AI-DRIVEN INTERACTIVE SERVICES KICK OFF IN THE US

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WHAT IS AN AI-DRIVEN INTERACTIVE SERVICE?

In the United States, Millennials (born 1982-2004) outnumbered baby boomers (born 1946-1964) in 2015. Millennials are now the nation's largest generation, and the rise of this "younger generation" is becoming apparent. Regarding the Millennial generation (approximately 75 million), also referred to as "Digital Natives," it is said that more than 80% wake up with their smartphones, and over 70% buy goods and services using their smartphones. They are said to spend about 1.8 hours per day on social networking services (SNS). This generation is characterized as leading smartphone-centric lives, and being tech-savvy, especially with information technology (IT). In recent years, acquiring Millennials has become important as an aggressive course of action for various industries. For example, Goldman Sachs' CEO pointed to the significance of such action, and the investment bank giant got a head start on using Fintech (financial x technology).

In response to this social change, recently emerging are interactive technology based on artificial intelligence (AI) and its underlying speech recognition technology. Millennials, who use SNS and Online Chats more frequently than email, feel that typing text is inefficient. Speech recognition technology can easily eliminate invisible barriers such as complicated operation and instructions. On Android smartphones, about 20% of Google searches are run by voice input. On Apple's smartphones, two billion operations per week are controlled by voice. As an evolved version of this, services have sprung up in the form of conversation (chat) via smartphones, allowing users to order goods, check the balance of their bank accounts, book hotel rooms, search for recipes, and more. Users' conversational partners are AI robots on the cloud, which are called "chatbots."

Amazon Echo, a speaker/voice assistant device employing Amazon's Alexa speech recognition technology is also gaining in popularity. By the end of January 2017, 8.2 million units might have been sold, which would mean that 7% of US households own one. Speech recognition technology has been evolving remarkably, driven by deep learning, a part of the AI field. In October 2016, Microsoft announced that its technology had reached a professional transcriptionist's level. Table (below) lists speech recognition technologies developed by major companies.

The prototype of today's keyboards was invented in 1872, but after 145 years, keyboards are facing the possibility of being overtaken by the evolution of speech recognition technology. Wired telephones and silver-halide film cameras have been replaced by wireless cellphones and digital cameras, respectively. Unnecessary interfaces are destined to be removed. Not all the keyboards would be eliminated, but we should think that the devices would be far less in use.

EMERGENCE OF AI-DRIVEN INTERACTIVE SERVICES

When looking at trends of AI-driven interactive services, we should not fail to observe Facebook's moves. In April 2016, Facebook revealed a chatbot platform initiative at its F8 developer conference. In summary, this initiative was designed to upgrade the company's chat app "Facebook Messenger" so that chatbots can operate on it, and to prompt about 34,000 developers to create services using the chatbots, then made available to a billion Facebook users. More than 10,000 chatbots were created in only 12 weeks after the announcement. The products came in numerous types, covering areas such as food, travel, finance, health, news, and sports. Among food-related services, for instance, a major pizza delivery chain developed a chatbot as an easy ordering option. Conversing with the chatbot helps customers place an order from start to finish: narrowing down the types of pizza, determining the quantity, having it delivered to the location of the smartphone (based on its location data) or to their pre-registered addresses, and paying for the order. Customers can complete the ordering process in less time than by phone or website, while reducing order errors. The chatbot is customized to store the customer's order history, based on which it shows recommended items first. There are also chatbots for supermarkets to provide customers with recipes that match the ingredients that they are going to buy. The idea of recipe search on the smartphone came from the statistics data that recipe searches using a smartphone take place in supermarkets. If you input "tomato, radish, chicken" with your voice, then the chatbot will give you suitable recipes. In the travel scene, conversations with a chatbot can facilitate customers checking the status of their flights, changing seats, and checking in. Traditional call centers and websites remain available for such procedures, which, however, require much time and trouble. To Millennials, who have a strong tendency to seek real-time operation and convenience, such time-consuming methods are unsatisfactory. Chatbots will definitely affect not only "business-to-consumer (B2C)" but also "business-to-business (B2B)," including application of the new technology to call centers.

Chatbots are evolving with each passing day. It is expected that a great number of chatbots will become available for use over the next year or two. In addition, one great advantage that chatbots have is that because they exist in the cloud (unlike smartphone apps), users do not need to download them to their smartphones.

