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Crunch time III

The CFO's guide to cognitive technology

Contents

Cognitive is:

This is a test

A **the next big thing**

B **a word being used entirely too often**

C **the future of Finance**

D **all of the above**

Scoring

The answer is “D.” Cognitive may be overhyped, but it still represents important opportunities for Finance. Today.

The rise of smart machines

Machines have been around for centuries, but only in the past few decades have they become what we think of as "intelligent." These smart machines are driven by computer code—called "cognitive technologies"—that could eventually drive your business.

Cognitive technologies do things similar to things done by human beings. They grind through data, carry out tasks, and deliver reports. They listen, read, interpret, speak, and analyze. The smartest ones also learn. With enough data and processing power, cognitive technologies can do almost anything people do, except experience emotions.

Much of cognitive innovation is related to Moore's Law.[1] As the cost of computing power halves almost every two years, the amount of data that is created and processed doubles, providing the essential fuel for the "second machine age."

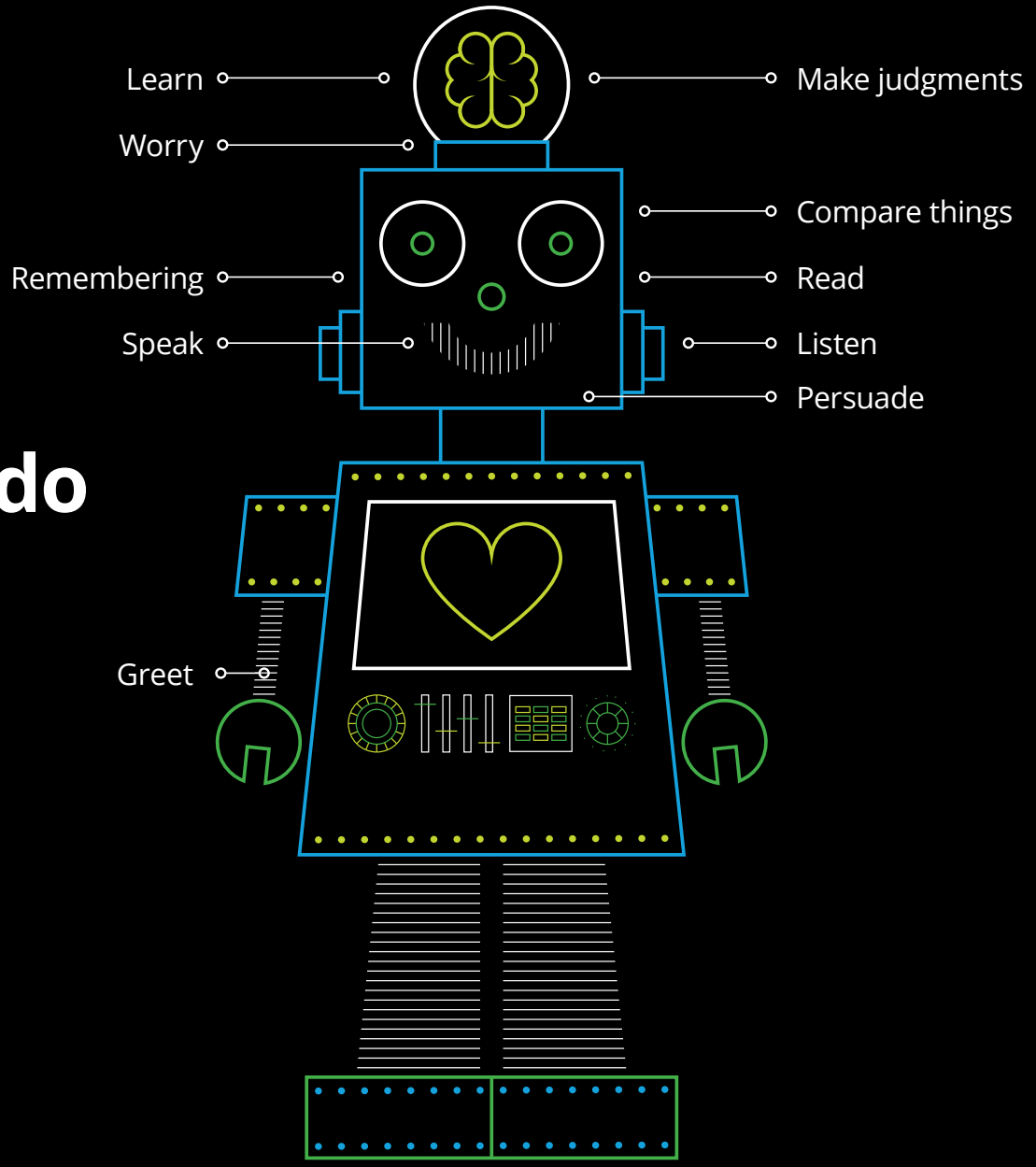
Because of the exponential growth in data, storage, and processing power in today's digital world, smart machines are now fast enough to be practical and cost effective.

