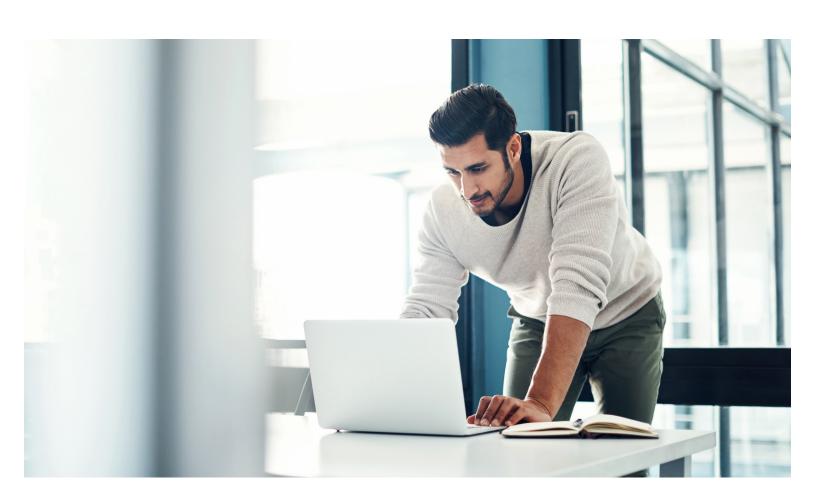# How Financial Services Firms Can Harness Disruptive Technologies

to Drive Growth and Profitability.

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Summary

Financial services (FS) firms are fighting as never before to protect their business and remain profitable in the face of change. Shareholders are looking for improved performance, customers are demanding higher levels of service and regulators keep changing the rules of the game. In addition, FinTechs are pulling the rug out from under established FS businesses by offering new services through new channels.

Many of these FinTechs have developed new technologies that disrupt "business as usual". The good news is that established FS firms can also leverage these disruptive technologies, to cut costs, improve performance and offer their customers enhanced services.

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This paper provides a high-level view of five technology drivers and their potential benefits to FS firms:
- Blockchain
- Artificial Intelligence (AI)
- Big Data and Analytics
- Digital Transformation
- Cloud Transformation

Blockchain

Definition

A digital, distributed transaction ledger with identical copies maintained on each of the network's members' computers. All parties can review previous entries and record new ones. Transactions are grouped in blocks, recorded one after the other in a chain of blocks (the 'blockchain'). Cryptography protects the links between blocks and their content, so the ledger and the transaction network are trusted without a central authority.

In several use cases, blockchain is powering FinTech innovations and enabling FS firms to cut costs and improve transparency. Now is the time for FS firms to act. A survey conducted by Deloitte1 shows that 40 percent of executives from the Telecom, Media, and Tech (TMT) industry wish to invest millions in blockchain research in the near future. According to the report, approximately 59 percent of the respondents believe that blockchain has the potential to disrupt their respective industries, and 29 percent said they had already joined a blockchain consortium.

Use cases in financial services	Related benefits
Distributed ledgers for traditional banking and cryptocurrencies, such as bitcoin	Speeds up the back office settlement process
Smart contracts with computer protocols that digitally facilitate, verify, or enforce the negotiation or improve performance of a contract	Allows credible, trackable, and irreversible transactions without requiring verification from third parties
Cross-border payments using cryptocurrencies	Cuts out the middleman, provides guaranteed, real-time transactions across borders, and according to a Deloitte study,[2] can reduce costs to 2-3% of the total amount
Removes the middleman in stock exchanges and can eliminate need for a central system to bring supply and demand together	Speeds up and simplifies clearing and settlement of cash securities, potentially saving investment companies around $11 – $12 billion in fees[3]
Online identity management with users choosing how to identify themselves and who will be informed	Can re-use identification for other services
Loyalty and rewards management through transparency and traceability of transactions	Helps banks and insurers to create more captivating loyalty and rewards programs and enhance engagement
Loans and mortgage processing incorporating smart contracts	Significantly simplifies processes, removing inefficiencies, reducing time and cost, and improving customer experiences
Claims management processing using smart contracts	Streamlines the process and makes it more secure, reliable and cost-efficient

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Artificial Intelligence (AI)

Definition

Artificial Intelligence (AI) is intelligence demonstrated by machines, in contrast to the natural intelligence displayed by humans. AI mimics human cognitive functions such as learning and problem solving.

AI has long been perceived more as a sci-fi concept than a real-world capability, until now. Real-world applications of AI—such as understanding human speech, directing self-driving cars, and automatically routing delivery networks—have advanced dramatically in the past decade with the explosive growth in inexpensive computational power and the advent of Big Data.

