addepto

WHITEPAPER 2022

How Artificial Intelligence Enhances Financial Services

It's true that the financial sector is not the most agile and eager to jump on the latest trends as soon as they emerge, where money is, there is competition, and where competition is, there is a continuous arms race. And now, the actual battlefield is technology, which touches all aspects of financial operations - on the frontline and the back.

So... what is hidden under the lining?

Indeed, one of the crucial technologies driving the rapid evolution of the financial sector is artificial intelligence (AI) enhances fraud detection, high-frequency trading, risk management, investment management, and so on. And this is exactly what we're going to explore in this paper.

How Is AI Changing Finance?

According to the study conducted by the consulting company Deloitte, most sector leaders have started exploring the use of **AI for various reasons,** chiefly for revenue enhancements and client experience initiatives. Moreover, they have applied metrics to track their progress.

As a result:

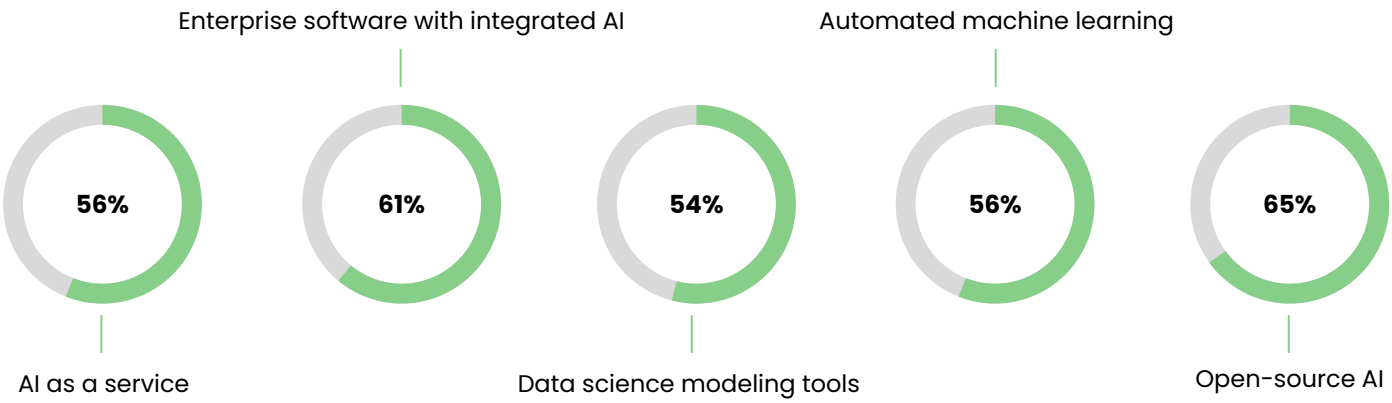
60% of frontrunner financial services firms are defining **AI success** by improvements to revenue and **47%**, by improving customer experience.

Leading financial services firms are achieving companywide revenue growth of **19%** directly attributable to their **AI initiatives.**

45% of AI frontrunner firms are investing over 5 million USD in **AI initiatives** today, 3x the level of starters or late adopters.

According to the same study, companies seek **cost reduction, revenue enhancement, and customer engagement.** Therefore, the vast majority of their initiatives revolve around the aforementioned three goals. And they are willing to achieve them through various ways and tools.

The leading financial companies surveyed by Deloitte invest i. a. in:



How to use AI and ML applications in finance?

INVESTMENT PORTFOLIO OPTIMIZATION

We start our list with use cases of **machine learning in finance.** Currently, investment companies are working on machine learning applications, which can serve as an assistant to every investor.

Betterment is such an online investment company. They have devised robo-advisors to provide financial advice or portfolio management services. **Everything happens without human assistance!** Betterment's robot invests and manages individual IRA and ROTH IRA accounts for their users.

SOFI: MACHINE LEARNING IN FINANCE

Another example of **machine learning and AI in finance** derives from SoFi. SoFi originally started as a lending company, primarily for student loans, but has expanded to other finance fields including mortgage financing and personal loans.