Cognitive tools can analyze dozens of complex financial models in a few minutes, while a person might struggle to get through one in a week. Cognitive tools can spot a single variance in a billion transactions without breaking a sweat, something a human being could never accomplish. And in audits, cognitive tools can eliminate the risks associated with sampling. With their enormous processing power, they can be used to literally audit *everything*.

Smart machines are on the rise everywhere. We see them in customer experience, product development, manufacturing, and operations. They're on the job in Legal and HR. And they're beginning to reshape Finance.

What finance people actually do

Smart machines are already augmenting human activities in Finance. In a few years, they'll deliver even more capabilities.



Cognitive in Finance

We experience smart machines every day in our personal lives. From driving directions on a smart phone to music playlists, personal fitness, and more, the cognitive future has clearly arrived for consumers.

It's happening in business, too. Manufacturing and Customer Engagement were early adopters, but it didn't take long for other functions to climb on board. Pick any industry and you'll likely find cognitive technology augmenting or replacing human activity in hundreds of ways. The technology includes machine learning, neural networks, natural language processing, rules engines, robotic process automation, and countless combinations.

Meanwhile, many CFOs have remained on the sidelines, skeptical that cognitive could boost the performance of the finance function. In fact, in our latest quarterly survey, only 42 percent of surveyed CFOs said their teams are familiar with such emerging technologies.[2] And, many CFOs, uncertain about the benefits, have instead focused on more proven ways of improving cost efficiency and effectiveness, like optimizing the use of shared service centers.

Caught up in the day-to-day challenges of Finance—data governance, fragmented systems, manual processes, and reconciliations—many CFOs have little time to envision the efficiencies a cognitive future could deliver. And yet, forward-thinking finance innovators are exploring that future today.

What CFOs have to say about emerging technologies

CFO Signals, our quarterly global survey, recently asked CFOs about digital technology adoption. They told us their finance organizations are in the early stages of putting these technologies to work. Most often cited were robotic process automation and cloud. About a third of CFOs said they have moved beyond the pilot stage of digital projects to transform their Finance function, and 11 percent say they've achieved the benefits they expected.[3]

Cognitive tools at work in finance organizations today

Five cognitive tools are ascendant in Finance, and each can be used independently or in combination with others.

Machine learning

Machine learning is the ability of computer systems to independently improve their own performance by exposure to data, outcomes, and a feedback loop. Machine learning can detect patterns in vast volumes of data and interpret their meaning.

Robotic cognitive automation

Robotic cognitive automation is the rules-based automation of routine tasks combined with analysis of unstructured data and capabilities that mimic human learning and decision making.

Natural language processing (NLP)

Natural language processing (NLP) is the ability of computer systems to decipher and understand text to engage humans with personalized information and service. NLP takes unstructured data and converts it into structured data to be used by other tools.

Natural language generation (NLG)

Natural language generation (NLG) is an automation technology that generates narratives and commentary from structured data, e.g., commentary to accompany a monthly financial reporting package for executive audiences.