Currently, more than $1 trillion of financial services cost structure could be replaced by machine learning and AI, according to Autonomous Research, the leading independent research firm covering the FS industry in Europe, the US and China. This would affect 2.5 million employees in the US alone. The numbers keep growing: by 2030, Autonomous expects $490 billion in costs to be exposed to AI in distribution, $350 billion in the middle office, and $200 billion in financial product manufacturing.[4]

Use cases in financial services	Related benefits
Cognitive use, such as predictive analytics, robo-advisory and robo-investing	Significantly lowers the cost of asset management, so individuals without high levels of wealth can invest, and eliminates human error and conflicts of interest
Regulatory compliance: AI-powered automation remembers and complies with laws with minimal error or exception and detects fraudulent or illegal activity	Reduces risk of noncompliance or fraud
Algorithmic stock trading applications	Boosts returns and profitability potential by predicting stock performance
Automation of mid- and back-office functions, such as trade settlement	Improves accuracy and speed, while cutting cost
Chatbots backed by conversational AI abilities respond to customer's questions	Enables faster, more accurate and consistent answers to questions at a lower cost than a call center

Big Data and analytics

Definition

Big Data is data sets that are so big and complex that traditional data processing application software can't deal with their volume, velocity and variety.

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Big Data is valuable when firms analyze it using powerful software tools that produce useful insights. But first, IT professionals must standardize the data for analysis, to comply with data requirements like General Data Protection Regulation (GDPR) and Payment Services Directive II (PSD2), to name a few. Plus, Big Data analysis requires powerful infrastructure, including computing and storage, to effectively manage huge data sets. Establishing a robust Big Data and analytics capability is challenging—but it's considered to be table stakes for FS firms today. The banking industry is one of the top five drivers of growth in the Big Data and business analytics (BDA) solutions market, which IDC reports will surpass $203 billion in 2020.[5]

Use cases in financial services	Related benefits
Fraud detection and security to immediately capture real-time activity, detect anomalies and identify potential vulnerabilities	Saves money and protects an organization's reputation by preventing fraudulent behavior and attacks
Governance, Risk & Compliance (GRC): Big Data brings together all of a firm's GRC data for timely analysis	Minimizes risk and promotes compliance in the event of an audit
Customer insight and service using real-time data, rather than surveys to gather and analyze information about customer borrowing and spending habits, income and transactions	Generate new revenue streams through more appealing and personalized data-driven offers
Analyses of operational efficiency determine optimal staffing for a customer call center or identify which branches offer the most profit potential	Better allocation of financial resources
New services such as online payments or peer-topeer lending	Minimizes loss of business to new FinTechs, such as PayPal and Upstart
Strengthened security through features including role-based access which ensures that valuable information doesn't fall into the wrong hands and allows companies to track data usage on a granular level	Provide better services and security to customers

Digital transformation

Definition

A systematic replacement of legacy systems to gain the front-end and back-end capabilities necessary to deliver new and more customer-centric modes of engagement across every user touchpoint.

Digital transformation is sweeping through all industries, reshaping the customer experience to meet the expectations of today's consumers. The FS industry, too, has to change because customers demand a higher level of service. For example, according to the PWC 2017 Digital Banking survey, 46% of customers now skip bank branches altogether, relying instead on smartphones, tablets, and other online channels. Digital transformation isn't just for customers—for FS firms, it offers huge increases in back-office productivity and efficiency.

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Use cases in financial services	Related benefits
Build mobile solutions and transform branches to ensure a seamless multi-channel experience	Satisfy the needs of today's demanding and techsavvy customers
Right-size branches by converting smaller branches into self-service, unstaffed kiosks and transforming larger branches into full-service flagship 'stores'	Cut costs without cutting service or profitability
Fully digitize the loan application process to streamline operations and reduce errors	Faster response, greater customer satisfaction, and enhanced competitiveness
Gather and leverage data across all aspects of the business	Win new business by targeting and personalizing product offers
Security risk mitigation through codifying security strategies and enforcing them	Protect business continuity and maintain customer confidence
Automate every possible process	Cut costs and free up staff for human-touch tasks like cross-selling and relationship building

Cloud computing

Definition

A pay-per-use model for on-demand network access to a shared pool of computing resources—such as network infrastructure, servers, storage, applications and services—that can be rapidly provisioned, configured and released by a provider with minimal effort required from the organization that purchases the resources.

