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The Enlightened Leader's
Guide to AI and Finance

The finance sector, an early adopter of AI, is poised to take it to the next level.

I. INTRODUCTION

The financial services industry has been involved with artificial intelligence longer than most.

Financial experts have been using it in variously sophisticated forms to try to forecast market trends and customize financial plans since the 1980s.

Banks turned to intelligence in the 1990s to help detect fraud, and some of the first chatbot systems would begin popping up in the mid-2010s. By now, 70% of all financial services firms use machine learning to predict cash flow events, fine-tune credit scores, and detect fraud, according to Deloitte.

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AI IN FINANCE

AI IS INTRODUCED TO FINANCE INDUSTRY

BANKS BEGIN TO USE AI TO DETECT FRAUD

1980s   **1990s**

Yet for the early adoption of algorithms improve performance, AI in finance remains quite narrowly adopted. In fact, recent Accenture research calls Banking and Capital Markets the least mature of the 17 industries rated when it comes to AI adoption. Financial startups are leaning hard into new technologies while legacy players look to leverage fintech to stave off disruption. The market is ripe for much further AI adoption—and soon.

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Just ask financial advisors: 55% of them said they believe to a great extent that AI will have either a transformative or a revolutionary effect on the future of financial advice within the next three years, according to a survey of 500 advisors across the U.S. and Canada, conducted by Accenture. Additionally, 83% of those financial advisors said they believe AI can achieve a level of sophisticated advice and planning that will ultimately leave them competing with an algorithm for clients in the next 18 months.

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Of course, financial advice is just one way AI stands to revolutionize the finance industry. As technology matures and is applied to new use cases, and as adoption grows over the next five years, the global AI in fintech market is expected to grow from $5.6 billion in 2021 to $22.9 billion in 2026.

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Financial services decision-makers don't have to be technology experts to comprehend the value of AI. But they do need to understand where AI implementation currently stands, where it's headed, and how AI can drive real business results for their companies.

Challenges Facing the Finance Industry

II. CHALLENGES FACING THE FINANCE INDUSTRY

In an effort to explore how new innovation may transform business models in the future, the World Economic Forum has identified 11 key clusters of innovation in financial services. These 11 crucial areas will impact the financial services industry in various degrees over the next decade and beyond. But where opportunities lie, they also uncover areas where companies could be doing things better. Therefore, each of the 11 clusters reveals an essential challenge the financial services industry is staring down. And, as it turns out, artificial intelligence can help businesses reach better results in every category.

Here's a look at where the key challenges and opportunities lie:

1. Cashless World. You don't have to look hard to see how innovations in everything from mobile and streamlined payments to integrated billing are impacting how consumers shop and make purchases. Some of the world's largest technology companies are using next-generation security to store credit card information and allow consumers to make purchases more quickly, securely, and easily. As these payments continue to become more integrated in our lives, financial services institutions risk losing control of their customers' transaction experience.

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2. Emerging Payment Rails. Payment transfer systems such as Venmo, Zelle, and PayPal have never been more popular. Meanwhile, society—with help from the bodies governing it—is still working out just how engrained cryptocurrency will become as a functional way to transfer value, not just store it. As the traditional intermediary of financial transactions, banks are now facing competition they have not seen before. And as they decide whether and how to invest in P2P and crypto technologies themselves, they face risk in the forms of security and reputation.

3. Insurance Disaggregation. As more and more online insurance providers enter the marketplace, it becomes more difficult for providers to differentiate themselves. Meanwhile, the rise of online review content allows customers easy access

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to comparison shop. In this environment, it's likely that customers will only become even more fickle, putting extreme pressure on financial institutions to leverage innovation to create loyalty.

4. Connected Insurance. Among insurance customers, 39% use at least one connected device, while 72% expect to use a connected device in the future, according to Bain. Translation: the connected insurance era has arrived. As insurance providers leverage connected devices to personalize insurance and manage risk, they gain valuable information about customers that full-service financial institutions with the right technology infrastructure can put to use. These devices also put an emphasis on long-term relationships, so insurers will want to get in the door early.

