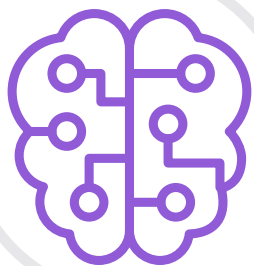


Treasury's digital revolution





Introduction

The digital revolution that started in the 1980s has brought major developments around issues ranging from processing power to user experience — and there's more to come. For instance, developments in Artificial Intelligence (AI) and Machine Learning (ML) could bring unprecedented opportunities for companies to tap into valuable insights and improve their performance.

For corporate treasurers, these technologies are set to bring benefits such as improved cash forecasting accuracy, automated reconciliation, and optimized hedge ratios. At the same time, ongoing development of mobile treasury applications enables treasurers to carry out more functions away from their desks.

With a number of promising advancements underway, how much progress has the industry seen so far? What should treasurers be doing today to position their companies for treasury's digital revolution?



Executive summary

A digital revolution is underway in treasury. The last 30 years have seen the rapid growth of processing power, the arrival of the Internet, the rise of mobile devices and an increasing focus on user experience. At the same time, artificial intelligence, machine learning, and the increasing number of mobile treasury applications are set to transform the role of treasury teams.

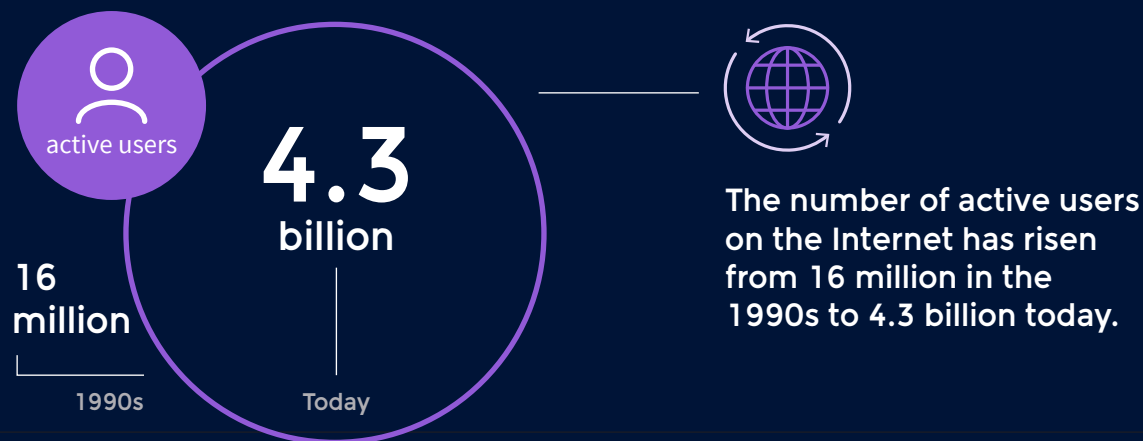
Against this backdrop, ION is investing in individual products and building shared capabilities that will benefit the whole portfolio of solutions.

The digital revolution

It's no secret that the last 35 years have been shaped by the digital revolution. When the Cray-2 supercomputer was first built in 1985, it was the world's most powerful computer, but today's smartphones have almost 10 times the processing power of Cray-2.

The number of active users on the Internet has risen from 16 million in the 1990s^[1] to 4.3 billion today^[2]. The amount of data accessible over the Internet has also grown dramatically. In 2018 alone, 33 zettabytes (ZB) of data were created — that's 33 trillion gigabytes. IDC^[3] predicted this number will reach 175 ZB by 2025.

The desire for greater integration of mobile devices — from laptops to smartphones — in the realm of business has also increased dramatically in recent years. Developments such as the rapid adoption of the iPad in 2010 demonstrated that people can embrace devices they didn't know they needed.



The AI/ML revolution

The digital revolution has also brought major developments concerning Artificial Intelligence (AI), Machine Learning (ML) and deep learning:



AI: While definitions vary, AI generally describes the ability of a computer or other digital device to simulate intelligent behavior. An intelligent agent is a device that demonstrates intelligence by perceiving its environment and working toward specific goals.



ML: ML is a subset of AI in which machines "learn" specific tasks and progressively improve their performance. ML achieves this by using algorithms and statistical techniques without the need for machines to be programmed explicitly.



Deep learning: Deep learning is a subset of ML that imitates the human brain by using artificial neural networks to process data and solve complex problems.

From Deep Blue to AlphaZero

The evolution of chess computers over the last 20 years serves to illustrate the power of AI and how much progress has already been made in this area. In 1997, supercomputer Deep Blue made history when it beat world champion Garry Kasparov in a six-game match.

Then, in 2005, a freestyle chess championship — which included grandmasters and different combinations of humans and machines — was won by amateurs working with computers. Their achievement demonstrated how the symbiosis of human and machine can boost the abilities of amateur players.

In 2018, Stockfish, a chess program previously thought to be unbeatable, was defeated by AlphaZero, a deep learning algorithm that learned how to play chess in the space of four hours. Of the 100 games played, 72 resulted in a draw, with

AlphaZero winning the remaining 28 games. Subsequent analysis of AlphaZero's unconventional techniques may inform the strategies of future chess champions.

Above and beyond

The game of chess is just one of the many possible applications of AI, and the example from 2005 highlights how embracing deep learning can bring benefits beyond what humans or computers can yield individually. The development of new avenues for human-AI collaboration in the digital era will undoubtedly continue to transform how certain problems are approached and solved in the business sector.

By adopting AI, companies can embrace the opportunity to discover new ways of collaborating with technology to improve performance and add value to their business.

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Where is treasury going?