Speech recognition

Speech recognition is the ability to accurately transcribe and understand human speech.

Cognitive changes how Finance gets work done

Cognitive technologies have been adopted in other areas of business, inspiring Finance to start learning about them, experimenting with them, and figuring out how to use them. The goal, as with any finance technology initiative, is to create a more efficient, insightful, and controlled finance function.

It's important to remember that none of these technologies stands on its own. There is no Internet of Things or blockchain without cloud computing. There is no cognitive pattern matching without advanced analytics. The technologies build on one another.

And what do they build into? Faster and better ways of getting work done.

What follows is a collection of vignettes based on currently available technologies we've seen companies begin to test and adopt. These are composite sketches based on our experience working with many finance organizations.

One theme holds across all of the vignettes: Many finance organizations are devoting more resources—financial and human—to deploy new technologies in these early days of cognitive.

Answering questions

Miika
Financial planning and analysis

Miika was everybody's favorite analyst. He worked wonders in performance reporting and always seemed to know what the CFO wanted. Then Cindi came along.

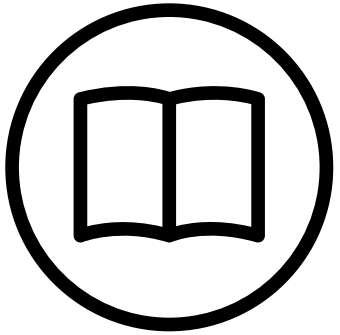
Cindi is the chatbot for Finance, designed to handle 80 percent of the questions Miika used to handle. Sitting on top of the company's cloud-based financial planning and reporting applications, Cindi does in seconds what Miika needed hours to complete. And she doesn't make mistakes.

The kinds of questions Cindi answers are familiar to any finance executive. *What's the price elasticity of demand in key markets? Where does foreign currency exposure need immediate hedging coverage? Which business units are likely to miss plan? What's my year-to-date sales in Asia Pacific vs. budget? What's the full-year sales outlook vs. budget? Which departments have overspent or underspent, and in which cost category?*

But instead of querying in spreadsheets, Cindi answers spoken questions with natural language, charts, and graphs. It's like a specialized finance version of Amazon's Alexa or Apple's Siri® voice recognition software—and it's real.

Today, Miika spends his time working to improve performance, not just report it after the fact. Instead of grinding through mountains of data, he's thinking through targeted interventions to curtail spending in departments that are overspending, and meeting with Treasury colleagues to discuss currency hedging strategies. Those are trade-offs his CFO is happy to make.

Persuading



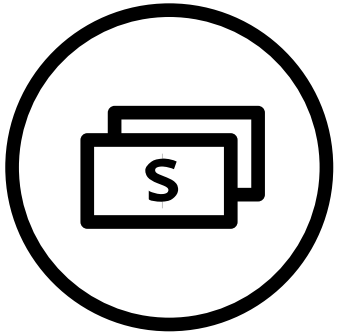
Beth
Investor relations

Companies have complex investor relations needs involving governance, reporting, and analyst communications. Cognitive can help in each area. That's why Beth initiated a natural language generation (NLG) pilot last year. Facing pressure to reduce cost, she wanted to automate the production of earnings call preparation materials and analyst presentations—activities that become mundane, repetitive, and time consuming for her team quarter after quarter, year after year.

Beth's organization had been producing earnings call preparation materials the old-fashioned way, writing and rewriting them under intense time pressure, while processing too much data with too few analysts. Now she generates a baseline transcript with the click of a button, freeing her people to focus on next-order insights and commentary that are meaningful to analysts and investors.

Beth's work has spread into the broader finance organization. Analysts in other functions are testing tools to enhance management reports and executive dashboards with automated commentary. Business leaders are getting the insights they need in hours instead of days. And Finance is delivering at the scale and scope needed with less burden on its people.

Comparing things



Jai
Accounts payable

Three years ago, Jai and his 20-person shared services team set records for efficiency in processing payables. Working manually through tens of thousands of vendor invoices, they meticulously matched invoices to purchase orders and receiving documents, and did their best to ensure that vendors were paid correctly and on time.

