Evolution of AI Services in the 5G Era

General Manager of
Service Innovation Department

Ken Ohta

The 5th Generation mobile communications system (5G) era has begun and a digital transformation*1 using AI, cloud computing, and other advanced technologies is unfolding throughout the world based on high-speed, high capacity, and low-latency networks. According to a survey conducted by the International Data Corporation (IDC) on the worldwide AI market, total sales of AI-related software and services are forecast to grow significantly from 327.5 billion dollars (approximately 35,055.6 billion yen) in 2021 to 554.3 billion dollars (approximately 59,332.3 billion yen) in 2024 [1]. In Japan, meanwhile, a survey conducted by the Fuji Chimera Research Institute shows the AI market nearly doubling in size from 1,108.4 billion yen in FY2020 to 1,935.7 billion yen in FY2025 [2]. These figures represent a transition from a phase of studying the introduction of AI with vague expectations to a phase that combines know-how and solutions on the vendor side with trials and full-scale implementations for solving specific business problems.

At present, AI software provides machine learning, image recognition, and natural dialogue as main functions for use in a variety of applications including optimization of business processes, demand prediction, and enhanced customer experiences through recommendations and personalization.

Here, I would like to introduce two examples of how NTT DOCOMO is putting AI to work. These are the "DOCOMO Image Recognition Platform" using image recognition AI and "AI Phone Service" using natural dialogue AI.

The DOCOMO Image Recognition Platform provides image-recognition training-model creation and an Application-Programming Interface (API) as cloud services that enable developers to easily and quickly develop image-recognition engines while holding down development and operating costs. Using communication paths that directly connect the NTT DOCOMO network and the cloud, the DOCOMO Image Recognition Platform can also support solutions that require low latency and high security [3].

Next, the AI Phone Service enables conventional call-handling operations dealing, for example, with reservations, inquiries, and calls made to corporate phone numbers to be performed by AI. As a cloud-based service, it is applicable to local governments, retail stores, and eating and drinking establishments that have no call center, and it can even be used for elderly care [4].

Both of these services were created through NTT DOCOMO's TOPGUN initiative that forms cross-organizational teams between NTT DOCOMO's R&D and corporate sales divisions with the aim of developing solutions to problems affecting corporate customers. To make AI truly practical, a co-creation process is essential: team members must work together to determine what functions and level of accuracy are needed at service sites by talking with customers and conducting verification trials. Refining technology and interacting with a variety of partners are also important. For example, young personnel in NTT DOCOMO's R&D division publish technical information on "Qiita," a service managed by Increments Inc. for sharing engineering-related knowledge [5].

Going forward, I can envision that the spread of AI technologies in our society will further contribute to diverse industries such as finance, urban development, transportation, entertainment, education, sports, and energy and supporting the development of solutions to social problems. NTT DOCOMO's R&D division will drive the evolution of AI services and contribute to new value creation through the development of advanced AI technologies and co-creation with customers.

REFERENCES

[1] IDC: "IDC Forecasts Improved Growth for Global AI Market in 2021," Feb. 2021.
https://www.idc.com/getdoc.jsp?containerId=prUS47482321

[2] Fuji Chimera Research Institute, Inc.: "2020 Comprehensive Study of Artificial Intelligence Business Completed," Oct. 2021 (In Japanese).
https://www.fcr.co.jp/pr/20107.htm

[3] NTT DOCOMO Press Releases: "(Notice) Functions of the DOCOMO Image Recognition Platform Expanded—Solving Diverse Problems through a Japan Top-class Enriched Engine and Support Functions—," Feb. 2021 (In Japanese).
https://www.nttdocomo.co.jp/info/news_release/2021/02/24_00.html

[4] NTT DOCOMO Press Releases: "(Notice) Provision of AI Phone Service for Handling Calls by AI Begins—Applications include Automation of Call Center Operations, Coping with In-office Working Restrictions due to COVID-19, and Caring for the Elderly—," Dec. 2020 (In Japanese).
https://www.nttdocomo.co.jp/info/news_release/2020/12/10_00.html

[5] NTT DOCOMO: NTT DOCOMO Research and Development—Qiita."
https://qiita.com/organizations/nttdocomo-tech

---

*1 Digital transformation: The use of IT technology to revolutionize services and business models, promote business, and change the lives of people for the better in diverse ways.