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5. Alternative Lending. The stronghold that traditional banking institutions has had on the lending industry for decades has started to wane with the rise of alternative lending, with many lenders operating online through a peer-to-peer model. This has and will continue to suppress the profits of traditional lenders, and it may have the additional long-term effect of making it more difficult to understand a customer's creditworthiness. After all, their credit portfolio could be spread across a wide range of alternative platforms.

6. Shifting Customer Preferences. In a competitive environment in which there are many new entrants within every niche, customers will be able to shop around for one-off products and build the portfolio that meets their needs. Against this backdrop, it's pivotal that financial institutions meet the increasingly demanding needs of their customers, whether it's by evolving their mobile banking suite, steering into virtual banking 2.0, or through other key innovations. The days in which behemoth incumbents could cross-sell and subsidize across products, selling one-stop-shopping-style convenience, are numbered.

7. Crowdfunding. A wide variety of prominent crowdfunding investment platforms have sprung up in the last five years, widening access to capital and streaming more money into the overall ecosystem. That has quickened the time between funding stages and broken down former barriers to asset classes. In this new and competitive atmosphere, traditional players must be able to find undiscovered and highly profitable investments.

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8. Empowered Investors. It's easier than ever to access investment advice, even if that advice comes in the form of a robot. Robo-advisers have changed the game in financial management, creating margin pressure and forcing traditional financial advisers to change. Customers simply have more options, meaning traditional players need to find new ways to bring customers in the door—and keep them around.

9. Process Externalization. Small and midsize finance companies now have the benefit of accessing technology that only the largest and most capital-backed institutions used to enjoy. The externalization of advanced technologies has democratized fintech, commoditizing some of the highest-value capabilities, from advanced analytics to natural language. To react, large financial institutions will need to hire top talent and remain agile enough to shift with both market dynamics and customer preferences.
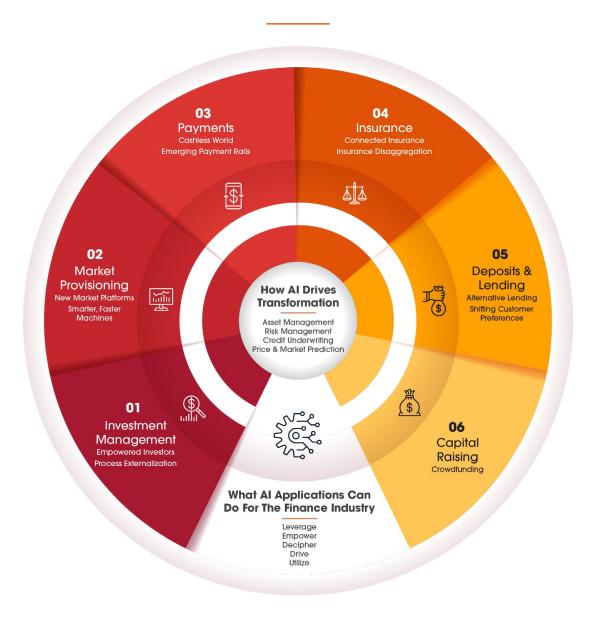
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10. Smarter, Faster Machines. High-frequency trading may be on the decline, but investors have started to leverage the power of big data to understand and predict how real-life events—say, an earnings call—may impact markets. The future of algorithmic trading could see firms diving deeper into algorithmic trading to create smarter, faster, and more profitable responses. Of course, it's a game of millimeters, and even the tiniest data or execution error can have a big impact.

11. New Market Platforms. Market information used to be harder to come by, but information platforms have improved connectivity among market constituents. These platforms put an emphasis on execution—beyond simply effort—by creating quantifiable standards by which all players can be measured. As the traditional differentiators fade away, it's more important for financial services to play the role of trusted advisor.