Two months ago, Jai's company upgraded its payables process using cognitive automation. Physical invoices were scanned and moved electronically into a payables processing template, with only a few ever touched by human hands. Accuracy was increased, and the cost of managing the accounts payable function was reduced by more than 30 percent. Jai was promoted to oversee analytics for payables, with a starting goal to understand areas of overspending.

Next, the company will add machine learning into the mix so the payables system will learn to recognize priority invoices, eliminate duplicate payments, and uncover fraudulent purchasing patterns. And for the 10 percent of payables transactions that require a person's involvement, thank goodness for humans.

Remembering

Marianne
Risk

Most stakeholders expect their finance leadership to preside over a myriad of risks that could impact operational performance and financial results. It's a role Marianne understands and appreciates. Fortunately, her team was an early adopter of predictive and visual analytical tools that automate data collection, aggregation, and analysis within her organization's systems and beyond.

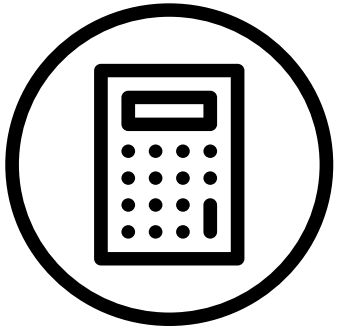
Today, the foundation Marianne's team built to scan financial transactions and systems to detect exceptions or anomalies is augmented with predictive analytics, machine learning, and natural language generation. These tools help detect risks in real time, inform impacted parties, and recommend ways to mitigate problems.

Marianne receives alerts on her touch-screen dashboard as potential risks are identified—such as a transaction from a "blacklisted" supplier—enabling her to take action even before an incident occurs.

Over time, machine-learning capabilities will likely decipher Marianne's risk response patterns and take action without Marianne's intervention, resulting in lightning-speed responses and a continuous information flow to reduce risk.

If Marianne works for you you might want to start thinking "retention."

Making judgments



Freja
Accounting

Freja knows her work doing intercompany closing is a necessary evil. Without it, the real closing can't happen, so the pressure is on every month to get it done—and to get it done right. She's been an intercompany reconciliation specialist for six years, going on a hundred.

A recent dramatic increase in the number of legal entities in far-flung geographies had made the closing process almost impossible to execute manually. Throw in different tax regimes and different accounting standards, and this "necessary evil" had become a big pain in the neck.

Fortunately, new technology has made its way into general ledger accounting in a big way. Two years ago, Freja's company bought an account reconciliation tool that speeds up the process of matching intercompany sales with intercompany costs of sales, making intercompany markup elimination faster and more accurate. This year the company added machine learning on top of the tool.

Freja and her five team members used to spend half their time on intercompany close. Now, it's down to one day a month.

Learning

Frank
Knowledge management

Frank is responsible for training and development for his company's 1,000-person finance organization. That adds up to a lot of learning, much of which is critical for compliance.

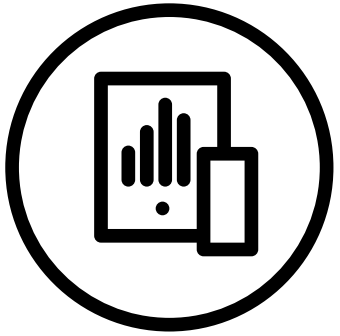
Last year, Frank's company deployed a chatbot that sits on top of the company's learning platform. Finance colleagues can query the chatbot to learn about required courses and ask questions when they encounter roadblocks in accessing training modules. Because all interactions with the chatbot are logged and tracked, it was easy to see which online courses were being queried most often, and by whom. That information not only helped Frank reposition some of the courses, it also told him where people were missing opportunities for additional relevant learning.

Now Frank's finance organization has a smart knowledge management system that can quickly predict the best-fit course for any query, recommend additional courses, steer people away from inappropriate or mismatched courses, and alert staff to compliance learning needs in advance.

