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ARTIFICIAL INTELLIGENCE FOR MARKETERS 2018: FINDING VALUE BEYOND THE HYPE

The advent of new algorithms, faster processing and massive, cloud-based data sets is making it possible for companies in all industries to experiment with artificial intelligence (AI). And while marketing and sales are particularly ripe for innovation, it's still early days for adoption. Brands and agencies are working together to navigate a web of quickly evolving solutions.

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Dear eMarketer Reader,

eMarketer is pleased to make this report, **Artificial Intelligence for Marketers 2018: Finding Value Beyond the Hype**, available to our readers.

This report is a great example of eMarketer data and insight that explain the current state of the market for AI, the forces that are driving the market forward and best practices for marketers interested in putting AI to work.

We invite you to learn more about [eMarketer's approach to research](#) and why we are considered the industry standard by the world's leading brands, media companies and agencies.

We thank you for your interest in the report and **Emarsys** for making it possible for us to offer it to you today.

Best Regards,

A handwritten signature in black ink, appearing to read 'Crystal Gurin'.

Crystal Gurin
SVP President and Publisher

ARTIFICIAL INTELLIGENCE FOR MARKETERS 2018: FINDING VALUE BEYOND THE HYPE

The advent of new algorithms, faster processing and massive, cloud-based data sets is making it possible for companies in all industries to experiment with artificial intelligence (AI). And while marketing and sales are particularly ripe for innovation, it's still early days for adoption. Brands and agencies are working together to navigate a web of quickly evolving solutions.

- Investment and interest in AI remains high, though large-scale adoption is happening more slowly. Still, many companies have ambitious plans for AI systems and are looking to them to improve their business operations.
- AI technologies—including machine learning, deep learning, natural language processing and computer vision—are starting to show real promise, despite significant hype and confusion in the marketplace.
- A robust ecosystem of prepackaged APIs, open-source software and cloud-based platforms is helping accelerate AI adoption, bringing new capabilities to speed up, scale and personalize marketing campaigns in more economical ways.
- Agencies and other consultants are stepping up to the plate, beefing up their technical resources and forging technology partnerships in an effort to help their clients navigate the dizzying array of AI and marketing-tech solutions.
- Best practices for marketers include clearly defining business goals, thoroughly understanding the technology, planning for the future, having the right data and using AI ethically.

WHAT'S IN THIS REPORT? This report explains the current state of the market for AI, the forces that are driving the market forward and best practices for marketers interested in putting AI to work.

Benefits of Implementing Artificial Intelligence (AI) According to Senior Executives Worldwide, June 2017 % of respondents

Bringing new insights and better data analysis

79%

Making our organization more creative

74%

Helping our organization make better management decisions

71%

*Note: n=933 from companies that are already implementing AI
Source: Capgemini, "Turning AI into concrete value: the successful implementers' toolkit," Sep 8, 2017*

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KEY STAT: A June 2017 survey found that the majority of global business executives who have implemented AI said it has resulted in new insights and better data analysis, as well as more creative organizations that make better management decisions.

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AN IMMATURE MARKET IN GROWTH MODE

While computer scientists have been touting AI for more than half a century, the technology is just starting to reveal its potential. In spite of the hype, machine learning, deep learning, computer vision and natural language processing have quietly become entrenched in many people's daily routines. These innovations have brought with them new abilities to automate tasks, analyze data and connect dots.

Without even realizing it, people have become accustomed to interacting with AI. "When you use Facebook or Google or Apple, you're using it," said Karim Sanjabi, executive director of cognitive solutions at independent media agency Crossmedia. "It's recommending your picture, it's reading your email and giving you relevant ads back against that in Gmail. You probably interact with AI 30 or 40 times a day and may not know it."

A DISRUPTIVE MEGATREND

In its most recent "Hype Cycle for Emerging Technologies" report, technology consulting firm Gartner identified AI as a "megatrend" for 2017, predicting that AI "will be the most disruptive class of technologies over the next 10 years due to radical computational power, near-endless amounts of data and unprecedented advances in deep neural networks." The firm expects this combination of factors to help unlock AI's potential in nearly every industry.

In December 2016 research, consulting firm NewVantage Partners characterized AI as a "disruptive technology" and found that 88.5% of US business executives surveyed believed it would affect their company over the next decade. Other related and enabling technologies—including cloud computing and the internet of things (IoT)—were also on the list.

"The whole emerging tech scene is not just confined to AI. All of these technologies are connected and suddenly paving the way for each other in terms of awareness," said Jessica Chappelow, platforms manager at media agency MEC. "They are giving us the capability to access so many data points, to the point where we need sophisticated technology to pass through that amount of data."

WHY NOW?

First and foremost, the cost of computing is falling while processors are becoming more powerful. Graphics processing units (GPUs), originally developed to run video games, have proven adept at training machine learning algorithms and helping them understand, interpret and "learn" from patterns in big data. "Computing power is so much faster, so much more plentiful and cheap now," Sanjabi said. "We used to be able to look at a thousand rows of data—now we can look at a trillion."

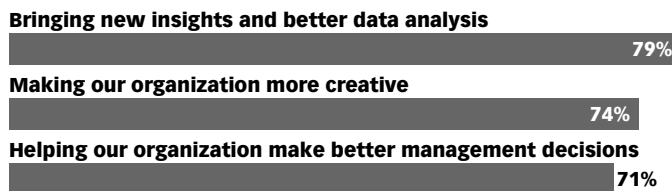
At the same time, there has been an explosion of internet-connected devices collecting and sharing various types of structured and unstructured data (including text, speech, images and videos) that can train AI systems. "[We're seeing] massive amounts of data from many channels," said Dilip Keshu, CEO of digital marketing agency Born Group. By ingesting and processing this data, these systems can perform sophisticated modeling and analysis that wasn't possible a few years ago.

Many of today's largest global tech companies—including Alphabet/Google, Facebook, Amazon, IBM, Alibaba, Microsoft and Apple—have also thrown their considerable weight behind AI technologies, with efforts to both streamline their own operations and package their algorithms for use by others. By open-sourcing their software and making their cloud-based systems available, they have created a whole food chain of smaller companies and startups that are creating unique AI solutions for specific uses and industries.

Early experimentation is also yielding positive results, and companies are encouraged by these successes. A June 2017 survey by consulting firm Capgemini found that the majority of global business executives who have implemented AI said it has resulted in new insights and better data analysis, as well as more creative organizations that make better management decisions.

Benefits of Implementing Artificial Intelligence (AI) According to Senior Executives Worldwide, June 2017

% of respondents



Note: n=933 from companies that are already implementing AI
Source: Capgemini, "Turning AI into concrete value: the successful implementers' toolkit," Sep 8, 2017

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"Clients are aggressively testing [AI] right now, and the results have been very, very good so far," Sanjabi said. "This gives people the confidence to try other things. It will start with a campaign and then move from there."

Another factor in the seemingly sudden popularity of AI is rooted in ongoing confusion about AI terminology. While many developers have been honing these technologies for years, they have shied away from using the term "artificial intelligence," with its sci-fi connotations, and opted for less dramatic, more technical-sounding monikers. In its June 2017 discussion paper, McKinsey & Company defined eight subcategories that fell under the AI umbrella: natural language processing (NLP), natural language generation (NLG), speech recognition, machine learning (including deep learning), decision management, virtual agents (including chatbots and digital virtual assistants), robotics process automation and computer vision. The company also reported that machine learning, computer vision, NLP and NLG are seeing the most investment activity worldwide, though there is significant overlap among technologies.

Amount Invested in Artificial Intelligence (AI) Companies Worldwide, by AI Category, 2016

billions

Machine learning (multiuse and nonspecific applications)	\$5.0 - \$7.0
Computer vision	\$2.5 - \$3.5
Natural language	\$0.6 - \$0.9
Autonomous vehicles	\$0.3 - \$0.5
Smart robotics	\$0.3 - \$0.5
Virtual agents	\$0.1 - \$0.2

Source: McKinsey & Company, "Artificial Intelligence: The next digital frontier?" June 14, 2017

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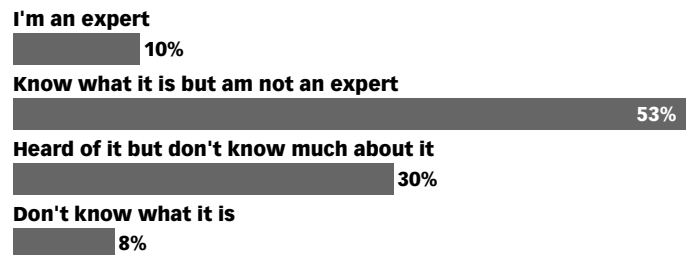
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As time passes, businesses are reporting higher levels of awareness, greater understanding of AI and more comfort with the technology. For example, a March 2017 Rocket Fuel survey of internet users worldwide found that although just one in 10 respondents considered

themselves an "expert" on AI technology, more than half (53%) had at least some knowledge.

Awareness of Artificial Intelligence Technology According to Internet Users Worldwide, March 2017

% of respondents



Note: ages 18+; numbers may not add up to 100% due to rounding
Source: Rocket Fuel, "Consumer Perceptions Of Artificial Intelligence" conducted by Qualtrics, April 25, 2017

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Consumers are also more at ease. "We're now interacting with AI on a regular basis—whether it's people using social media, getting a song recommendation inside Spotify or getting a smarter search inside Google," said Allen Nance, global CMO at Emarsys, a cloud-based AI marketing platform. "People are starting to realize they're interacting with AI and they see that the experience is better."

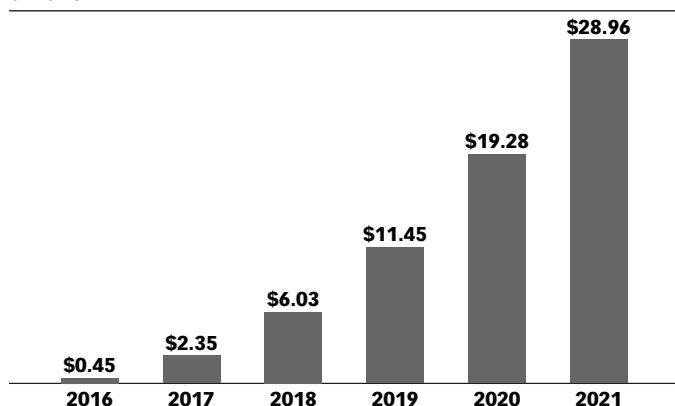
INVESTMENT MOVES FULL STEAM AHEAD

All the forecasts for AI market size, revenues and spending on hardware, software and services predict very healthy growth over the next few years. It's also clear that although businesses of many sizes are interested in the technology, the bulk of investment continues to come from the largest tech enterprises. Over time, though, a wider array of global companies is expected to invest.

SIZING THE MARKET

- In a June 2017 discussion paper, McKinsey & Company estimated that companies worldwide invested between \$26 billion and \$39 billion in artificial intelligence in 2016, with Google, Baidu and other tech giants contributing between \$20 billion and \$30 billion. Startups added another \$6 billion to \$9 billion.
- Grand View Research predicted that the worldwide AI market would reach nearly \$36 billion by 2025 from "direct revenue sources," and would grow at a compound annual growth rate (CAGR) of 57.2% between 2017 and 2025.
- Gartner predicted that worldwide spending on AI technology—which includes some types of consulting services—was poised for precipitous growth over the next four years. Its estimates show \$6.03 billion in investment in 2018 and nearly \$29 billion by 2021.

Artificial Intelligence Technology* Spending Worldwide, 2016-2021
billions



Note: includes consulting and within company implementation; *cognitive computing, intelligent automation, machine learning and deep learning
Source: Gartner as cited in press release, Dec 15, 2016

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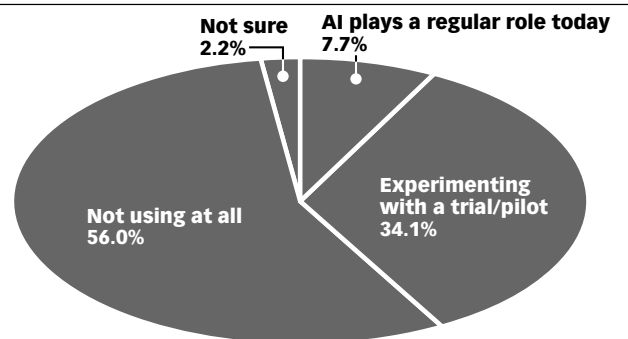
- A Q1 2017 forecast from International Data Corporation (IDC) and Salesforce, which included AI-related hardware, software and services, anticipated spending would more than double between 2018 and 2020, from \$20 billion to \$46 billion.
- Research firm Tractica revised its previous forecasts upward in May 2017 and predicted that worldwide revenues from the direct and indirect application of AI software would reach almost \$60 billion in 2025, up from just \$1.4 billion in 2016.

ADOPTION STILL IN PILOT STAGE

Investment in AI is high, but adoption isn't—yet. In fact, according to research in McKinsey's paper, just 20% of firms whose C-suite executives were aware of AI had actually adopted at least one of its technologies at scale or in a core part of their business; 31% were "partial adopters," 40% were contemplating its use and 10% were experimenting. More than four in 10 (41%) of these firms reported being uncertain about AI's benefits, specifically the business cases and return on investment (ROI).

Results from May 2017 research from automation platform Linc were similar. Among the US retail executives surveyed, just 7.7% said AI played a regular role in their customer service at the time the survey was taken. Another 34.1% were experimenting, while 56.0% were not using it at all.

Artificial Intelligence (AI)* Usage for Customer Service Among US Retail Executives, May 2017
% of respondents



Note: *e.g., AI assisting human agents to resolve problems, AI-driven voice interactions, customer-facing chatbots
Source: Linc, "How AI Technology Will Transform Customer Engagement" in partnership with Brand Garage, July 26, 2017

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These patterns are common across industries. “AI has the capacity to revolutionize every business in every market sector; its potential is broad and unlimited,” Ron Tolido, CTO for the Insights & Data Practice at Capgemini, told Computer Business Review in September 2017. “However, we are seeing a large contrast between those who are rolling out applied AI solutions at scale and reaping tangible business benefits, vs. those who are simply trialing the technology.”

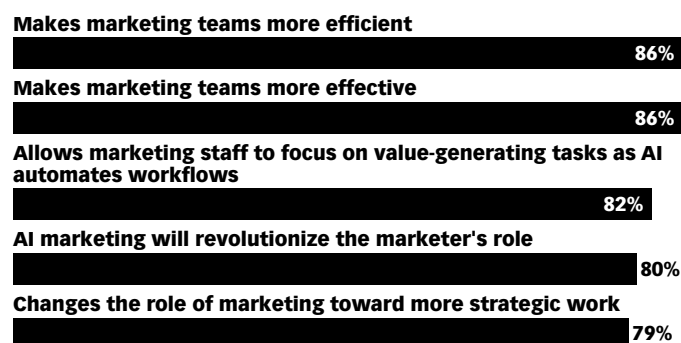
AI FOR MARKETING: STILL EARLY DAYS

Though market analysis by Grand View Research found that AI applications related to advertising and media make up the largest share (20%) of the global AI market, many of these applications are still very nascent. “I think we’re on page one and within the first chapter,” said Alastair Green, executive creative director at the Team One USA ad agency.

Many industry experts agree that AI in marketing and sales will eventually transform their work. A June 2017 survey commissioned by Emarsys and conducted by Forrester Research found that roughly eight in 10 retail marketers worldwide believed that AI would “revolutionize the marketer’s role,” and had the potential to improve efficiency and effectiveness, make marketing more strategic and enable staff to focus on “value-generating tasks.”

Attitudes Toward the Effect of Artificial Intelligence (AI) on Marketing According to Retail Marketers Worldwide, June 2017

% of respondents



Note: n=717

Source: Emarsys, “Building Trust and Confidence: AI Marketing Readiness in Retail and e-Commerce” conducted by Forrester Consulting, July 11, 2017

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A study by account-based marketing firm Demandbase and Wakefield Research similarly found that 80% of B2B marketing executives surveyed believed AI would “revolutionize” the marketing industry by 2020.

Jason Jercinovic, global head of marketing innovation at Havas, makes no secret of how important he thinks AI technology is becoming. “These next-generation [cognitive] services are not only going to change advertising and marketing, but really change the entire landscape of everything in the universe, at least on the planet,” he said. “The evolution is substantial and not

incremental, it's an exponential growth thing and it's affecting all lines of business."

"No disrespect to the work being done now, but when we look at the possibility of artificial intelligence, we have so much further to go and so many more advancements," said Josh Ong, director of global brand strategy and communications at Cheetah Mobile.

Much of today's experimentation is taking place in the areas of programmatic advertising, marketing automation and customer service. The research from IDC and Salesforce found that AI was being used in email marketing, lead scoring, sales forecasting, cross-selling, upselling and chatbots.

Ways in Which Business Professionals Worldwide Use/Plan to Use Artificial Intelligence (AI), by Adoption Level, Q1 2017
% of respondents

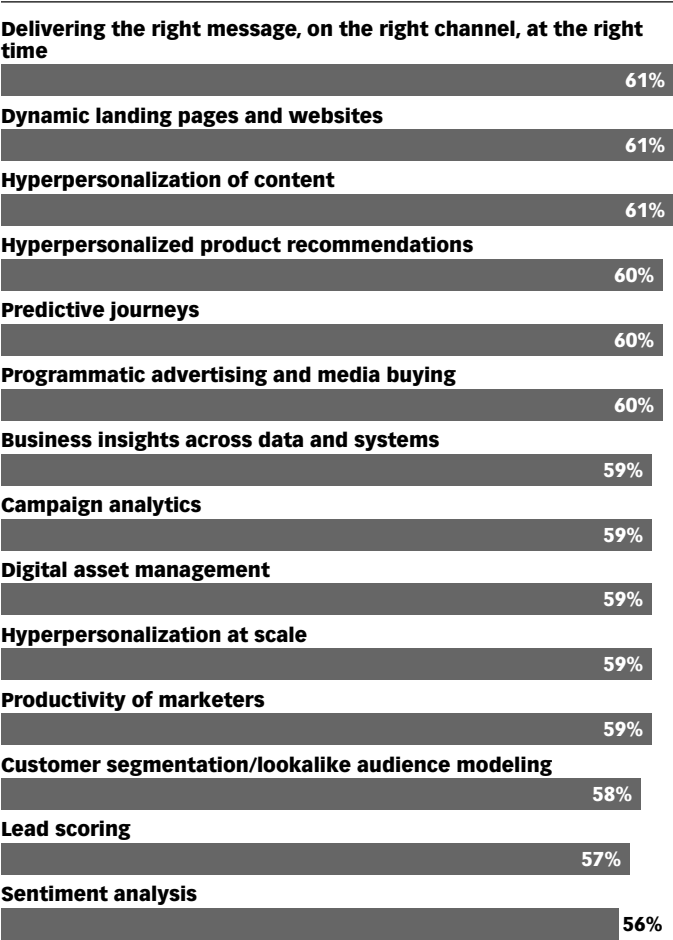
	AI adopters*	Total respondents
Email marketing	87%	74%
Sales and marketing lead scoring	83%	66%
Sales opportunity scoring	80%	63%
Sales forecasting	87%	61%
Customer service case classification/routing	83%	59%
Fraud detection	64%	57%
Credit risk scoring	61%	55%
Cross-selling and upselling	68%	51%
Chatbots for customer service or product selection	75%	47%

Note: n=1,028; *n=292 who work at organizations that have adopted AI
Source: International Data Corporation (IDC), "A Trillion-Dollar Boost: The Economic Impact of AI on Customer Relationship Management" sponsored by Salesforce, June 14, 2017

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Many future advances are still to come in the areas of personalization and one-to-one marketing. April 2017 polling by Salesforce found that at least 60% of marketing leaders worldwide believed AI would have a transformative effect in the next five years when it came to delivering the right message on the right channel at the right time, creating dynamic landing pages and websites, and hyperpersonalizing content and product recommendations.

Areas in Which Artificial Intelligence Will Have a Substantial Effect According to Marketing Leaders Worldwide, April 2017
% of respondents



Note: over the next 5 years; responses of "substantial" or "transformative" effect
Source: Salesforce, "Fourth Annual State of Marketing: Insights and trends from 3,500 global marketing leaders," June 15, 2017

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The Emarsys and Forrester study also found that 54% of retail marketers surveyed were using AI-driven personalization across channels to drive growth in their businesses.

Ways in Which Retail Marketers Worldwide* Are Using Artificial Intelligence (AI) Marketing to Drive Innovation and Growth, June 2017

% of respondents

Personalizing customer experience across channels/touchpoints

54%

Understanding customer behavior across channels/touchpoints

54%

Managing real-time customer interactions across channels/touchpoints

52%

Identifying or reorganizing customers across channels/touchpoints

48%

Targeting appropriate prospect audiences for customer acquisition

41%

Note: n=717; *Australia, France, Germany, UK, US

Source: Emarsys, "Building Trust and Confidence: AI Marketing Readiness in Retail and e-Commerce" conducted by Forrester Consulting, July 11, 2017

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These efforts, according to industry experts, will ultimately benefit both consumers and marketers. "AI is providing information to consumers based on their needs, but also, on the flip side, is making marketers smarter about those people because of the data that exists about them, said Dave Meeker, vice president at digital agency Isobar US. "It's like the brain is always working."

"Organizations are starting to fully understand and grasp that data is their single most important asset," Emarsys' Nance said.

How Are Marketers Using AI Today?

Marketers are using AI systems in a variety of ways. eMarketer groups them into six different activity areas:

Marketing intelligence: AI systems excel at parsing and crunching massive volumes of data from disparate sources, including data management platforms (DMPs), data warehouses, data lakes and other repositories of structured and unstructured data. They can take information from a variety of inputs, find relationships, connect the dots and make predictions in ways that are not humanly possible. Marketers are using these capabilities to enhance business intelligence, marketing research and forecasting accuracy.

Lead generation and customer acquisition: AI-powered solutions are proficient at helping marketers generate and score sales leads, with the ultimate goal of acquiring more customers. Many of these systems involve the use of machine learning and predictive analytics.

Marketing optimization: These applications of AI technology can help marketers make the optimal media buying and content placement choices. Applications

include programmatic advertising, and campaign optimization and measurement.

Customer experience management: Artificial intelligence and a number of related technologies are being used to enhance the customer experience and help companies better understand and manage relationships with their customers. Applications include AI-enhanced call center technology, bots and virtual digital assistants, smarter search interfaces and recommender systems that can help with many different types of customer support.

Content creation and dynamic creative: Companies in a variety of industries are turning to AI-powered content generators to create on-demand advertisements, articles, summaries, promotional material, websites and other published content based on data inputs and other analytics. These include automated writing and image/video production tools that create specific content for targeted audiences based on data and learning algorithms.

Brand building: AI technologies are being used in a variety of customized campaigns to amplify and reinforce brand messaging. This generally involves some type of data analysis that uncovers insights related to brand positioning. It is generally viewed as an up-and-coming area for AI in marketing.

GETTING UP TO SPEED

Few marketers consider themselves AI experts, but many are working quickly to become more knowledgeable and to expand the use of AI within their organizations.

"It's pretty early, but I think there are a lot of people investing a lot of time and energy [in AI] and they are really taking seriously what can be done—both on the agency side and definitely on the client side," Sanjabi said.

Research from marketing agency NewBase, released in June 2017, examined marketers' technology priorities. It found that the percentage of respondents who prioritized AI had more than doubled between 2016 and 2017, from 13% to 30%.

A survey conducted the same month by computer vision platform company GumGum found that only 3% of advertising and marketing execs in North America viewed themselves as AI experts. Another 12% said they weren't experts but were working with the technology. However, much higher percentages of respondents had plans to use AI-powered technologies in the coming year, including autopersonalized content, predictive analytics, programmatic advertising and dynamic pricing.

Marketing Technologies that Their Company Plans to Use According to Advertising and Marketing Executives in North America, June 2017

% of respondents

Autopersonalized content	58%
Predictive analytics	52%
Programmatic advertising	48%
Dynamic pricing	46%
Chatbots	32%

Note: in the next year

Source: GumGum, "Level Up: How AI Will Change Every Job in Media," Sep 14, 2017

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Research also has shown that companies in industries accustomed to acquiring and using data effectively tend to be ahead of the curve in their use of AI for marketing. "If you're in automotive or you're in travel and hospitality or retail, there's a much longer history," said Jeffry Nimeroff, chief information officer of data analytics firm Zeta Global.

Regardless of industry, "companies focused on digital transformation, without siloed divisions between marketing and sales, are in the best position to take advantage of AI," according to Mark Ruder, director of technology strategy at agency Butler, Shine, Stern & Partners (BSSP). "Companies born online also already have that data accessible and are going to have an easier time applying AI."

AI-AS-A-SERVICE HASTENS ADOPTION

As interest in AI has grown, an entire ecosystem has sprung up around it, with an increasingly complex array of vendors, tools and options. Whether they know it or not, many marketers are already using the AI technology that is baked into popular advertising and search platforms, including Facebook, Twitter, Snapchat and Google AdWords.

Those looking to do more complex and customized projects—including building chatbots, personalized content, recommendation engines or training applications on first-, second- or third-party data sets—generally take one of two routes: build or buy. Those that build their own AI systems from scratch often piece together hybrid marketing tech solutions from different providers. "There are a few companies investing in more proprietary internal infrastructure because it's such a big strategic asset for them," said Thomas Prommer, managing director of technology outreach at digital agency Huge.

The majority, either on their own or working with vendors, are investing in AI via Software as a Service (SaaS), Platform as a Service (PaaS), and/or Infrastructure as a Service (IaaS) solutions. These offerings give them access to customizable open-source or off-the-shelf software or APIs, combined with cloud-based data and storage. Top companies in this space include Google (TensorFlow software and Google Cloud platform), Amazon (DSSTNE software and AWS platform), IBM (IBM Watson APIs and Bluemix platform) and Microsoft (Microsoft Cognitive Toolkit and Azure cloud platform), though there are smaller players as well. "If they want to put 10% of their budget into AI, they're going to buy," Havas' Jercinovic said.

According to Mark McQuillan, CEO of digital production company Jam3, these systems "can make it easy to crunch very large data sets with millions of rows." And each offers unique AI capabilities—including image processing, computer vision, natural language processing or emotion detection—that can be customized to the needs of a particular project.

"We have access to these massive tools now. There's so many powerful vendors that are so cheap to use their API stacks, to use their CPU clouds, it really opens up a lot of possibilities," Sanjabi said.

Isobar's Meeker also believes there are many benefits to the "AI-as-a-Service" approach, especially because the technology is changing so quickly. "I think you should learn the AI and machine learning technologies that are available," he said. "For example, learn how to execute on Google's TensorFlow, because you're not ever going to be able to keep pace with 500 computer scientists and data scientists at Google working on that stuff. Marketers should learn how to use it, but don't try to make it."

"One of the unique things about these large companies is that they have lots of data on which of these AI technologies can be applied," said Amir Konigsberg, CEO and co-founder of search technology firm Twigggle. These systems have already been trained by teams of experts on the huge data sets their parent companies have been collecting for years.

"In order to do AI well and to do it based on big data, and to get really good insights, you need a certain infrastructure of computational power," Prommer added. "With companies like Microsoft, Google and Amazon, there's big momentum there to make AI much more accessible to everyday organizations."

Eran Shir, co-founder and CEO of automotive AI tech firm Nexar, believes that there are benefits and drawbacks to both the build-from-scratch and the turnkey options. “Going with a black box from Amazon or Google—or someone like that—which is obviously cloud-based, requires very little from the perspective of understanding how it works and allows you to move quickly and do things relatively on the cheap,” he said. Building your own stack, he added, makes it easier to squeeze more performance out of the system and achieve competitive advantage.

MARKETING CLOUDS HELP UNIFY INITIATIVES

Many companies are also working with more specialized cloud-based solutions that have ready-to-use AI capabilities and are geared toward automating and simplifying tech stacks and marketing operations. Some examples: Salesforce’s Einstein, the Adobe Marketing Cloud, Oracle’s Customer Experience Cloud, Emarsys’ B2C Marketing Cloud, Zeta Global’s ZetaHub Marketing Cloud, the IBM Marketing Cloud, the SAP Hybris Marketing Cloud and other marketing-focused “assistants” such as Adgorithms’ “Albert” and Equals3’s “Lucy” (powered by IBM Watson).

Increasingly, agencies and other partners are helping their clients with custom integrations between their AI-as-a-Service operations and these marketing solutions in an effort to streamline their tech stacks and more quickly achieve personalized marketing at scale. Such integrations can help them connect disparate data sources and provide more data on which the algorithms can learn, better analyze consumer behavior, and automate and optimize campaigns across channels.

“The value proposition of bringing together solutions like TensorFlow or DSSTNE with digital marketing systems is primarily in the degree of computational power, control and data portability that they can provide for better data-driven marketing,” Huge’s Prommer said.

Meeker added that these marketing systems are often able to provide specific data that helps train the AI systems and make them better. “It’s not enough just to have the AI technology,” he said. “It must be complemented by data that’s accurate, accessible and relevant to the problem we are trying to solve.”

For this reason, Prommer and other experts expect the degree and ease of integration between systems to increase over time in the form of strategic partnerships and prebuilt connectors, for example, “leveraging IBM Watson to drive product recommendations in a SAP Hybris-based environment.” They also see important opportunities for digital marketing platforms to differentiate themselves by enabling more fluent integration between their platforms and AI-as-a-Service solutions.

“Once the market starts to come out with strong marketing case studies that involve AI, you’ll see more marketing cloud solutions place a greater emphasis on AI integrations,” Cheetah Mobile’s Ong said.

“These cloud providers are building AI platforms that help our company scale its offering,” Emarsys’ Nance added. “They are actually enablers of our vision.”

To learn more about specific AI marketing technologies and some of the objectives they can help their clients meet, see eMarketer’s report, [**“Artificial Intelligence for Marketers: The Future is Already Here.”**](#)

Most experts believe that marketing-related AI data, at least for now, should live in the cloud. “Cloud-based is growing drastically,” MEC’s Chappelow said. “The way you maintain agility is hinged upon how your data is stored and the ability for it to be easily accessible from any place, any time.”

BSSP’s Ruder also sees cloud-based solutions playing an important role in the AI ecosystem, helping companies move toward personalization at scale at a lower cost. “Scalability, and being able to have access to data and processing on a cloud-based level is important with the amount of data we’re dealing with. With cloud-based providers like IBM Watson, you can tie into things like image recognition or analyzing sentiment through chatbots,” he said. “You’re not going to want to recreate a natural language engine; you’re going to use something that’s cloud-based to be able to access that.”

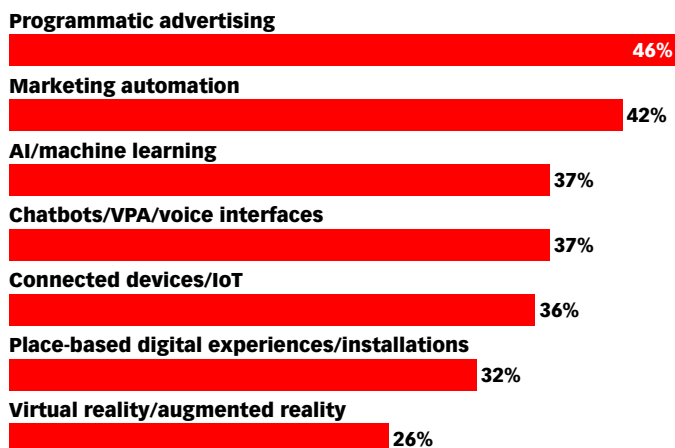
Ong also believes that these platforms are helping make AI more accessible. “Investing in AI from an infrastructure, technology and talent perspective, it’s all quite expensive,” he said. “You need to be at a certain scale to have the kind of data that really makes AI useful.”

AGENCIES STEP UP TO THE AI PLATE

Marketing and advertising agencies are working to help clients navigate the sometimes-dizzying, AI-for-marketing ecosystem. March 2017 research by SoDA, conducted in partnership with Forrester Consulting, found that 37% of agency professionals worldwide believed AI would have a significant effect on their clients' marketing approaches.

Agency Professionals Worldwide Who Believe that Select Emerging Technologies Will Have a Significant Effect on Their Client's Marketing Approaches, March 2017

% of respondents



Note: in the next 12-18 months

Source: SoDA, "Digital Marketing Outlook: 2017-18 Forecast" conducted in partnership with Forrester Consulting, June 6, 2017

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They also expected other AI-based technologies, including programmatic advertising (46%), machine learning (37%), chatbots and voice interfaces (37%) to be influential.

Though the number of agencies working with AI has grown dramatically in the past year, the technology is "not yet 100% scaled across any one," said Dan Hagen, chief strategy officer at Carat UK. Agencies are still going through the various stages of learning about and adopting AI. Some say they specialize in AI, while others have become adept at using off-the-shelf tools or partnering with specialized tech firms to complement their full range of services.

For example, Hagen said his agency has worked on chatbots with natural language processing and AI-driven branding campaigns that use new Skills created for Amazon Alexa. Ruder said BSSP works with AI-driven performance marketing applications tools such as DoubleClick bid manager, has tested a variety of voice recognition technology (e.g., Chat Box and Amazon Lex) and uses Facebook Power Editor to create audience profiles.

Crispin Porter + Bogusky (CP+B) also creates chatbots and analytics programs while mining strategic insights from existing consumer behavior and consumer data, according to Joe Corr, executive creative technology director for the firm. "AI has allowed us to look at individuals and identify patterns and large groups of individuals behaving in ways that would be extremely difficult to pull out of the noise without some of these AI tools," he said. "Just being able to go through such vast quantities of data quickly and to get actual results out of that has been extremely powerful and helpful."

With ambitious projects in the works, many agencies are working hard to beef up their technical knowledge and step into technology consultant roles—no small feat in a market where experts are hard to find. "Because of the sheer pace of AI evolving, one of my roles [at MEC] is constantly interacting with different companies and looking at the different ways that it can be applied," Chappelow said. "It's such an adaptive technology that there is no one-size-fits-all approach."

IS CREATIVE NEXT?

Many industry experts believe that creative will be the next AI frontier, and that much of tomorrow's low-level creative will be created by AI.

"A lot of folks are making the switch to more data-driven marketing and it has hit the media business first, but I think it is definitely hitting the creative side of things as well because there is just so much available data," Sanjabi said. "The explosion of everyone moving online to social, to mobile media consumption creates a massive amount of data, and now we have a CPU to process it."

"I think a lot of that stuff 100% will be created through machine learning and AI," Dave Snyder, executive creative director at Firstborn, told Adweek in March 2017. "You're already seeing it exist now—load the system with a bunch of cuts, and then based on demographic data, it will auto-create an edit that's appropriate for the demographic or psychographic."

Some agencies have decided to remain platform neutral, while others have a strong allegiance to specific providers. For example, Chappelow said that MEC's philosophy is to recommend the tech solutions it feels are best for each client, regardless of vendor. "We definitely shy away from working with just one provider, because putting your eggs all in one basket is not advisable with the pace of change of this technology."

Havas Cognitive, which began working with IBM as its digital agency, partners most closely with IBM Watson applications, but has also become “stack agnostic” in order to service clients with different technology needs. “We still are IBM’s agency so we do lots of work with them and often we’ll lead with an IBM Watson solution,” Jercinovic said. “But we’ve also developed relationships with AI providers that extend outside Watson to include Google, Microsoft, Amazon, Facebook and Intel Saffron, as examples. We deploy the technologies as needed and we can adapt and develop solutions based on what’s best for the engagement.”

Many in the industry say AI is already forcing a shift in how agencies are working with clients—and helping them reach consumers. Jercinovic authored an October 2016 article in Ad Age in which he said AI was nudging the industry model from a “one-size-fits-all approach,” to one that can provide “one-to-one experiences.”

“We use the insights from CI [cognitive intelligence] to create personal, data-driven, interactive brand experiences that enable our clients to create smarter recommendations, thus shortening the purchase journey,” he wrote.

Sanjabi believes that the time has come to embrace AI unequivocally. “If agencies don’t make this kind of change right now and really understand they have to really commit to it, we’re going to have an evolutionary separation,” he told Ad Age in July 2017. “We’re going to have two different species of agencies: one that evolved with AI and one that didn’t.”

OVERCOMING OBSTACLES

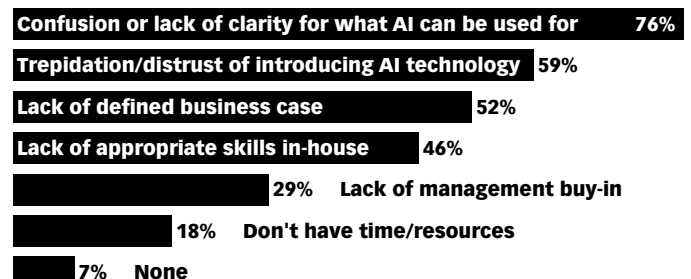
Concerns about technology, expertise, cost and security are among the biggest stumbling blocks to more widespread adoption of AI. Perceptions that the machines will “know too much” or will change the way things are done or replace human jobs are also commonplace. “It’s about allowing ourselves to think about how this new AI technology can break the habit and form a new one, and then spreading the word,” Chapplow said.

Despite greater awareness in general, there is also a great deal of hype. “A lot of companies are just throwing the word AI into their messaging, and I think that’s causing confusion right now,” Cheetah Mobile’s Ong said. “There’s a lot of skepticism about whether they’re actually delivering true artificial intelligence.”

One effect of sometimes overblown claims for AI is that many people don’t understand what it does—or its current limitations. “We can analyze sentiment, but we can’t really understand a joke just yet with a machine,” Ruder of BSSP said. “I think we’re getting there, but I really don’t think that we’ve got this true kind of AI cognitive service that can really understand somebody, understand a brand or understand true user intent.”

A March 2017 survey by WBR Digital and Persado found that 76% of US and UK retail marketers said there was confusion or lack of clarity about what AI marketing could be used for, while 59% said there was trepidation and lack of trust in the technology.

Barriers to Adopting Artificial Intelligence (AI) According to UK/US Retail Marketers, March 2017 % of respondents



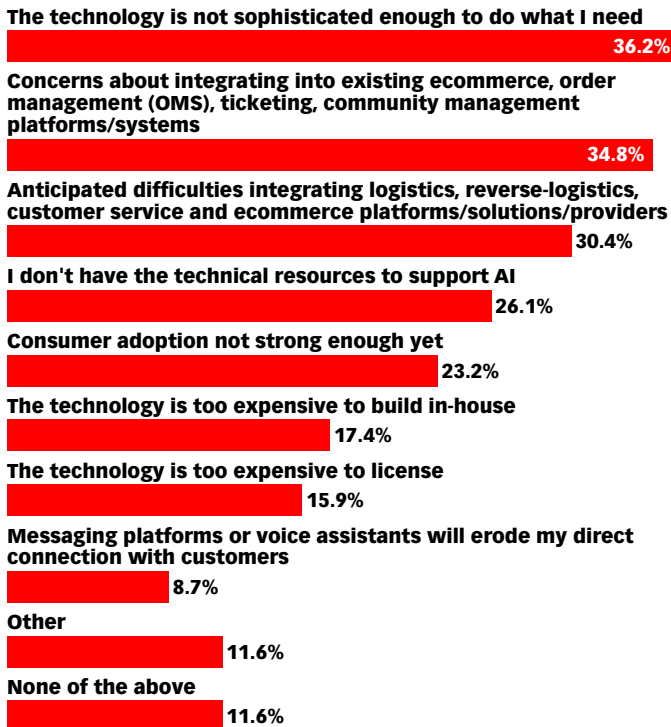
Source: WBR Digital and Persado, “Building Lasting Consumer Relationships in Retail,” Aug 9, 2017

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Other obstacles also involve technology, including the perception that it is too immature, too complex or too unproven to deploy at scale. The Linc study found that concerns about technology sophistication and anticipated problems with integrating it into existing systems had prevented US retailers from implementing conversational AI interfaces.

Reasons that US Retailers Have Not Implemented Artificial Intelligence (AI) Conversational Interfaces*, May 2017 % of respondents

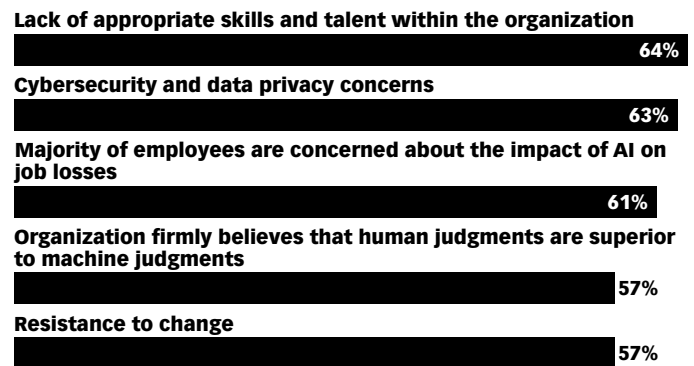


Note: *such as messaging platforms or voice assistants
Source: Linc, "How AI Technology Will Transform Customer Engagement" in partnership with Brand Garage, July 26, 2017
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Six in 10 respondents in the Demandbase/Wakefield Research survey said difficulties integrating AI technology were an obstacle, while 54% pointed to training staff and 46% cited trouble interpreting results. The survey also found an overall lack of understanding about which AI technologies were available and how to begin using them.

This lack of skills, expertise and resources to implement and manage AI systems is a perennial refrain, especially because the largest companies are competing for the best and brightest AI developers, leaving other companies with a steep learning curve. The June 2017 poll by Capgemini found that 64% of executive respondents who had implemented AI said a "lack of appropriate skills and talent within the organization" presented a challenge.

Challenges of Implementing Artificial Intelligence (AI) According to Senior Executives Worldwide, June 2017 % of respondents



Note: n=933 from companies that are already implementing AI
Source: Capgemini, "Turning AI into concrete value: the successful implementers' toolkit," Sep 8, 2017

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In both the WBR Digital/Persado study—where nearly half (46%) of retail marketers cited in-house skills as a barrier to AI technology adoption—and the Emarsys/Forrester study—in which more than 70% of business decision-makers believed their marketing team lacked technical skills to leverage AI—respondents expressed concern about having the right people, the right technology and a sufficient budget to do AI correctly.

A disconnect between technologists and marketers can also be problematic. "There's a massive chasm between understanding and application. You get the technologists who can build the algorithms from the ground up, but they find it hard to commercialize them," Chappelow said. "And you get marketers who [can] talk about the vision for the technology but not necessarily what's under the hood."

Even if businesses are well-versed in AI, they must also take care to ensure that their personalized messaging is not perceived as threatening or intrusive by their customers or employees. While a November 2016 survey by marketing cloud provider Boxever found that 79% of US senior marketers believed consumers were ready for AI, a June 2017 survey by RichRelevance found that nearly 70% of US internet users said it was "creepy" when companies understood their shopping habits so well that they were able to use AI to choose and order products for them. More than half found it similarly creepy that AI-powered chatbots, rather than humans, could help them with customer service.

Finally, because many applications of AI can automate labor-intensive tasks, the potential for AI to displace human jobs is of perennial concern. In its AI-focused

report in 2016, eMarketer noted that a significant number of marketers were hesitant to adopt AI because of concern it would ultimately put them out of work. A June 2016 survey from Weber Shandwick and KRC also found that 60% of internet users worldwide were very concerned about job losses, with an additional 29% somewhat concerned. They also worried AI would make humans lazier and less industrious.

In somewhat more positive news for AI, more recent studies show that marketers are becoming less concerned about their jobs as more systems are rolled out. According to the June 2017 Capgemini research, 83% of AI implementers said the technology had actually created new job roles within organizations.

This led the consulting firm to conclude that AI is more likely to “augment human output” than put people out of work. “Most people see AI as replacing the jobs within agencies, but I think it’s just going to make people work more effectively,” Team One’s Green said. “[We’ll have] the ability to get rid of some of the repetitive tasks that we do.”

Isobar’s Meeker believes AI may result in some job losses but will ultimately streamline marketing. He said there might potentially be less staff in the future, but that staff would be “empowered by wicked information and systems that can do things that today feel magical—the ability to make decisions, get insights and deliver content at a level of accuracy that just far surpasses what we have today.”

BEST PRACTICES FOR MARKETERS

Marketers exploring AI-based solutions are prone to a number of pitfalls. eMarketer asked a number of technology and marketing experts for best practices that can help smooth the way.

Define the project and goals first; pick the technology later.

“Companies should be saying, ‘I have a particular problem,’ or ‘I’m trying to make the consumer turn in a particular way, how can I use AI to solve that?’ rather than looking for the shiniest object within the AI world and trying to map a problem behind it. We see a lot of money spent on pilot projects that don’t translate into any real business impact or success.” —*Thomas Prommer, Hufe*

“AI has a massive tendency to be very solutions-driven. People will come to you and say, ‘How do I build a chatbot or a Google action?’ When actually it’s a case of stepping back and asking, ‘How do I drive leads? How do I increase average value on my website?’ and ‘Can that actually be done through an AI tool?’” —*Jessica Chaplow, MEC*

Choose partners wisely (and beware of the hype).

“Some vendors are going along with the hype a little too much and they may not have what it takes to do things. Spend the time to understand what your goals are and what you’re trying to do. Make sure when you’re talking to your partners, your agencies and your tech vendors that you do a solid technical due diligence.”

—*Karim Sanjabi, Crossmedia*

“Vendors and people in the technology space tend to jump on the next bandwagon, and [right now] that is AI. It’s going to be remarkable in the next 10 to 15 years, but there are a lot of companies jumping into the marketing intelligence space to capture the ad dollars. They’re running advertising for brands in a digital world and using a lot of data, so it’s a very easy jump to say they’re AI.”

—*Paul Maraviglia, MaxPoint*

“Challenge your partners to be highly transparent and collaborative with you. Engage in a pilot project, then look at the results and make sure that whatever is being promised or whatever you feel will be fruitful actually proves to be so.” —*Thomas Prommer, Hufe*

"Ask those vendors for case studies, references, and ... be a little careful of the promises they make."
—Mark Ruder, BSSP

"Make sure that your partners either have created the technology themselves—so you're getting as close to the core engineering as you possibly can—or that they totally understand how to apply AI to your specific need and business." —Joe Corr, CP+B

Understand as much of the technology as possible.

"There's a lot of ambiguity around AI vs. what is just data processing and data analytics. Bring speakers into your organization and make sure you have the appropriate talent in-house as you're going through the selection process. You need a certain level of expertise to make sure you're making an educated decision."
—Thomas Prommer, Huga

"Ask discerning questions like, 'If you're saying this is AI, what data set are you using to learn it? Who's developing the algorithm? Do you have on-staff data scientists? Can you demo it and show me how it will change my role?' Brands need to get better at understanding all these things. If somebody says they cannot demo the capability for you, that's a red flag." —Allen Nance, Emarsys

"The most important things to consider when choosing a vendor are which piece of your whole activity they will help you with. What the deliverables will be. What the KPIs to measure the activity will be. These activities can be very effective, but they have to be measurable."
—Amir Konigsberg, Twiggle

Understand your data needs.

