



AI IS THE
NEW **UI**
Experience
Above All

TECHNOLOGY VISION 2017

AMPLIFYYOU

Artificial intelligence (AI) is about to become a digital spokesperson for companies. Moving beyond a back-end tool for the enterprise, AI is taking on more sophisticated roles within technology interfaces.

From autonomous driving vehicles that use computer vision, to live translations made possible by artificial neural networks, AI is making every interface both simple and smart – and setting a high bar for how future interactions will work. It will act as the face of a company’s digital brand and a key differentiator – and become a core competency demanding of C-level investment and strategy.

Imagine having a conversation with a friend and asking them a question, only to have them stare at you silently for three seconds before answering. Would the conversation feel natural? Or would you feel awkward, like you’d done something wrong? Most importantly, would you do it again?

Today, more than three million people happily chat with Amazon Echo’s conversation-based assistant, Alexa.¹ But when the Echo was under development less than five years ago, voice recognition technology suffered an average delay in response time of almost three seconds. Amazon’s team set a goal of two seconds for Echo, and was eventually able to bring it down to below 1.5 seconds before launch – a critical factor in the success of a device that has no screen or other interface to fall back on. Either people can talk to Alexa as they would a person, or the device is a failure.²

Alexa’s success shines as just one example of AI playing an ever more capable role across user interfaces (UI). As AI matures, many of the problems that hindered adoption in the past are disappearing. It’s now consistently being used to add frictionless intelligence to people’s interactions with technology, creating opportunities to make

any interface both simple and smart – driving wider, faster adoption of technology, and providing better outcomes for people. According to our global Accenture Technology Vision 2017 Survey of more than 5,400 IT and business executives, 79% agree that AI will help accelerate technology adoption throughout their organizations. In short, AI is poised to enable companies to improve the experience and outcome for every critical customer interaction.

AI already plays a variety of roles throughout the user experience (UX). At the simplest level, it curates content for people, like the mobile app Spotify suggesting new music based on previous listening choices. In a more significant role, AI applies machine learning to guide actions toward the best outcome. Farmers are improving yields by implementing AI-enabled crop management systems: Blue River Technology’s tools combine computer vision and machine learning with their robotic systems to apply plant-by-plant fertilizer wherever needed. Using advanced algorithms means ‘LettuceBot’ not only takes care of pesky weeds among the lettuce crop, but also addresses growing conditions that are less than optimal – like identifying sprouts that are too close to each other, and removing the one least likely to thrive.³

And at the height of sophistication, AI orchestrates. It collaborates across experiences and channels, often behind the scenes, to accomplish tasks. AI not only curates and acts based on its experiences, but also learns from interactions to help suggest and complete new tasks.

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Yet these sophisticated, intelligent experiences are the result of interactions that are simpler than ever: an Echo acts as a personal DJ, manages schedules and the home as a butler, or orders a car for a trip – and throughout all of it, people simply talk to Alexa.

Good for consumers? Definitely. But these smart interactions also drive big wins for the enterprise. Echo owners not only spend half of their online dollars at Amazon, they also spend more. After customers start using Echo, their buying occasions increase by 6%, and spending increases by 10%.⁴

In the workplace, AI also helps companies make complicated technologies approachable, unlocking new capabilities. Rhizobot, for example, uses natural language interfaces to translate complex business analysis questions. Instead of people struggling to create queries that the technology can read, AI listens as a human asks a question in natural language, then generates queries that can be run instantaneously across multiple massive datasets. It completes the interaction by orchestrating back-end connections to provide the relevant results.⁵





SIMPLIFYING NATURAL INTERACTIONS

Despite skepticism of AI as just another technology buzzword, its momentum is very real. 85% of executives we surveyed report they will invest extensively in AI-related technologies over the next three years.

It's not a fluke that AI is growing so pervasively; its reach reflects the value it brings to interactions, making each one more natural and simple. Advances in natural language processing and machine learning, for example, make technology more intuitive to use, like telling virtual assistants to schedule a meeting instead of accessing scheduling software to find a time, create an event, and type the details. AI is transforming the look and feel of the enterprise software industry too, with headlines for AI acquisitions and new offerings appearing every day – from Salesforce Einstein, to Microsoft Azure Cognitive Services, to the Google Cloud Platform.

Key to all these offerings is how natural interactions are displacing traditional ones. In search technology, voice searches skyrocketed in 2015 from 'statistical zero' to more than 10% of global searches; just a year later, Bing reported that 25% of Windows 10 taskbar searches were made via voice, with Google announcing similar numbers (20%) for mobile Android searches in the US.⁶ And Stanford researchers recently showed that voice recognition completes searches three times faster than typing on mobile, increasing accuracy as well.⁷ With its ease of use and performance outpacing traditional interfaces, AI is setting new expectations for how future interactions will work.

Further accelerating AI's adoption is the fact that many of the core technologies are available for free. Open source AI tools have

proliferated over recent years, from Google's TensorFlow to Intel's Trusted Analytics Platform. Caffe, a deep learning framework developed at the University of California, Berkeley, was the basis of the DeepDream project Google released in 2016 to show how their artificial neural networks viewed images.⁸ Pinterest's app uses Caffe in training steps that help power their Related Pins functionality, which is based on both individual curation and rankings from convolutional neural networks.⁹ The combination of intuitive, natural interactions and the ready availability of open source tools paves the way for big changes across the interface.

As a gateway to simple and smart experiences, AI adoption is spreading across industries, too. In the auto insurance industry, adjusters use Tractable's deep learning systems to simplify the triage process after a car accident. Instead of manually scanning pictures, they use machine-trained estimates for repair costs, enabling agents to accelerate a claim past triage and into repair, salvage, or appraisal.¹⁰ And in oil and gas, vendors of one of the world's largest oilfield services companies seek online help from IPsoft's Amelia cognitive agent. This provides freedom to chat when convenient and reduces the need to wait for live customer service agents to be available.¹¹

As the way people interact with technology becomes a primary point of competition and distinction, the enterprise faces a new universal imperative: to add AI to enhance critical customer interactions.



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This means thinking of AI as more than just a technological tool, and giving it the priority and investment that matches the role it's about to take over within organizations – the face of the brand.

Getting started can be as simple as using AI to bring more human-like interactions into existing interfaces. But if businesses want to do more than just keep pace, there's no time to waste. In 2016, Elsevier CTO Dan Olley noted that, "If CIOs invested in machine learning three years ago, they would have wasted their money. But if they wait another three years, they will never catch up."¹² The early adopters are already pulling ahead, but many of the necessary tools are openly being shared. The question to answer is simple: What could a company accomplish if every interaction with technology was an intelligent one?

Using AI as the UI between machines: People are deploying AI to change the way machines interact with other machines as well.

In automated driving, IHS's Automotive Electronics Roadmap Report found the install rate of AI-based systems in new vehicles was just 8% in 2015, with the vast majority focused on speech recognition. However, that number is forecast to rise to 109% in 2025, as there will be multiple AI systems of various types installed in many cars.¹³ Gartner predicts there will be a cumulative production of 220 million connected cars that are equipped with data connectivity by 2020, allowing vehicles to communicate with each other and the infrastructure around them.¹⁴ Computer vision is creating an interface between cars and their environments and enabling autonomous capabilities that simply didn't exist before.

AI is changing interfaces for manufacturing logistics as well. The movement of products from one area of a warehouse to another is critical, yet highly laborious; automating it with AI robots is a surefire win for enterprise. In their Russian factories, Samsung deployed robotic driverless electric vehicles by RoboCV, enabling warehouse vehicles to move around autonomously, which is expected to streamline 80% of the production process. By using vision sensors to see the environment around them, the system builds a mathematical model and makes decisions on the preferred route with obstacle avoidance maneuvers.¹⁵

AI DEFINES
**FUTURE
CUSTOMER
EXPERIENCE**

As AI takes over more of the user experience, it grows beyond just an intelligent interface. With each customer interaction becoming more personalized, powerful, and natural, AI moves into an even more prominent position: your digital spokesperson.