Aligning the 11 Innovation Clusters to the 6 Functions of Financial Services

03
Payments
Cashless World
Emerging Payment Rails

04
Insurance
Connected Insurance
Insurance Disaggregation

02
Market
Provisioning
New Market Platforms
Smarter, Faster
Machines

05
Deposits &
Lending
Alternative Lending
Shifting Customer
Preferences

How AI Drives Transformation
Asset Management
Risk Management
Credit Underwriting
Price & Market Prediction

01
Investment
Management
Empowered Investors
Process Externalization

06
Capital
Raising
Crowdfunding

What AI Applications Can Do For The Finance Industry
Leverage
Empower
Decipher
Drive
Utilize

How AI Is Used in the Finance Industry

III. HOW AI IS USED IN THE FINANCE INDUSTRY

As the World Economic Forum found when it developed 11 clusters of innovation, the finance industry sits at the cusp of real and dynamic change, driven by technology. Artificial intelligence is already playing a role in driving evolution across the finance world, as companies leverage the technology across a wide range of applications.

Here's a look at four key areas where AI can help drive transformation.

How AI Drives Transformation:

Asset Management

A movement toward passive index investing coupled with the rise of robo-advisers has made a considerable impact on organizations who make their money providing financial advice and managing assets. But humans and technology need not be resigned to siloes. With the industry in transition, more and more asset managers are turning to artificial intelligence as a way to handle more clients at once and gain a strategic edge. AI can help advisers process massive amounts of data rapidly and make efficient portfolio choices in pursuit of "alpha," or excess returns, for their clients. As the market shows signs that a bull run stretching a dozen years may finally be slowing, that's more important than ever.

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Risk Management

There may be no slice of the business where AI is more ingrained than in the realm of risk management. AI applications are constantly working behind the scenes to help financial services organizations keep tabs on everything from market risk (such

as the risk of a crash) to operation risk (the risk of an outage). AI engines can help organizations understand the scenarios that geopolitical shifts or environmental changes could impart. When it comes to credit risk (the risk of default), banks are constantly trying to stay ahead of fraudsters, as the banking industry loses about 5% of revenue per year to fraudulent activity, according to the Association of Certified Fraud Examiners. The toll would be much higher without artificial intelligence, which helps banks identify and stop fraud before it happens by crawling millions of transactions per day.

INDUSTRY EXAMPLE

At least 77% of banks use artificial intelligence and machine learning to help detect fraud. Among them is Chase, which uses a layered approach, according to PYMNTS.com: collecting information based on authentication and customer behavior and then running that information through an AI and ML system that checks it against bad actors. The system is constantly gaining a clearer understanding of what suspicious behavior looks like based on collected data, making the fraud-detection platform smarter as time goes on.

Credit Underwriting
The pertinent data associated with an underwriting decision often goes beyond what one human can reasonably assess. With AI, financial institutions can take in massive amounts of data and come to quantifiable decisions about the risk of various types of loans, illuminating key risk factors for lenders based on their client profile. Artificial intelligence also stands to take inherent bias out of the underwriting equation and level the playing field for every lender regardless of age, race, or gender. While some lenders are offering fully digital approval processes, others are allowing AI and human underwriters to work in concert to combine data-driven and qualitative data points to make underwriting decisions.

Price and Market Prediction
Homing in on exactly what the stock market will do next will forever be an inexact science, but AI has a place in predicting market and overall pricing trends as well. As financial institutions compete with a new generation of upstart fintech firms, a greater number are turning to AI and machine learning to grow their knowledge of the market in an effort to provide clients with information and tips they can't find anywhere else.

The Data Challenge Holding Back Further Adoption

In an age where competition is high and consumers are demanding, it's clear that artificial intelligence offers a promising path forward for financial institutions of all stripes. Yet far too many fail to implement AI in any meaningful way or, once they've implemented and proved a concept, to widely deploy that concept and maximize value.

Why? The answer, for far too many organizations, boils down to data.

