



# AI TRENDS IN FINANCIAL SOFTWARE

A Look at 2024  
and Beyond

Explore the landscape of AI,  
discover the trends shaping fintech,  
and see how these trends can drive  
efficiency and innovation.

# Executive Summary

[McKinsey](#) estimates that AI could contribute anywhere from \$17 trillion to \$25.6 trillion to the global economy by 2030. This is roughly equivalent to adding an economy the size of China or the US to the global market.

AI is arguably the biggest commercial opportunity facing businesses in the coming years. So we created this paper as a guide to understanding and leveraging the most impactful AI trends in fintech for 2024 and beyond.

AI TRENDS IN 2024

## Advanced Data Extraction

Advanced AI that can extract complex financial data will take center stage in fintech in 2024. Read about the transformation from traditional OCR to sophisticated machine learning models that understand context and ensure accuracy.

## Integration of Large Language Models

LLMs are transforming data processing by handling unstructured financial data and providing deeper, contextual insights. This trend is critical for fintech applications that require nuanced understanding and interpretation of data.

## Deep Learning

Deep learning is enhancing decision-making, security, and customer experience in fintech. See how this technology is automating complex processes and providing intelligent solutions in areas like fraud monitoring.

## Open-Source Innovation

The shift towards open-source AI technologies is democratizing fintech innovation, allowing for broader collaboration and accessibility. Increasingly, this trend is particularly significant for startups and smaller companies looking to leverage advanced AI tools.

## Customization

Customized AI solutions, catering to specific needs and preferences within the financial sector, are becoming essential. This trend underscores the move towards more adaptive and client-specific AI applications in finance.

# Understanding the Landscape of AI in 2024

## The Current Complexities

Fintech is grappling with a few headaches this year: interoperability, security concerns, rapid innovation, evolving regulations, and a growing mountain of diverse financial documents.

Bank statements, invoices, purchase orders, tax returns, payroll records ... The list goes on and on. Each type of document has its unique format and content which makes accurate extraction and interpretation of data difficult. This variety poses a considerable challenge for standardized processing systems, often leading to errors and inefficiencies.

Many companies still process documents the old-fashioned way – with a human touch. However, this method means poor user experiences and the risk of error, potentially leading to financial and legal nightmares. And let's not forget the rules of the game are constantly changing; regulatory bodies demand strict compliance, making accuracy in data extraction not just a convenience but a necessity.

Yet another complication lies in the integration of these document-understanding technologies into existing software. Merging new systems into the existing ones can feel like trying to change the engine of a plane mid-flight. But the world of technology flies ahead at what may seem like the speed of sound, offering shiny new tools for innovation.

As the tech changes, financial software companies need to be in constant motion, evolving their document processing to stay in the race and meet their clients' needs.



## Putting the **Intelligent** in Intelligent Document Processing

With sophisticated algorithms and machine learning prowess, AI is creating a seismic shift in how documents are processed. The key? Automation. By automating data extraction and organization, AI doesn't just make the process smoother; it reshapes the user experience completely, and slashes the error rates linked to manual entry, boosting both the accuracy and the trustworthiness of the data. But that's just the tip of the iceberg.

AI's true power shines in dealing with unstructured data, or information that isn't organized in a database or pre-defined manner. Think emails, photos, PDFs, and other documents.

As unstructured data grows at an exponential rate – growing [five times over](#) between 2018 and 2025 – financial services firms are finding it difficult to harness data and derive actionable insights.

By leveraging state-of-the-art computer vision and large language models, AI isn't just reading these documents; it's understanding them. It can delve into various formats, even those with intricate layouts or multiple languages, ensuring comprehensive and precise data handling.

## AI is Becoming More and More Seamless

Integration is another area where AI is making strides. In 2024 and beyond, AI solutions are being crafted for adaptability and compatibility, seamlessly blending with existing financial software. As businesses grow and change, AI systems adapt, continually refining themselves to meet new types of documents and workflows.