And by taking on this role, AI will eventually become your digital brand. In the same way that iPhones are synonymous with the term smartphone, Alexa may become more recognizable than the parent company, Amazon.

Thanks to its powerful simplicity, customers may soon spend more time engaged with a company's AI than talking to their people. That comes with a challenge: each interaction means another customer will be basing their opinion and interest in a company on the AI, just as they now judge by their experiences with human employees. In the same way that a customer can be delighted or angered based on a customer service representative, an AI system will represent a company's brand and can leave a lasting impression.

Consider that in the US alone, businesses lose an estimated \$1.6 trillion annually due to poor customer service. In addition, 68% of consumers report they will not go back once switched.¹⁶ But get the customer experience right, and there's a much larger opportunity.

Instead of interacting with one person at a time like a human representative, an AI system can interact with an infinite number of people at once, based on the skills built for it. Not only can AI create and maintain a powerful, 100% consistent brand experience through every interaction, but it can also use learning capabilities to tailor that experience to each individual, and rapidly evolve the experience to react to any new product or strategy the enterprise wants to implement. This is a level of control that businesses have never had over their brands – with a new dimension of flexibility as well.

AI WILL TRANSFORM THE ARCHITECTURE

Accenture research on the impact of AI reveals that in changing the nature of work and creating a new relationship between man and machine, AI could double annual economic growth rates by 2035.¹⁷ Already, AI enables a workforce that's increasingly virtual: IPcenter's Virtual Engineers use AI to mimic the work of human engineers, providing a first line of resolution for infrastructure issues. They automate the interaction between all of the different tools and people in an IT environment. For a New York-based investment bank, that translated to a 93% reduction in average resolution and fix time (from 47 minutes to 4 minutes).¹⁸ AI is not only becoming the digital brand for enterprise and a critical pipeline for customer satisfaction and loyalty, it's also key for employee engagement and operational efficiency, as well as revenue growth.

To bring to life the promise of AI across an interface, businesses must redesign their existing systems to support its features and technical dependencies. First and foremost, that means developing AI capabilities within UX/UI teams, and training them to take advantage of existing AI toolkits. Companies can't develop AI expertise overnight, but the UI team can combine their expertise with the jump-start that open source and open application programming interface (API) tools provide.

As a key enabler for an organization's next generation of experiences, AI turns enterprise architecture on its head. On the back end, giving AI the resources it needs means changes to business processes and infrastructure. Organizations will need to develop the necessary connections between systems and interfaces, and then between different points of interaction. Robust sets of data are needed from every channel – not only to initially train the AI to interact with customers and employees, but also for it to continuously learn how those interactions should evolve over a lifetime. AI-based relationships transcend traditional transactions by building on the context of each separate interaction. That only works if the system is designed to support a long-term relationship from the start, with reinforced feedback loops at each touchpoint.

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THE NEXT LEVEL OF RELATIONSHIP **MULTIDIMENSIONAL INTERACTIONS**

With AI in place, interactions with customers will move from straightforward transactional models to multidimensional conversations spanning a variety of complementary channels. AI-supported relationships can exist and grow across interfaces and communication styles: text-based chats, spoken conversations, gestures, or even virtual reality. This encourages longer, stronger relationships and better customer service, which translates to direct business value. Case in point: 61% of customer service professionals credit delivering more effective online customer service support for increased sales volume, and according to a February 2016 study, 98% of US digital buyers said that it's likely or very likely they'll make another purchase if they had a good experience.¹⁹

These more natural interactions can also help solve an accessibility gap that's pervaded technology for years, letting organizations make all of their services accessible to everyone. And simply by extending personal preference to each interaction, it opens the door for richer, more satisfying interactions for individuals based on their situational context. People can choose how much and what kind of interaction they want to have with the company at any given time.