So what do these digital advancements mean for treasury? They will have major implications for how corporate treasuries will operate — from mobile applications that liberate treasurers from their desks to AI and ML functions that streamline various duties.

Mobile treasury

Many treasurers welcome the opportunities for remote work that technology can bring. With factors such as the travel schedules of treasurers working with teams in different locations to consider, there's a growing need for mobile treasury applications to carry out daily activities from any location.

Mobile applications provide treasurers with access to information and processes across different devices. Treasurers can now view cash positions, run reports, or approve payments remotely. With the right technology, treasury teams can move beyond desk work and adopt more modern approaches to work that increase convenience and productivity.

Will Artificial Intelligence remove the need for treasury roles?

While AI and ML will not eliminate the need for treasury professionals, they may reduce repetitive manual tasks and enable treasurers to devote more time to discovering valuable insights. In this way, AI and ML can help cement the strategic importance of the treasurer's role within an organization.

As AI developments in the chess world illustrate, treasurers will find that the right combination of efforts from machines and humans can yield major benefits for their departments and their organizations. AI will reveal connections that lead to meaningful insights, and humans will use their company-specific knowledge to develop strategic workflows and influence key business decisions. In short, humans will still be needed to make decisions, but those decisions will be better informed and based on greater volumes of analyzed data.

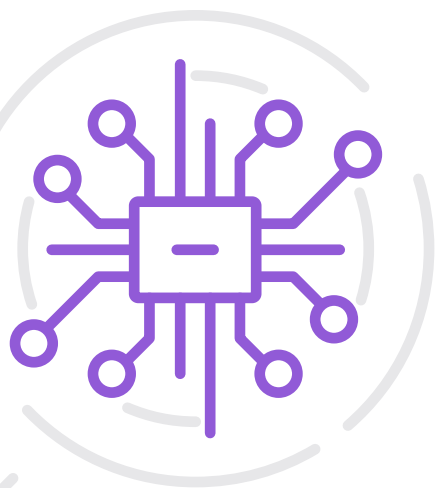
Artificial Intelligence is coming to treasury

While many treasuries are already benefiting from mobile applications, developments in AI and ML have the potential to drive even more fundamental changes in how treasury teams conduct their work.

Some treasurers are not yet aware of the powerful capabilities AI and ML can bring to their operations. By harnessing AI and ML, treasurers can better understand data relevant to multi-dimensional, volume-based tasks, such as cash forecasting and liquidity planning. Innovative applications for AI in the context of treasury include:

- Forecasting cash flows
- Making recommendations for cash investments
- Determining optimal hedge ratios
- Detecting anomalies in payment runs
- Reconciling bank statements
- Tagging cash transactions

In cash forecasting, there are opportunities for machine learning to drive more accurate predictions and improve the matching of actuals with those forecasts. In the foreseeable future, neural networks could outperform linear models by recognizing patterns and atypical seasonality and by identifying and ignoring data outliers.



Preparing for the future

These changes are coming, and ION is working proactively to deliver the tools needed to usher in the future of treasury. This means providing treasurers with tools that free them from repetitive tasks, simplify complex processes and promote greater efficiency. It also means helping customers improve — and, where possible, automate — their decision-making processes.

With investments such as mobile applications, integration using APIs, enhanced data entry,

real-time straight-through processing and more, ION is helping customers trade more effectively, track financial positions, and automate repetitive tasks and routine decision-making processes. This requires building intuitive, device-agnostic experiences and harnessing large amounts of data to provide customers with insights. Critically, by embracing the potential offered by AI and ML, ION seeks to add value to businesses and give customers the tools they need to gain a competitive edge.

Conclusion

The digital revolution has had a deep impact on many facets of business over the last 35 years. But for corporate treasurers, the revolution is just beginning.

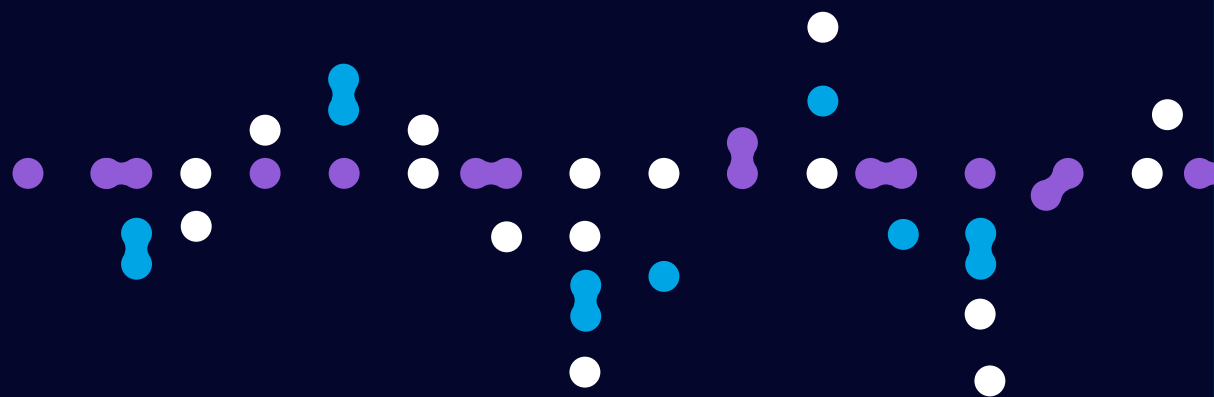
In the coming years, developments around AI and ML and advancements in mobile treasury applications will have a major effect on how treasurers carry out various functions. Those

technologies will not replace the need for human treasury teams, but they will provide opportunities to operate more effectively and strategically than ever before.

By proactively harnessing the power of AI and ML and continuing to invest in mobile capabilities for treasurers, ION is empowering customers to position themselves for success in the evolving digital landscape.

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