In an age where competition is high and consumers are demanding, it's clear that artificial intelligence offers a promising path forward for financial institutions of all stripes.

While investment in AI continues to accelerate, according to recent Gartner surveys 85% of AI and machine learning projects fail to deliver, and only 54% of projects make it from prototypes to production. According the same survey, data access and data volume or complexity the top two most cited barriers to AI adoption.
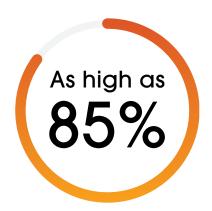
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AI projects can only be as effective as the data backing them. Without good data, training models can't make accurate predictions, operate efficiently, or deliver on the real-world business value of AI. When organizations set out to transform their businesses or processes with AI, inaccessible or incomplete data can impact business confidence in the technology that lasts for years, shutting down not only current projects but also the prospect of future innovation through artificial intelligence and machine learning.

And here is where we see a divide between projects of various sizes and data requirements. While some applications have off-the-shelf, cloud-based options that act against relatively small datasets, other more complex activities require uniquely innovative development approaches against large datasets. Larger financial institutions may already have access to massive troves of data—mountains of information that represent an outsized market opportunity. It's a blessing and a curse; these enormous troves of data can easily become unwieldy and difficult to manage, causing that value to disappear. Establishing a solid foundation and infrastructure is vital.

Yet, on the other end of the spectrum, some small-shop hedge funds have invested millions of dollars on AI technology that will require a massive informational imprint. They see these data requirements as the means to an end. In one example, a tech expert named John Flowers is looking to "capture every blog, every analyst report, every chart, and feed it into a machine learning system" to measure stock interest, as Flowers told Fortune. Other hedge funds have made similar investments. They, too, will need to diligently maintain their data infrastructure, or they'll risk seeing their AI engines become less effective.

Even when organizations do move forward with artificial intelligence projects, they can fall short of meeting expectations and delivering accurate results when the data behind the application is not sound. Gartner has predicted that as high as 85% of AI projects deliver erroneous outcomes due to bias in data, algorithms, or the teams managing them. Even when an institution has all the data it needs, it must have the right infrastructure in place to quickly process it and make timely decisions; often, organizations simply lack the ability to empower AI applications to run at full speed. To capture the full value of their data and empower their organizations to succeed in an era in which artificial intelligence will propel business results, financial services organizations should re-evaluate their data infrastructure.
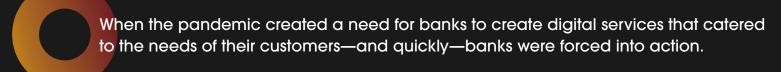
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How AI Can Help FSI Orgs Create Better Business Outcomes

IV. HOW AI CAN HELP FSI ORGS CREATE BETTER BUSINESS OUTCOMES

For many banks and other financial services organizations, the lightbulb went off during the pandemic. Digital transformation had been a priority for most companies for a decade or more, but most had only grasped the demands of their customers and their own propensity to change at a baseline level. When the pandemic created a need for banks to create digital services that catered to the needs of their customers—and quickly—banks were forced into action. "They discovered they could transform far more quickly and radically than they supposed," Accenture wrote in a report on the top trends in banking for 2022.

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Thereafter, the focus those organizations had on digital innovation shifted "from enhancement to invention," Accenture wrote. Consumers had been clamoring for their banks to get with the times. Finally, the pandemic pushed them to "abandon yesterday's mindsets to reimagine banking from a blank slate."

But it's not just about delivering customer satisfaction and staying competitive. For financial services institutions, AI done right can cut costs significantly and drive efficiency throughout the organization. AI applications will save banks an estimated $447 billion by 2023, according to Insider Intelligence's AI in Banking report.