This ongoing evolution is critical in a sector that's always on the move, demanding systems that can match its pace.

AI's role in financial document processing is not just about replacing manual tasks. It's about infusing operations with a level of intelligence and efficiency previously unimagined, leading the charge toward more streamlined, accurate, and secure financial processes.



# Top AI Trends Shaping Financial Software in 2024

## Trend 1: Advanced Data Extraction

In 2024, the ability to quickly and accurately extract information from documents is a baseline requirement. This task calls for advanced AI and machine learning – key technologies for turning floods of finance data into insights.

In other words, advanced data extraction tech is an incredibly sophisticated and tireless assistant who can dive into oceans of data, extract the most relevant pearls of information, and present them in a way that's easy to understand and act upon.

Companies that deploy this type of AI can gain deeper insights into customer behavior, predict market trends with greater accuracy, and even identify and mitigate risks before they become problematic.

This year, the game is no longer simply managing data; it's about leveraging it to create innovative solutions that resonate with customers and address ever-evolving market dynamics. That's why, as we head into 2024 and beyond, it's a trend that no fintech company can afford to overlook. Let's break down some of the tech involved in extracting data from the ever-increasing types of documents fintech companies deal with.

**Addressing Unstructured Data**

Unstructured data is information that isn't organized in a uniform format: images, audio, various texts, and even video. As you might guess, this type of data is more complex for AI to interpret and process compared to structured data like databases or spreadsheets.

Handling the massive volume of unstructured data – emails, analyst reports, receipts, regulatory documents, and more – is a significant challenge in financial document processing.

**Optical Character Recognition (OCR)**

Traditional [OCR](#) methods often stumble when faced with the varied fonts and layouts of financial documents. But modern OCR tools have evolved. They aren't just about reading text; they're about understanding context. Thanks to advancements in machine learning, OCR can discern between text in a table, a footnote, or a header.

**Data Standardization and Normalization**

Data extraction is just half the battle. Real AI magic in 2024 lies in turning raw data into structured, actionable information. This is where sophisticated algorithms and machine learning models come into play. These models are trained on vast datasets of financial documents, learning the thousands of ways information can be presented. Like humans, they get better over time, adapting to new formats and even correcting for common errors in the documents they analyze.

Consider an international company dealing with invoices in multiple languages and formats. Advanced parsing techniques can not only recognize and categorize the relevant data points, but also standardize them into a uniform format.

**Real-Time Data Integration**

In fast-paced fintech, integrating real-time data through APIs has become the norm. [57%](#) of developers working on fintech products recently said that most of their organization's development effort was spent working with APIs.



## Real-World Applications of Advanced Data Extraction

### Receipt Data Extraction

Employees can simply take photos of their receipts for their spending reports. The optical character recognition (OCR) technology in the expense management system can accurately extract the relevant data from these images, regardless of the receipt's format or condition. Indeed Mindee's AI can even extract information from one photo featuring multiple receipts.

### Automated Document Classification

In auditing, sorting through a multitude of financial documents is a time-consuming task.

By employing AI document classification, you can automatically categorize documents based on their content. This automation allows auditors to focus more on analysis and less on admin.

# Top AI Trends Shaping Financial Software in 2024

## Trend 2: Integration of Large Language Models

From PDFs to invoices to contracts, the sheer amount of financial data generated every day is unknowable. This data is a goldmine of insights, but its unstructured nature poses significant challenges.

However, fintechs integrated with large language models (LLMs) can turn a data deluge into actionable insights.

According to [OpenAI](#), software integrated with LLMs can enhance the efficiency of up to 56% of worker tasks in the US. Understanding the potential of LLMs to automate, augment, and transform tasks can help businesses adapt to a rapidly evolving technological landscape.

*But first, what is an LLM?*

You may have heard of LLMs in the context of ChatGPT and other generative AI tools that dominated the tech headlines in 2023. Simply put, LLMs are a type of advanced AI technology that understands and works with human language.