One of the biggest roadblocks to digital transformation is the cost and complexity of the computing infrastructure to support it. Cloud computing enables digital transformation because it is a highly responsive and cost-effective way to provision infrastructure of any size. Accenture recently announced that, "Our perspective is that the time for waiting is over; now is the time for a bold move to the cloud. Cloud capabilities have evolved so rapidly that cloud can support any strategic direction. Banks and their financial services peers can realize important benefits by adopting a cloud-based approach to digital transformation."[6]

Use cases in financial services	Related benefits
Application development/migration by moving to a SaaS model to help "future proof" offerings	Gain flexibility, increase value, and speed to market for optimal competitiveness
Analytics enables firms to use the cloud for data warehousing, business intelligence, batch & stream processing, and machine learning to extract informed insights from data	Increase business profitability by paying only for the computing resources needed
Use dynamic resources for compute-intensive applications such as pricing, modeling, market positions and risk management	Faster response, greater customer satisfaction, and enhanced competitiveness
Disaster recovery & business continuity hosted externally by an expert team on a highly secure platform that delivers security and protection quickly and economically	Protect critical infrastructure and systems without incurring the expense of another physical site or specialized manpower
New digital workflows	Support more effective collaboration between formerly siloed departments and businesses
Reduced data storage costs and expert support for big data and analytics	Support scale and business growth

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Conclusion

The world's leading FS organizations are far along in their digital transformation, leveraging innovations to win and retain customers, cut costs and increase efficiencies. At this stage, there is no longer an early-adoption risk, but rather consequences for not taking full advantage of these new capabilities.

However, firms should not invest heavily in fixed infrastructure. That is where hybrid IT adds value—and why many of those firms have chosen Lumen as their partner in adopting new technologies.

Lumen offers scale and agility, enabling FS firms to provide innovative products and services. FS firms will swiftly and cost-effectively benefit from the new technologies described in this paper and by leveraging the Lumen offerings.

Network services including Internet, Ethernet, MPLS, and Wavelengths

Achieve scale efficiencies and deep expertise across networks and support goals with a ubiquitous, secure and cost-effective network service to transmit massive volumes of data, connect to trading venues and partners, and deliver digital services at scale.

Private Cloud / Public Cloud / Bare Metal infrastructure

Move seamlessly across hosted and cloud environments with an Infrastructure-as-a-Service platform that can include physical servers alongside virtual instances. Pay-as-you go flexibility and a unified interface deliver all the power a business needs—and charges only for what the firm uses.

Multi-Cloud Management (Cloud Application Manager) and Cloud Connect for secure connectivity to your cloud environments

No matter which cloud architecture a company chooses—public, private or a hybrid—our robust network and comprehensive operating procedures protect critical data and help ensure availability and security of applications.

Big Data as a Service

Get the most from Big Data with Big Data storage, processing and analytics in the secure cloud.

Colocation and managed hosting, storage, backup, and disaster recovery infrastructure

Outsource the exacting day-to-day work of keeping the lights on in your data center. Lumen and Cyxtera offer scalable, rock-solid data centers and 100% uptime for your physical and virtual infrastructure.

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Data science and analytics systems, software, and services

Put data to work to drive strategic and tactical decision-making using our Analyze-VisualizeMonetize™ methodology. Leverage the big data and predictive analytics expertise of a team with extensive experience across financial services and other industries.

Managed security services

Stay ahead of evolving threats to infrastructure with these cost-effective services that lower the TCO of defending infrastructure assets and websites and help ensure compliance with regulations.

Managed security services

Design next-generation IT solutions utilizing a variety of specialized IT skills. Our experts are skilled in discovery and assessment for a variety of IT disciplines, building roadmaps and providing practical recommendations regarding your IT initiatives.

Professional Services

With Lumen Professional Services, you can leverage the expertise and experience of our architects, project managers, engineers and technicians who work on our global IP network every day.

Lumen (NYSE: CTL)

Is the second largest U.S. communications provider to global enterprise customers. With customers in more than 60 countries and an intense focus on the customer experience, Lumen strives to be the world's best networking company by solving customers' increased demand for reliable and secure connections. The company also serves as its customers' trusted partner, helping them manage increased network and IT complexity and providing managed network and cybersecurity solutions that help protect their business.

Footnotes

1. Deloitte: Telecom Executives Plan to Invest Millions in Blockchain Research

2. https://www2.deloitte.com/nl/nl/pages/financial-services/articles/1-blockchain-speeding-up-and-simplifying-cross-border-payments.html

3. https://www.linkedin.com/pulse/top-30-financial-services-blockchain-use-cases-its-just-ron-shulkin/.

4. https://www.businesswire.com/news/home/20180424005855/en/Artificial-Intelligence-Transforming-Financial-Services-%E2%80%93-Analysis

5. https://www.idc.com/url.do?url=/includes/pdf_download.jsp?containerId=prUS41826116&position=51

6. Moving to the Cloud: A strategy for banks in North America - Accenture

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