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What AI Applications Can Do for Banks, Wealth Management, and Insurance

As applications utilizing the technology continue to come into use, AI will help financial service institutions overcome modern challenges, including by helping them:

→ Leverage troves of data to gain a clearer and fuller picture of their customers, allowing more granular segmentation and enabling personalization that drives conversion.
→ Empower high-value innovation that differentiates banks and fosters loyalty in increasingly flooded and niche marketplaces.
→ Decipher information, assess risk, and make crucial decisions more accurately and efficiently, enabling them to stay competitive against a variety of new models.
→ Drive innovation that gives financial managers an edge over robo-advisers, bringing in more customers and keeping them around.
→ Utilize connected insurance and other advancements to create customer stickiness in an insurance market that is flooded with competition.

For many applications, artificial intelligence has been in an early adoption phase. But as Accenture wrote, the banking industry is now "approaching a paradigm shift," wherein "artificial intelligence and machine learning start to surpass human capabilities in some specific and narrowly defined tasks." The same is true for insurance and wealth management. Steering into these technologies across the organization, therefore, "should allow banks to reimagine their businesses for a world in which banking revenues are increasingly decoupled from workforce headcount."

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Practical Approaches to AI Projects

Financial services firms have heard the benefits of AI. Perhaps they're also well aware of the brutal failure rates of implementing AI technology.

How, then—in a world in which AI is so crucial to the future of every financial service organization's success, and yet where these organizations have traditionally struggled to build and maintain AI projects—are banks to approach the future of AI?
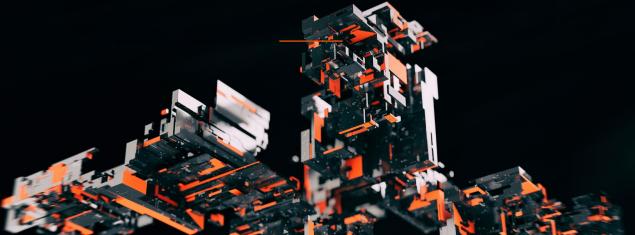
For starters, financial services institutions should plan their artificial intelligence and machine learning projects carefully. An executive sponsor should be out in front, leading the way, setting key objectives, and establishing the success metrics upon which the project will be measured.

Assessing data requirements and availability comes next, and it's one of the most crucial steps in the process. In addition to determining the scope and scale of the data required for the development and training of a certain AI model, the project team should assess the possible advantages of centralizing AI and analytics hardware—keeping in mind the project's impact on the end-to-end data journey. There are fundamental implications to consider at every point, from data gathering and ingest for real-time decision-making to archiving source data and recommendations.

AI projects achieve greatest results when team members feel safe to run trials, and team leaders will find that encouraging experimentation and prototyping is well worth the effort and time. So, too, is adopting methodologies and architectures that plan for rapid growth. Too many otherwise well-conceived AI projects have stalled at the stage of scaling up. That doesn't happen when project teams have the tools and foresight to anticipate a leap from prototyping to production on the front end.

With the right approach and intention, financial services organizations will find that they set their teams up to find success with AI projects and sustain it for years into the future.

How DDN Can Help Companies Solve Problems With AI

V. HOW DDN CAN HELP COMPANIES SOLVE PROBLEMS WITH AI

Financial services organizations are facing increasingly complex problems as they set out to create and implement artificial intelligence and machine learning applications that drive business results. Large organizations have massive amounts of information at their fingertips, yet their data platforms are not always prepared for AI. As data growth continues to accelerate and AI models become more complex, these organizations need support with their end-to-end AI storage lifecycle.

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DDN is enabling the future of AI and advanced analytics for the financial services industry, working with these companies to shore up their infrastructure and prepare them for growth at any scale. Our technology is built to empower AI and ML innovation, and we work with companies to understand the specific challenges of their industries—designing solutions with their business goals in mind. As we work with organizations, we take a consultative approach and share our expertise to help you establish a modern data infrastructure that will enable AI and analytics excellence.

As enterprises compile more and more data, financial services and artificial intelligence will only become more intertwined. We will work with you to create the AI-optimized intelligent infrastructure your organization needs to flourish in this competitive market.

Contact a DDN storage expert today.