New Disruptive Technologies Can Revolutionize Financial Engineering
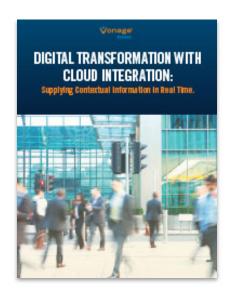
By **CHRISTINE PARIZO - Contributor**

While financial services institutions are not necessarily well-known for technological innovations, they are beginning to invest in technology as the need to provide better customer service, secure assets, and meet customer demands rises. Institutions are increasingly using technologies like financial engineering, artificial intelligence and predictive analytics, and blockchain to solve problems, improve security, and provide other benefits for customers and employees.

Financial engineering technologies like data and analytics, artificial intelligence, and blockchain are changing the way financial services institutions operate.

These technologies affect every financial services department, from marketing and sales to wealth management and investments, as new ways of upselling, detecting fraud, and maximizing a customer's investment stem from new methods of financial engineering. Here are some details about these technologies that will help improve the overall efficiency of your financial institution.

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Data and Analytics for Financial Engineering

Financial services firms have long been trying to figure out what to do with the virtual mountains of data they have collected and stored. With the widespread availability of predictive analytics technologies that can help companies proactively predict who is likely to buy a product — or who is likely to be a risk — financial institutions have the opportunity to maximize revenue and customer trust.

By leveraging new algorithms and techniques for analyzing data, financial services companies can:

- **Manage risk.** The insurance industry has led the way for risk management by developing and using multiple tools and models to analyze previous behavior and create actuarial models for pricing. Financial services companies can use these technological tools to determine interest rates and suitability for different financial products. In some cases, risk management technologies can even be used for fraud detection.

- **Improve revenue**. Predictive analytics can also use customer data to determine potential consumers for related products. For example, a customer that has already invested a certain amount into the institution and is nearing retirement age may be interested in an annuity, or a customer with a mortgage loan may be interested in a home equity line of credit.

Artificial Intelligence: Financial Services Applications

Artificial intelligence is an umbrella for a host of related technologies, including robotic process automation (RPA) and intelligent process automation (IPA). It can include innovations like chatbots and can automate routine tasks traditionally executed by humans. Several innovations in this arena will transform financial services, especially:

- **Chatbots.** Today's customers tend to turn to online methods to solve problems or get information. Chatbots with artificial intelligence capabilities can provide customers with their bank balances, instruct them on how to reset their passwords, or help them find

products that work for them. Chatbots need to be trained, but advances in machine learning can help bring them up to speed more quickly.

- **Process automation.** Artificial intelligence can be used to automate routine tasks. According to Deloitte, companies can use bots to trade odd lots to free up human traders, something Goldman Sachs already does to create a leaner front office while increasing its opportunities for revenue.

- **Machine learning.** As chatbots gain more popularity, machine learning will become critical for training AIs to discern what customers actually need, as well as how to respond conversationally.

> *Data and analytics, artificial intelligence, and blockchain, as well as their associated technologies, have the potential to greatly disrupt the financial services industry for the better.*

Blockchain and Banks

Typically, banks have used blockchain for back-office applications, according to an American Banker report. While blockchain isn't a panacea for every problem that financial institutions face, it does pose a solution for a lot of difficulties, from security to transfers and contracting. It's still a very new and disruptive technology, but it has a lot of potential to alleviate issues. Experts see significant interest in use cases for the technology, including:

- **Security.** Blockchain has the potential to provide identity and access management.

- **Chain of custody.** Keeping track of crypto assets is a clear use case, and experts expect to see blockchain used more for chain of custody tracking in the future.

- **Smart contracts.** Trade finance can be time-consuming, expensive, and high volume, but blockchain can provide a way to create smart contracts between financial institutions and shipping fleets.

- **Touchless transactions**. According to another report from Deloitte, "touchless" transaction is a strong use case for blockchain and automation, removing the middleman for almost instantaneous transactions. This is another way for financial services companies to save money while improving customer service.

Data and analytics, artificial intelligence, and blockchain — as well as their associated technologies — have the potential to greatly disrupt the financial services industry for the better. Data and analytics can change financial engineering, and using artificial intelligence can benefit departments across the company, from customer service to risk management.