Moreover, SoFi invests and manages customers' money in ETFs and **helps individuals invest for retirement in instruments** such as traditional deductible IRA accounts, simplified employee pensions and ROTH IRAs.

FRAUD DETECTION

This is another vital example of **AI and ML** in finance. In Machine Learning, issues like fraud detection are usually framed as classification problems. In the finance sector, it involves **creating models** that have enough computer power to correctly classify transactions as either legit or fraudulent, based on transaction details such as amount, merchant, location, time, and others.

ML systems can scan these vast customers' datasets, detect unusual activities (anomalies), and instantly flag them.

This, in turn, allows human employees **to check this unusual activity** much faster and verify it with a customer. This technology has everything it takes to become a game-changer, as frauds are a serious problem.

HIGH-FREQUENCY TRADING

As its name indicates, HFT comprises hundreds of thousands of daily trades. Today, they are executed by **sophisticated machine learning finance algorithms.**

Thanks to these algorithms, it is possible **to benefit from price differences** that might exist only for a fraction of a second.

Without ML in finance, HFT would never be possible, as it requires a pace of work far beyond human limits.

SVM MODELS

There have been a number of **machine learning algorithms** applied in this field. The most common of them are SVMs. This abbreviation stands for **Support Vector Machines.** The SVM models are trained to recognize features that indicate an upcoming increase or decrease in the market pricing and bid accordingly within a fraction of a second.

Furthermore, they have been so successful that most **High-Frequency Trading companies** have integrated such models into their trading modules.

RISK MANAGEMENT

This use case of **machine learning and AI in finance** is related chiefly to loans and mortgages. The machine learning algorithms can perform **automated tasks** like matching data records and looking for exceptions. In addition, algorithms can **calculate whether an applicant qualifies for a loan or insurance.**

ZESTFINANCE: RISK MANAGEMENT SYSTEM IN ACTION

One of the companies that implemented such a **risk management system** is ZestFinance. The risk management models they put into production have thousands of variables **to estimate the risk level for each customer.** Their system is aimed at checking whether a given loan applicant is risky.

And the fact is, with machine learning, the **number of data sources** that a machine learning application can factor into a credit model are theoretically infinite. Therefore, this means that these applications can **predict very accurately** an applicant's ability to pay back their loan.

TRADE SETTLEMENTS

Despite the fact that the overwhelming majority of transactions are calculated automatically, and with minimal human participation, about **30% of transactions fail,** and they have to be calculated manually.

But using machine learning and **AI in finance** can help determine the cause of failed trades and analyze why trades were rejected. In addition, machine learning algorithms can even **provide a solution and predict which trades might fail in the future.**

SMARTCHASER IN BNP PARIBAS

BNP Paribas launched the system Smart Chaser that **predicts unsuccessful machine learning operations** in advance. Also, Smart Chaser applies **predictive analytics for operations** that may be problematic and require intervention.

The algorithm can determine which operations are most likely to fail, the reasons for that failure, and possible solutions to the problem.

Consequently, **the system develops the most efficient use of time for banking teams**. It's a perfect example of how machine learning and AI can be implemented in finance companies.

KEY TAKEAWAYS

1. Machine learning and AI in finance can be immeasurably beneficial, either to financial corporations or to their customers.

2. AI and ML in finance transform the sector to make it work more efficiently and quicker.

3. The main applications of machine learning and AI in finance: are investment portfolio optimization, fraud detection, high-frequency trading, and risk management.

4. Knowledge of machine learning and AI in finance has become widespread, and as a result just, within two-three coming years, the finance sector will be much more efficient, well-organized, and much safer.

You can be a part of this revolution!

And this is why we are here. To help you implement finance machine learning and AI into your business.

Don't feel discouraged to reach us, even if you are at the very beginning of this trip, Addepto is an experienced machine learning consulting company.

We will guide you through the intricacies of AI.

Contact Us

OUR FOUNDERS

Artur Haponik
CEO
artur.haponik@addepto.com

Edwin Lisowski
CTO
edwin.lisowski@addepto.com

Find us on the social medias: