THREE TYPES OF AI

It is useful for companies to look at AI through the lens of business capabilities rather than technologies. Broadly speaking, AI can support three important business needs: gaining insight through data analysis, automating business processes, and engaging with customers and employees.

1 PROCESS AUTOMATION

2 COGNITIVE INSIGHT

3 COGNITIVE ENGAGEMENT

The most common type was the automation of digital and physical tasks—typically back-office administrative and financial activities—using robotic process automation technologies (RPA). RPA is more advanced than earlier business-process automation tools, because the "robots" (that is, code on a server) act like a human inputting and consuming information from multiple IT systems. Tasks include:

- **Provide human like assistance with a myriad of employee requests, questions, directions and communications.**

- **Walk new employees through the enrollment process without having to use complex onboarding software.**

- **Streamline the HR process across full-time, seasonal and temporary employees with little to no training.**

- **Increase talent management solutions and recruiters effectiveness by filtering out unqualified applicants and SPAM.**

- **Perform repetitive finance operations without human intervention.**

- **Empower your department leaders by supplying them with rich analytical data on the type of work request being requested, further expanding automation opportunities in their departments.**

- **Eliminate the need for future interface modifications since AI learns and handles them on your behalf.**

RPA is the least expensive and easiest to implement of the cognitive technologies we'll discuss here, and typically brings a quick and high return on investment. It is particularly well suited to working across multiple back-end systems.

One might imagine that robotic process automation would quickly put people out of work. Only a few projects led to reductions in head count, and in most cases, the tasks in question had already been shifted to outsourced workers. As technology improves, robotic automation projects are likely to lead to some job losses in the future, particularly in the offshore business-process outsourcing industry. If you can outsource a task, you can probably automate it.

The second most common type of project used algorithms to detect patterns in vast volumes of data and interpret their meaning. Think of it as "analytics on steroids." These machine-learning applications are being used to:

- **Predict when a certain transaction is not normal (fraud, waste and abuse).**

- **Revenue leakage via erroneous transactions.**

- **Discover new trends and make them relevant to the appropriate individuals.**

- **Get more meaningful results back from your data with significantly improved data categorization and context for analytics.**

- **Very quickly load and analyze super large data sets from multiple systems to discover new opportunities with clients and vendors, see what works versus what doesn't.**

- **Identify system usage patterns that affect application performance and reliability, improve use of your enterprise applications.**

- **Reduce demand on your IT departments.**

Cognitive insights provided by machine learning differ from those available from traditional analytics in three ways: They're usually much more data-intensive, the models typically are trained on some part of the data set, and the models get better—that is, their ability to use new data to make predictions or put things into categories improves over time.

Versions of machine learning (deep learning in particular, which attempts to mimic the activity in the human brain in order to recognize patterns) can perform feats such as recognizing images and speech. Machine learning can also make available new data for better analytics. While the activity of data curation has historically been quite labor-intensive, machine learning can now identify probabilistic matches—data that is likely to be associated with the same person or company but that appears in slightly different formats—across databases.

GE has used this technology to integrate supplier data and has saved $80 million in its first year by eliminating redundancies and negotiating contracts that were previously managed at the business unit level. Similarly, a large bank used this technology to extract data on terms from supplier contracts and match it with invoice numbers, identifying tens of millions of dollars in products and services not supplied. Deloitte's audit practice is using cognitive insight to extract terms from contracts, which enables an audit to address a much higher proportion of documents, often 100%, without human auditors' having to painstakingly read through them.

Cognitive insight applications are typically used to improve performance on jobs only machines can do—tasks such as programmatic ad buying that involve such high-speed data crunching and automation that they've long been beyond human ability—so they're not generally a threat to human jobs.

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Projects that engage employees and customers using natural language processing chatbots, intelligent agents, and machine learning were the least common type, but one of the most promising. This category includes:

- **Intelligent agents that offer 24/7 customer service addressing a broad and growing array of issues from password requests to technical**

- **Internal sites for answering employee questions on topics including IT, employee benefits, and HR policy**

- **Broad array of questions in respects to the finance and HR operations.**

- **Ability to train chatbot interactions on company specific enterprise**

Companies intended to use cognitive engagement technologies more to interact with employees than with customers. That may change as firms become more comfortable turning customer interactions over to machines. Vanguard, for example, is piloting an intelligent agent that helps its customer service staff answer frequently asked questions. The plan is to eventually allow customers to engage with the cognitive agent directly, rather than with the human customer-service agents. SEBank, in Sweden, and the medical technology giant Becton, Dickinson, in the United States, are using the lifelike intelligent-agent avatar Amelia to serve as an internal employee help desk for IT support. SEBank has recently made Amelia available to customers on a limited basis in order to test its performance and customer response.

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