"Artificial intelligence is the product of the ability for machines to learn. And machines, while they seem smart, aren't really able to be smart unless we feed them data so that they can make decisions that are much more intelligent." —Dave Meeker, Isobar

"Garbage in, garbage out is still one of the truisms of working in the technology space. An AI system is only as good as the data that feeds into it, so make sure you're capturing the data you want to. Make sure it's clean. Make sure you have an infrastructure that can process it in a timely way. And then you can use the results and be sure that they are timely and correct." —Jeffrey Nimeroff, Zeta Global

"The key thing in deep learning is getting enough data that is accurately tagged and annotated so you can train the system. Today, the only thing most marketers have is clicks, and that's a challenge because it's a very sparse data set. So if you really want to innovate in this space, you need to collect annotated data at scale, because that's what really drives performance." —Eran Shir, Nexar

Understand the human needs.

"You cannot just unleash AI and let it learn on its own and operate itself. Rather, you have to draw people in the loop." —Igal Raichelgauz, Cortica

"AI won't write a headline or produce a quality video, but it will tell you which campaign works best with which audience segment in real time. There are thousands of variables changing every second, and humans can't process all that information." —Brian Kardon, Fuze, in an August 2017 Inc. article

"There is no shrink-wrapped box that is the be-all, end-all system that can work through your particular data set and drive predictive power in the way in which you want to harness it. The software we use has been made successful by having people who can assess what problem is trying to be solved, what data exists to solve the problem, and then what technology can be put in place in order to automate or mechanize it."
—Jeffrey Nimeroff, Zeta Global

Plan for the future.

"No matter what you do or whom you integrate with, make sure you have access to your data down the road [in case] you want to retrain algorithms on it or want to feed it into other systems as AI matures. Look for a commitment to an open architecture, because your platform providers are going to change. There will be new trends and new capabilities, and you want to make sure you're not locking yourself in." —Thomas Prommer, Huga

"The smart clients are digging in and saying, 'Let's set up our DMPs, let's set up our data systems, let's get our data in order and let's start trying these different executions of tactical campaigns and build from there.' So if we're talking about building a chatbot ... it's not just a throwaway, one-off campaign; it's a long-term investment that will change and grow over time." —Karim Sanjabi, Crossmedia

Be transparent and ethical.

"There's a moral conundrum that started to appear, because the power of these insights is substantial. ... Brands that are transparent, that are communicating to people how they're using these technologies in the right way, will increase their brand equity, they'll increase customer loyalty. Brands that are dodgy and don't do that are going to suffer." —*Jason Jercinovic, Havas*

"The very nature of a self-learning algorithm is something we must pay special attention to. Ethics are vital, as is transparent oversight. I believe we will see strict legal requirements take hold on the use of first-party data for targeting; software applications [will] emerge that will monitor AI systems from the outside; and laws that will require auditing of these systems." —*Allen Nance, Emarsys*

AI TERMINOLOGY

In broad terms, AI terms usually fall into one of three categories: specific branches of computer science that deal with emulating human intelligence, commercialized applications of this technology, or business buzzwords that are often used interchangeably with more scientific AI terms.

Some of the most common AI terms are explained below. It is important to understand that though discrete types of AI exist for classification purposes, many business solutions actually involve more than one type, and many companies may have different names for the same kinds of technology.

Chatbot: An AI-powered virtual agent computer program that uses a set of rules to conduct a speech- or text-based conversation with a human over an online chat interface. Chatbots use machine learning to detect and mimic human conversation. They are commonly developed to provide specific content or automated service or utility to users.

Cognitive computing: A term adopted by IBM and others that is often used for marketing purposes and has become synonymous with AI technologies. Cognitive computing and cognitive intelligence have become closely associated with IBM Watson applications, which use machine learning algorithms and natural language processing to simulate the way the human brain works.

Computer vision: Also called machine vision. The branch of AI that deals with how computers emulate the human visual system and their ability to view and interpret digital images from the real world. It also incorporates image processing, pattern recognition and image understanding (turning images into descriptions that can be used in other applications).

Deep learning: A branch of machine learning concerned with building and training neural networks with many layers. Each layer of a network can find patterns in the output of the layer above it. Like most other machine learning networks, deep networks shine at sorting and classifying large amounts of complex data and identifying anomalies in data patterns.

Machine learning: The branch of AI computing that involves training algorithms to perform tasks by learning from previous data and examples rather than explicit commands programmed by humans. When companies talk about AI capabilities in their products and services,

they are often referring to machine learning. Within machine learning, three of the most popular types of algorithms are neural networks, induction algorithms and genetic algorithms. Many applications of AI, such as computer vision and natural language processing, also rely heavily on machine learning.

Natural language generation: A subset of natural language processing in which a computer makes decisions about how to make sense of a specific concept and put it into words. The technology is often used to automate manual processes related to data analysis, such as personalized form letters and other types of communication at scale. It can also dynamically create communications—including basic news articles and real estate listings—that meet specific goals.

Natural language processing: A branch of AI that deals with a machine's ability to understand spoken or printed words in human (natural) languages, as opposed to computer programming languages. These technologies are heavily used by search engines, for spam filtering and for their ability to extract information from large and complex documents. Natural language processing can also identify anomalies within text.

Neural networks: Machine learning algorithms and computational models designed to function like neurons in the human brain. As such, they can progressively "learn" from data by example, without being explicitly programmed. They are trained with specific sets of data points, which they use to guess at an answer to a query. This guess is then compared with the correct answer for each data point. If errors occur, the "neurons" are tweaked and the process repeats itself until error levels decrease.

Predictive analytics: A business term used to describe programs that use a combination of techniques from data science, statistics and AI to analyze sets of structured and unstructured data, uncover patterns and relationships, and use them to make predictions about probable future outcomes and events and identify risks and opportunities. Predictive analytics models are closely related to prescriptive analytics models, which incorporate a predictive model but can also produce actionable data and use, and a feedback system that tracks outcomes.

Recommender systems: Also known as recommendation engines. AI-driven information filtering systems that can automatically predict user preferences and responses to queries based on past behavior, one user's relationship to other users, similarity among items being compared and context.

Voice-enabled digital assistants: Also known as intelligent agents, virtual personal assistants, virtual intelligent assistants, automated assistants or virtual agents. Such assistants are similar to chatbots in that they can organize, store and output information that helps them conduct a conversation with a human. They can also answer voice queries with information from a multitude of online sources. Examples include Apple's Siri, Google Now, Amazon's Alexa and Microsoft's Cortana.



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