FOCUS ON THE CONVERSATION AND THE TECHNOLOGY DISAPPEARS

AI-enabled interactions are ushering in an era of disappearing technology. Deploy AI well across company interfaces, and customers no longer need to understand complicated technology to use it: they can simply talk to, gesture at, or touch the AI that controls it. In deploying contextual intelligence to an interface to make it truly intuitive, companies should aim to make the technology it's supporting disappear. That opens doors to greater adoption of complicated tools, just by providing access to them through a simpler AI-enabled experience. Google Maps is now packed with algorithms supporting on-the-fly updates to navigation routes in response to traffic delays, which are automatically offered to people via simple spoken prompts. These tools are so seamlessly integrated into the smartphone experience that they're taken for granted as essential functionality today. Put simply, invisible technology gets more use.

Intuitive interfaces have many uses in business and society as well. Accenture is applying AI to the problem of surveying palm fields in Indonesia, helping a leading forestry company identify the most efficient and effective ways to support new forest growth. This has boosted business productivity, reduced deforestation, increased sustainability – and hidden the technology that helps to accomplish it all behind an AI engine. The company's employees no longer have to compare and analyze geographic information system results, water table and soil data, historical inventory, and work orders; they simply consult the AI engine and get the same answers – in minutes instead of 36 hours.²⁰

TREND 1

The time and cognitive effort that humans must devote to get machines to accomplish tasks is steadily shrinking.

What were once dumb machines are becoming smarter and smarter – enough for people to communicate with them on a human level. By collaborating with companies, and with other systems on their behalf, AI makes everything it touches smarter – and by learning as it goes, it continues to accelerate its own usability.

For businesses to capitalize on AI-powered and enhanced interactions, the conversation must start inside the organization. Leaders will begin with existing channels and make them smarter. From that point, they will need to ask fundamental questions about interactions with customers and employees, and consider them in a new light. Current interfaces are based on UI design with a universal limiting factor – a screen. It will be important to train the UI team to take advantage of AI technology, and re-think interfaces without screen limitations. From experimenting with existing channels, companies can develop an approach to multidimensional conversations.

It's time for the C-suite to fundamentally re-examine how people interact not just with technology, but also with their business. That approach will be critical as AI takes on the primary role of interacting with both your customers and employees. AI will be a key point of distinction for your business versus competitors, and so must be considered a core competency demanding of C-level investment and strategy. Much more than just another technology tool to help increase efficiency or generate value, AI is no longer about how your company does things – it's who you are.



100-DAY PLAN

- 1** Rank in priority order your customer interactions by how critical they are to your current revenue and future growth.
- 2** Pick the top three to five interactions and work with your service and product teams to streamline customer engagement with your most valued products and services. This process will help identify areas where AI can improve future interactions.
- 3** Identify what information and insights you lack that would help you improve the customer experience. Design your AI tools to help access, use, and provide key insights to you and your customers.
- 4** Develop AI personas that fit your brand and communicate your brand voice.
- 5** Begin adding sophistication to your digital interactions. Consider piloting AI in roles like content curator (for personalization) or interaction advisor (for intelligent automation). These new roles should accompany the end-customer along their various journeys.
- 6** Identify communication channels and platforms for integrating conversational experiences with your brand. Consider internal as well as external interactions.
- 7** Gather and review existing key performance indicators (KPIs) for customer success. Ensure these KPIs account for the benefits of simplified interactions.

365-DAY PLAN

1

Implement increasingly sophisticated AI personas that not only curate or advise, but also aim to orchestrate as much as possible – among your brand and ecosystem stakeholders – for key customer interactions.

2

Develop analytics that take account of front-end customer insights and back-end business intelligence to better understand key customer interactions. Make these analytics a driver for how you make business process changes for customer support.

3

Develop and pilot a training program for AI teams and UX/UI teams to cross-train on implementing AI to improve and simplify key customer interactions.

4

To further improve customer service, design a new customer journey where AI serves as your frontline brand ambassador for customer service interactions, communications, and engagements with customers.

TREND 1 PREDICTIONS

1

In five years, more than **half of your customers** will select your services **based on your AI** instead of your traditional brand.

2

In seven years, **most interfaces will not have a screen** and will be integrated into daily tasks.

3

In 10 years, digital assistants will be so pervasive they'll keep employees productive 24/7/365, **operating in the background** for workplace interactions, like creating video summaries right after an important meeting.

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