They can read, interpret, and contextualize text much like a human, but at a scale and speed that's unattainable for us. And unlike traditional data analysis tools, LLMs don't require data to be in a standard format.

Let's break down how they work and how they're being used in 2024 and beyond.

## The Collaboration of Human and Machine

The [World Economic Forum](#) reports that while 85 million jobs may be displaced by a shift in the division of labor between humans and AI by 2025; 97 million new roles may emerge.

This projection reinforces the fact that LLMs are not a replacement for human judgment but a complement to it. They can handle the heavy lifting of data processing, allowing your team to focus on more nuanced and strategic aspects of financial analysis.

For fintech product managers, integrating LLM capabilities into your products means staying ahead in a data-driven financial world – where insights from unstructured data can make the difference between leading the market or trailing it.

## Customizing LLMs for Jargon and Context

Across banking, insurance, investment, regulatory compliance, and more, every sector of finance has its lingo: complex financial terms and specific abbreviations. The adaptability of LLMs is a huge plus here. They can be trained on targeted datasets that include specific languages, enabling the models to understand and interpret financial documents accurately.

By training LLMs with contextually rich financial texts, companies can enhance the model's ability to not just extract data but to understand the significance of this data within a broader financial context – like company-specific circumstances, market information, regulations, and more.

## Challenging Bias

The implementation of LLMs is not without its challenges. These models require substantial computational resources, and there's a learning curve involved in integrating them effectively into your product's architecture. Moreover, there are ethical considerations - LLMs can inadvertently perpetuate biases present in their training data, and ensuring data privacy, especially in sensitive sectors like fintech, is paramount. The goal is to strike a balance between innovation and responsibility, ensuring that these AI tools add value to your product sustainably and ethically.

## Where LLMs are Transforming Data Interpretation

### Automated Financial Reporting

LLMs can automatically generate financial reports by extracting key data points from various unstructured sources. This not only speeds up the reporting process but also provides a more comprehensive view by including insights from a broader range of sources.

### Fraud Detection and Compliance Monitoring

LLMs can monitor financial transactions for signs of fraudulent activity or non-compliance with regulations. By analyzing the language and patterns in texts, they can flag unusual activities that human auditors might miss at a certain scale.



# Top AI Trends Shaping Financial Software in 2024

## Trend 3: Deep Learning

Deep learning is a subset of machine learning, itself a subset of AI, which mimics the workings of the human brain in processing data and creating patterns. It's built on neural networks consisting of several layers, hence the term "deep." Neural networks are designed to recognize patterns and interpret complex data by passing information through these layers, each providing a more refined understanding.

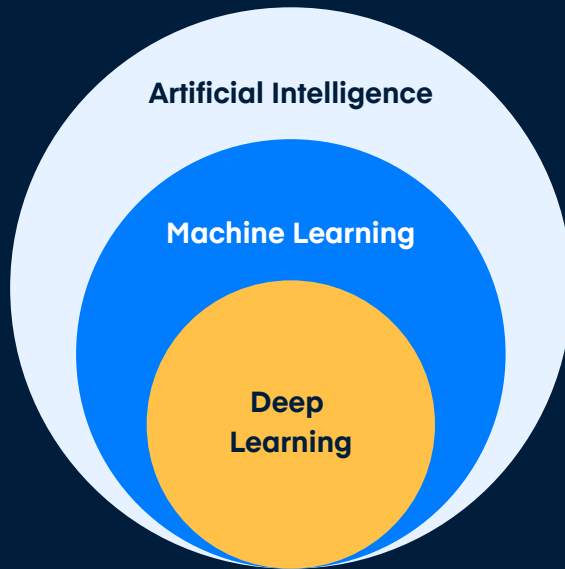
In other words, a neural network takes in information, processes it through layers, and gets better over time at giving the right answers.

It's important to distinguish the relationship between deep learning and LLMs: Deep learning is a broader field that encompasses various types of neural networks and applications. LLMs are a subset of deep learning, specially focused on processing and generating human language.

