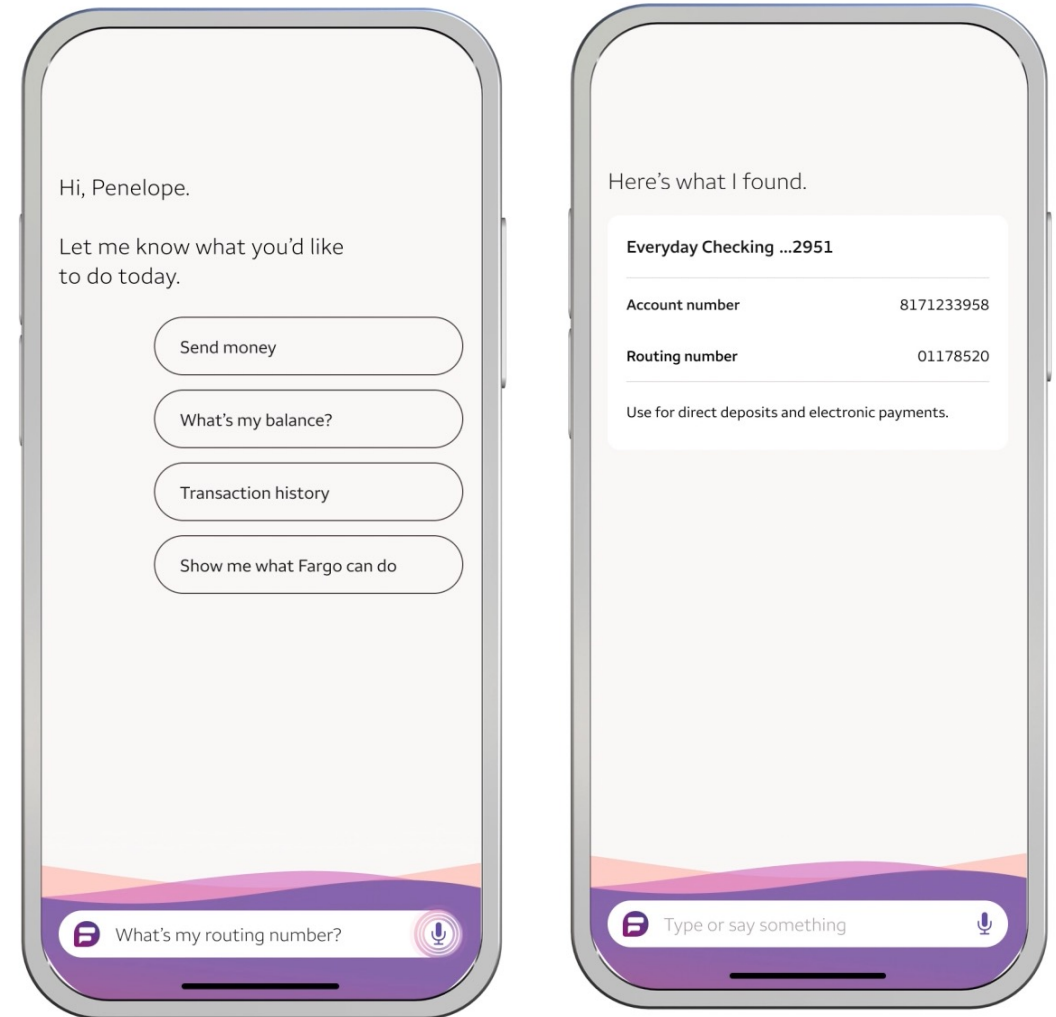
- IndexGPT
  - JPMorgan Chase is developing a ChatGPT-like software service that leans on a disruptive form of artificial intelligence to select investments for customers
  - IndexGPT combines OpenAI's GPT-4 model with advanced natural language processing (NLP) technology to curate thematic investment baskets
  - IndexGPT will tap “cloud computing software using artificial intelligence” for “analyzing and selecting securities tailored to customer needs”
  - OpenAI's GPT-4 model generates a list of keywords associated with a particular investment theme. These keywords are then fed into a separate NLP model that scans news articles, identifying companies relevant to the investment theme
  - Based on this analysis, IndexGPT creates thematic investment baskets, allowing users to invest in companies grouped by their involvement in specific trends or industries

# Goldman Sachs

- Goldman Sachs developers are internally testing generative AI tools to assist their code writing, according to a top executive at the bank.
- This is currently in a “proof of concept” stage and not yet ready for production
- The top executive declined to identify the generative AI products that the company has been using. He also did not specify which bank division the tech is being used in.



- Fargo
  - Wells Fargo's New Virtual Assistant powered by Google Cloud AI
  - Fargo will provide customers with a simple, intuitive means of servicing their accounts. From turning on/off debit cards and checking credit limits, to searching for specific transactions by date, amount, or type, users will be able to ask Fargo instead of hunting for the answer on their own. If Fargo cannot address an inquiry, it will seamlessly connect customers to a live agent



# RAYMOND JAMES

- “Opportunities” technology
  - This system proactively identifies and predicts client needs, delivering notifications and actionable suggestions to advisors based on a comprehensive understanding of their client portfolios



- ChatPwC
  - A chatbot built on OpenAI's GPT-4 model.
  - This platform allows the company to harness its data processing powers within a private and secure environment, maintaining the highest level of confidentiality for PwC's internal and client data
  - It relieves people of repetitive and tedious tasks, thus allowing them to focus on what they are truly good at and passionate about
  - Employees using tools like ChatPwC have reported a 20% to 40% increase in productivity