But most importantly, compliance has improved. The system proactively alerts staff to upcoming compliance learning needs, and can automatically schedule and register finance colleagues for the right courses to stay current.

It's not unusual to find finance employees who prefer communicating with a chatbot than a person. They are 100 percent sure that effective execution will follow. This isn't always the case when a human colleague promises to do something.

Making decisions



Janet
CFO

Janet maintains a busy schedule serving a diverse set of stakeholders including investors, her company's CEO, her own team, and external auditors, to name a few. With all these demands, she needs to make better decisions, faster. That's why she launched an initiative to design and build a solution that would enable her do just that.

Janet hits the ground running at breakfast by reading a summary of the day's insights delivered to her tablet by her digital assistant. That "assistant" consists of data visualization tools refreshed each day with information from a data warehouse. It automatically updates her CFO dashboard, lets her run what-if scenarios on demand, and scans the news for risks.

In addition, Janet can dive deeper into financial data by using speech recognition software to ask for what she wants. *What were yesterday's sales by region? What products are underperforming this month? Which business leaders missed financial goals in consecutive quarters?*

Janet's digital assistant can answer hundreds of questions and provide insights into questions across the company. About 80 percent of these questions can be answered by cognitive tools that are available today. Janet is leading by example.

How can cognitive technology reshape the finance talent model?

It's understandable that many CFOs are concerned about the impact of cognitive technologies on people. Automation in many shared service centers, for example, is already driving headcount reductions, a trend that is likely to accelerate.

More broadly, many finance organizations are continuing to seek efficiencies through greater use of cognitive tools. More transactions are being processed automatically and more reporting is being done by machines, with smart machines working alongside humans to make Finance more productive and effective.

Many finance jobs could soon require experience working with cognitive technologies. What is now a "nice-to-have" skillset could begin to become a minimum requirement.

As the nature of finance work evolves, different kinds of finance professionals may be needed, including data scientists and business analysts who are great storytellers—turning insight into impactful communications.

To stay ahead, some CFOs are using this opportunity to identify individuals who are looking to expand their skills and become true business-minded partners. They're also looking to identify the next generation of leaders who will drive these changes to reshape how finance work gets done.

Where to start

The first job of Finance is to get the numbers right. That's a given, and cognitive technologies don't change that. In the relentless work of improving efficiency without sacrificing service and quality, cognitive is simply a new suite of technology tools you can put to work.

As you look to continue with your finance journey in the digital world, here are some steps to consider.

Learn more

If you haven't done so already, create a small cross-functional team to help your organization understand what's possible. Use weekly meetings to share cognitive stories with leadership. Don't limit the exploration to Finance.

Build a list

Create a list of opportunities within Finance for cognitive enhancements. The list will grow over time as new opportunities emerge. Don't forget to look at consumer applications for ideas.

Identify pilot possibilities

Narrow the list and identify candidates for adoption. Keep the scope narrow, the team small, and the risk low.

Pilot a project

Focus on opportunities where time-to-value is short. Choose a specific use case that can be tackled without distracting the whole organization.

Scale what works

Govern and track the impact of each pilot. Replicate what delivers results, and apply lessons learned to successive efforts.

Here's one more thought.

Take the time to see some cognitive applications first- hand. Whether you do that by participating in Deloitte's Finance in a Digital World™ lab or by visiting a finance organization that's ahead of the curve, nothing brings cognitive to life like seeing it in action. We'll be glad to help make that happen.

We’re here for you

The finance technology environment is filled with opportunities for CFOs to test the cognitive waters and get more value from legacy investments. If you’d like to learn how cognitive could be applied in your own organization—or see how other companies are using it already—please contact us.

To find out more about Finance in a Digital World™, please visit:
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Endnotes

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2. *CFO Signals*™. 3rd quarter 2017, https://www2.deloitte.com/content/dam/Deloitte/us/Documents/finance/us-cfo-signals-3q17-high-level-report.pdf (accessed October 3, 2017).

3. Ibid.,[2]

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