LLMs have opened up new possibilities in fintech over the last year. However, it's crucial to recognize that LLMs – while powerful – are not universally applicable for all tasks in fintech. There are scenarios where other deep learning algorithms, tailored to specific tasks, may offer superior performance.

In 2024, deep learning is a critical component in financial tech. Its ability to provide deep insights from data, enhance security, improve customer experience, and contribute to smarter decision-making means fintech companies are rapidly adopting it to stay ahead in a highly competitive and data-driven industry.

## Distinguishing the Terminology



Smart systems that can carry out tasks that traditionally require human intelligence

Algorithms whose performance improve as they're exposed to more data over time; actions aren't explicitly programmed

Algorithms structured into neural networks that can solve complex problems and allow the system to train itself

### What's Driving the Growth of Deep Learning

A study by MarketsandMarkets projected the deep learning market in finance to grow at a CAGR of over 40% from 2021 to 2026. Reasons for this acceleration include:

#### Data Abundance

Deep learning excels at extracting insights from massive datasets like transaction histories and market data.

#### Improved Algorithms

Advances in deep learning algorithms have made it possible to handle diverse and complex financial tasks, including fraud detection and risk assessment.

#### Enhanced Processing Power

The availability of powerful hardware, such as GPUs and TPUs, has accelerated deep learning model training, making it more feasible and cost-effective for fintech companies to implement.

## Deep Learning Unlocking Automation

Deep learning has revolutionized fintech. Its ability to learn from and interpret vast amounts of structured and unstructured data – including intricate document layouts and financial patterns – allows for more precise and efficient decision-making. Deep learning algorithms can categorize expenses and revenues, making bookkeeping faster and reducing errors. It can analyze transactions to ensure compliance or identify anomalies, significantly aiding in auditing.

For example, if you've ever received a call or text from your bank asking if you made a certain purchase, that's deep learning at work. The bank's systems are constantly checking your spending patterns to quickly spot and alert you to any unusual activity that might be fraud.



# Top AI Trends Shaping Financial Software in 2024

## Trend 4: Open-Source Innovation

Open-source innovation will become increasingly important to AI as we move through 2024 and beyond. This trend involves the use of publicly accessible AI technologies and tools, developed and shared in an open-source environment.

This approach is different from proprietary solutions where the underlying code and algorithms are closely guarded secrets – like IBM Watson or Palantir Gotham. Open-source technologies, on the other hand, bring a level of transparency, collaboration, and accessibility that is reshaping how fintech is developed and used. Popular examples of fintech built on open-source code include blockchain platforms like Ethereum, payment processing systems like Stripe, and even mobile banking apps like Chime.

According to the [Linux Foundation](#), Open Source Program Office (OSPO) adoption across global companies increased by 32% since 2022, and 72% of companies are planning to implement an OSPO or OSS (open-source software) initiative within the next 12 months.

One of the key reasons why open-source AI is trending in financial software is its ability to democratize access to advanced technologies. Smaller companies and startups, which may not have the resources to develop complex AI solutions from scratch, can now leverage these open-source tools to create sophisticated apps. This has led to a surge in innovation, as diverse players bring new ideas and approaches to traditional financial problems.

## Teamwork Makes the Dream Work

How open-source tech works is straightforward yet powerful: developers across the globe contribute to a shared repository of code, algorithms, and models. GitHub, the most popular platform, not only hosts the code but also facilitates discussions, issue tracking, and documentation, making them integral to the collaborative and iterative process of open-source software development.

This collaborative effort not only speeds up the development of robust AI solutions but also enhances their reliability. Open-source AI tools undergo rigorous testing and validation by a broad community, leading to more secure and efficient software.

Popular examples of this trend include TensorFlow and PyTorch, which are widely used open-source machine learning libraries. These platforms have empowered countless developers to build and deploy AI models tailored to specific financial tasks, such as risk assessment, fraud detection, and algorithmic trading.