We should also not forget Amazon's moves. Application of the company's speech recognition technology (Alexa) is not limited to Amazon Echo as mentioned earlier. It is geared towards being applicable to a wide range of products. As of the end of January 2017, as many as 2,200 Alexa-powered devices had already been announced. At CES 2017 (the world's largest consumer electronics tradeshow held annually in Las Vegas in early January), the author of this article witnessed Alexa embedded in products ranging from automobiles to consumer electronics made by VW, Ford, Hyundai, LG, Whirlpool, etc. For example, if you are driving a car and then notice that your wipers have worn out, or if you wish to buy snow chains for your weekend skiing, you can place an order in real time, on the spot. The concept is that while suitable wipers and chains differ depending on the vehicle model, once you register the make of your car with your Amazon account, an item that matches that information will be ordered. Moreover, suppose for example that you needed to stop by some place (a laundry, florist shop, etc.) on your way home. Whenever you remember a task you need to do, you can have your car memorize it via Alexa, which links information seamlessly. In the US, which has an automobile-dominated society, it is ideal to equip cars with such concierge features and the like.

WHAT IS GOING TO HAPPEN?

Platform businesses will become more robust. For example, if Amazon's Alexa is incorporated into a variety of products including cars and refrigerators, shopping online will inevitably be linked to Amazon's site. At the beginning of 2017, Macy's and Sears, long-established major retailers in the US, announced their respective

plans to close a large number of stores, and Alexa may further accelerate these moves. Also, it is widely considered that the dominant position of platformers such as Amazon and Google will increase further. By simply having an account with them, you can complete the entire shopping process—search, booking, ordering, and payment—for all kinds of goods and services. Online shopping accounts for 10% of all retail sales in the US, and the remaining 90% is taken up by brick-and-mortar stores because consumers buy things such as perishable food at physical stores in their neighborhoods. Given this fact, Amazon launched a physical store in December 2016, starting a demonstrative experiment. In the future, people will not care whether their ordered goods are delivered from online shops or physical stores if their account information is used effectively, and existing physical stores may turn out to be a help for Amazon.

Another consideration is that "voice comes at a price." Currently, companies and shops are paying advertisement fees to appear on the top spots of Google search results or other similar services. In the future, each advertiser will be charged advertising fees as per the number of times their ad is vocally read out. In contrast with text displayed on a PC or smartphone, an AI voice cannot provide much information at one time. Therefore, for advertisers, having their information read out first is a great advantage. For example, if you ask your AI-driven interactive service, "I want to make a reservation for a French restaurant that is open on Thursday in my neighborhood," you will probably access the first restaurant that you hear. It is no surprise that the advertising business is running behind people's casual interaction with AI and robots.

CHANGING THE WAY GOODS AND SERVICES ARE PROVIDED

There are now five companies focusing on AI-driven interactive services and speech recognition services: Google, Apple, Amazon, Facebook, and Microsoft, all of which are ranked among the world's top five companies by market capitalization. They all have a lot in common: (1) US corporations; (2) engaged in IT-driven technologies; and (3) headquartered on the west coast. Moreover, they have recently been trying to expand their businesses beyond the boundaries of industries. Many automakers have already started or are considering partnerships with any one of these five companies, but such collaboration could never have been imagined five years ago. AI-driven interactive services per se are irrelevant to automobiles, but they are expected to become a key contributing factor to increasing the excellence of automobiles in the future.

AI-driven interactive services possess the ability to bring "goods and services" and "people" closer together. If this is the first step along the path of the development of a "person-to-person-like relationship," the next step should probably be one where goods and services read the feelings and emotions of people and voluntarily talk to them. AI-driven interactive services have the power to fundamentally change the way that goods and services are provided, which used to be passive, and will undoubtedly have a tremendous impact on all industries.

Table: Speech Recognition Technologies by Major Companies

Company	Voice recognition technology	Main devices	Quantity	Activation word	Market capitalization (as of end of May. 2017)
Amazon	Alexa	Amazon Echo	8.2 million devices	"Alexa"	4
Google	Google Assistant	Android devices	1.5 billion devices*	"Ok Google"	2
Microsoft	Cortana	Windows 10 devices	400 million devices	"Hey Cortana"	3
Apple	Siri	iPhone, iPad, Apple TV	1 billion devices	"Hey Siri"	1
Facebook	Chatbot platform (Facebook Messenger)		1 billion users		5

*May not be available depending on the OS

Source: Compiled by MGSSI, based on announcements by the above companies