The rise of open-source LLMs represents a significant leap in AI's application in fintech. They enable fintech companies to harness advanced natural language processing capabilities for various applications, from enhancing customer service chatbots to generating insightful financial reports.

By leveraging these open-source LLMs, fintechs are contributing to innovation, fostering a more inclusive and expansive AI ecosystem.



## **docTR: Revolutionizing Document Text Recognition**

Another compelling example of open-source innovation – and our personal favorite – is our [docTR project, accessible on GitHub](#). docTR stands for Document Text Recognition and is a specialized toolkit for optical character recognition (OCR). It's designed to extract text from various types of documents accurately. It's particularly relevant for automating tasks in the financial sector that involve handling large volumes of paperwork, like processing invoices, forms, or bank statements.

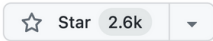
What makes docTR stand out (and perhaps what has helped it earn over 2,000 recommendations on GitHub) is its focus on combining deep learning models with practical, real-world document analysis. The project utilizes advanced neural network architectures to recognize text, even on low-quality scans or distorted images like crumpled invoices or handwritten receipts.

This capability is crucial in finance, where accurate and efficient data extraction from a wide range of document types can significantly streamline operations and decision-making processes.

docTR's open-source nature means that developers and companies in the financial sector can not only use this tool but also contribute to its improvement. By sharing modifications, improvements, or even new features, the financial community can collectively enhance docTR's effectiveness. This collaborative approach accelerates innovation and adaptation to specific needs in financial document processing.

In essence, open-source innovation in AI is not just a trend but a paradigm shift in the fintech industry. It facilitates broader participation, fosters transparency, and catalyzes rapid advancements in financial technologies, contributing to a more inclusive and innovative financial ecosystem.

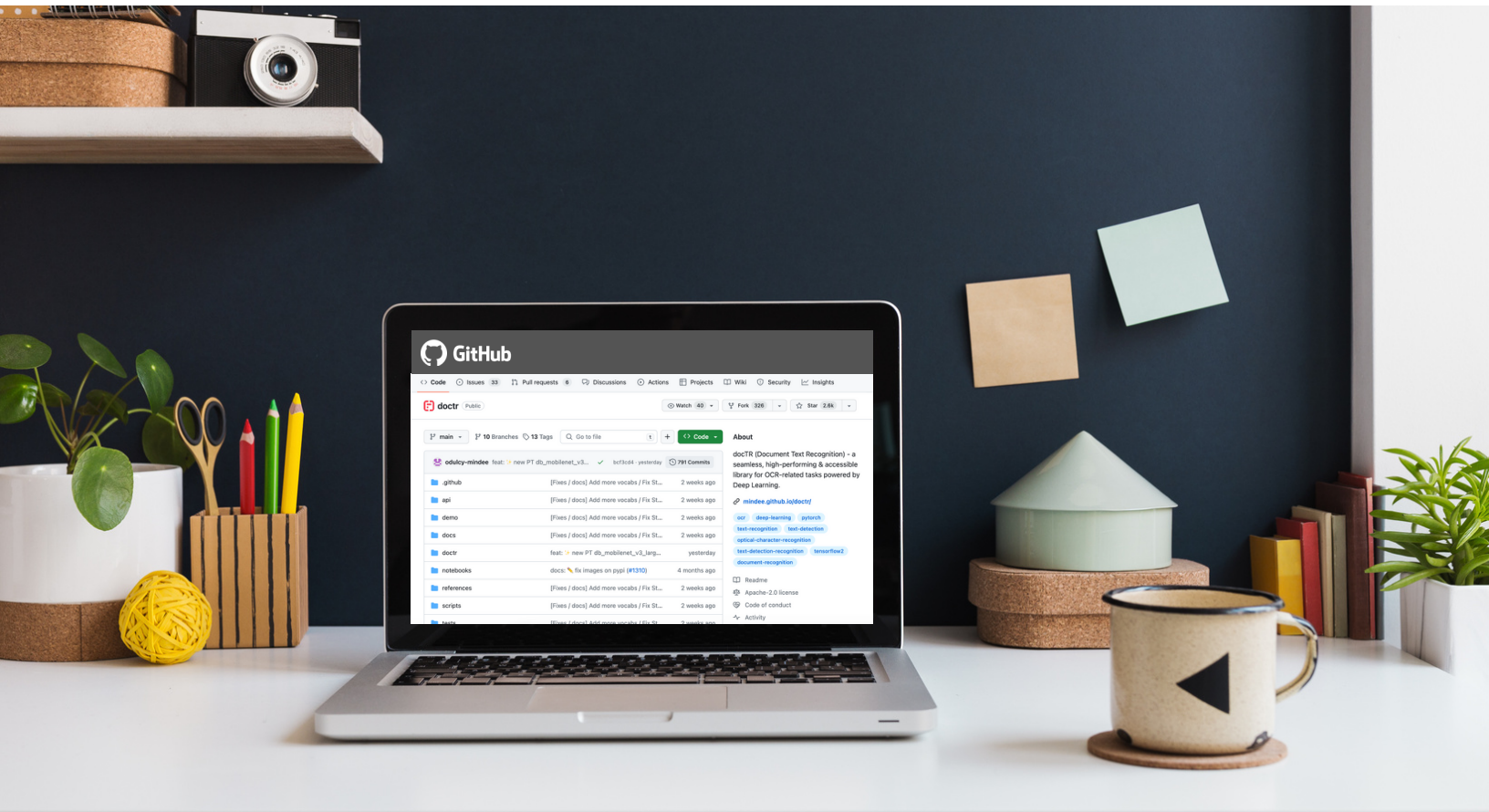
## The Power of docTR



[docTR](#) has a robust two-stage OCR process, which involves both detection and recognition of text, and it comes with pre-trained parameters for immediate use. It's engineered for simplicity, requiring just three lines of code to load a document and extract text.

Its performance is on par with major players like GoogleVision and AWS Textract, offering state-of-the-art accuracy on public document datasets. Additionally, docTR is optimized for speed, both on CPUs and GPUs, making it highly efficient for processing large volumes of documents quickly.

docTR exemplifies the trend of open-source innovation in AI for financial software, offering a powerful, user-friendly, and efficient solution for processing financial documents.



# Top AI Trends Shaping Financial Software in 2024

## Trend 5: Customization

Customization – creating algorithms and models fine-tuned to specific use cases, customer preferences, and even regulations – is of utmost importance in 2024 and beyond. AI is already being used to personalize insurance policies, match lenders with borrowers, help users manage their expenses, offer personalized fraud detection, and much more.

According to [Capgemini](#), financial services firms have reduced their cost of operations by 13% and have increased revenue per customer by 10% after deploying AI in customer-facing functions.

At its core, this trend means leveraging AI's ability to process vast amounts of data to draw insights and patterns unique to a particular context. For instance, an AI model customized for a retail bank may focus on personalizing customer interactions; for an investment firm, the model may concentrate on analyzing market trends and predicting stock movements.

The trend towards customization is driven by the increasingly complex and diverse nature of the financial sector. Customized AI allows for greater agility and precision, providing solutions that are more aligned with strategic goals and operational realities.

# Prominent AI Use Cases in Financial Software

## Automation in Accounting and Bookkeeping

AI isn't just a technological advancement for accounting; it is a paradigm shift. It is enhancing the role of accountants, enabling them to transition from traditional bookkeeping to more strategic roles.

AI in accounting primarily focuses on automating repetitive tasks like data entry, reconciliation, and transaction processing. The technology's ability to handle large volumes of data with speed and precision makes it an invaluable tool for data extraction – a process driven by the need for efficiency, accuracy, and real-time data analysis.

These processes involve extracting relevant information from various documents – invoices, receipts, bank statements – and then categorizing and recording this data into accounting software.





## **The Evolution of Accounts Payable Processes**

AI is also transforming accounts payable (AP) processes, introducing a new era of efficiency and strategic financial management. In the context of AP, AI is applied to automate repetitive and time-consuming tasks like invoice processing, data entry, and payment scheduling.

AI systems equipped with machine learning algorithms can extract data from invoices, regardless of format or layout, reducing the need for manual data entry. Furthermore, these systems can match invoices with purchase orders and receipts, flag discrepancies for human review, and even facilitate automatic approvals for routine, low-value transactions. This automation not only accelerates the processing time, but also significantly reduces errors, ensuring more reliable financial data.

AI is not just an incremental upgrade to Accounts Payable processes; it represents a fundamental shift toward smarter, more efficient financial operations. By automating routine tasks, reducing errors, and providing actionable insights, AI is enabling AP departments to transition from administrative functions to strategic roles within organizations.

## **Streamlining Expense Management with AI**

AI is fundamentally transforming expense management by offering a blend of efficiency, accuracy, and strategic insights that were previously unattainable.

One of the most notable impacts of AI in expense management is that it has created a vastly better user experience by automating data entry. Traditional methods often required tedious manual input, which was not only time-consuming but also prone to errors.

AI revolutionizes this process through technologies like optical character recognition (OCR) and natural language processing, allowing for the automatic extraction and categorization of information from receipts and invoices.

This automation extends beyond mere data entry to encompass enforcing company policies and fraud detection. AI systems are adept at learning the nuances of company expense policies and can flag anomalies or suspicious claims, thereby aiding in the prevention of fraud and ensuring compliance.

The real power of expense management AI in 2024 and beyond, however, lies in its analytical capabilities. With AI, businesses can access real-time reporting and analysis, gaining insights into spending trends and patterns. This capability is not just about tracking expenses but also about forecasting future spending and identifying potential savings opportunities.

As AI technology continues to evolve, its role in expense management is expected to grow, further enhancing the ability of businesses to manage their finances effectively and strategically.

# Mindee: Pioneers in AI-Powered Document Understanding

We specialize in transforming the way documents are processed and understood. Our innovative APIs are tailored specifically for the challenges and complexities unique to the financial industry.

Here's why leading fintech firms love Mindee:

## **Optimized for Financial Documents**

Our AI is finely tuned to process a wide range of financial documents such as invoices, receipts, bank statements, and so much more in real time.

## **Pinpoint Accuracy**

State-of-the-art OCR knows the difference between various fields. It won't mistake transaction dates, amounts, or vendor names – so your reports are one step closer to perfection.

## **Quick, Easy Integration**

Mindee APIs are designed for seamless integration, minimal disruption, and customization to your specific needs.

## **Multi-Language Support**

Our AI recognizes and processes documents in multiple languages, essential for global financial operations.

## **Secure Processing**

We prioritize the security of your financial data, employing robust measures to protect sensitive information.



## Conclusion

As we look ahead, the trajectory of AI in fintech and intelligent document processing is set to continue its transformative path. The advancements in data extraction, the integration of LLMs, deep learning, open-source innovation, and customization in financial software collectively signify a shift in how financial data is processed, interpreted, and utilized. These trends will lead to improved data accuracy, efficiency, and innovation.

Looking beyond this year, the industry can anticipate a future where AI not only augments current capabilities but also introduces new ways of interacting with and understanding financial data. Keep your eye on advancements in ethical AI usage, hybrid AI models, and AI-driven personalization in banking, among others.

The evolution of AI is setting the stage for a more efficient, accurate, and customer-centric financial industry. The key for industry leaders – you! – is to stay ahead of these trends, adapting and innovating to leverage AI's full potential in revolutionizing financial workflows and document processing.

Because the AI journey we've been on is just the beginning.



# Enter the Future of Fintech with Mindee AI

The world of fintech is rapidly evolving, and at the heart of this transformation lies the power of AI document understanding. Join Mindee at the vanguard.

Explore our products, dive into our resources, and become part of a community leading the charge in fintech innovation.

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