

Special Articles on Communications based on New Human-Interfaces —Towards the Creation of New Communication Services—

Telephones have come to play a decisive role in communication in connecting people who are distant from each other. Telephones have infiltrated into our lives and changed our lifestyles. However, the progress of communications did not end here. Mobile phones appeared and communication services were established that enabled distant people to talk to each other at any time, any place. Mobile phones have enabled us to do a wide range of things—for instance, confirming meeting arrangements, checking someone's safety, passing on urgent information and so forth—and dramatically changed our lifestyles even further. The creation of such new communication services contributed to the substantial growth of the mobile communications market.

New communication services continue to emerge today, including but not limited to mobile IP connection, mail with still-picture attachments and videophones. Will they be the last string of communication services that are powerful enough to change people's lifestyles, then? The answer is "No." Based on the belief that such new services will continue to be created in the future in line with technological progress, new research efforts are springing up as reviewed in this article.

The creation of new communication services becomes possible when technological progress goes hand in hand with needs. In the future, it will become increasingly important to analyze what is being required, how much the new services will be accepted relative to human abilities, etc. By considering these matters, NTT DoCoMo would pursue the fundamental requirements for communications, re-define communications in terms of human nerves and brain cells, and conduct research towards the creation of new communication services referred to below.

- (1) Research on elemental technologies to maximize the quality of communication media (voice, audio, images, etc.) with the aim to achieve high-quality communication.
- (2) Research on basic technologies for using previously-unused biological information in communication. As part of this, new communication possibilities will be explored based on the measurement of neuron activity.
- (3) Basic research on intelligence achieved by computer networks and research on applications to mobile phones. The scope of such an intelligence understanding includes humans as communication partners, the real world via a sensor net, and robots achieving other forms of machine intelligence.

By bringing these communication tools created by such research around with us wherever we go, we will be able to utilize a huge wealth of external knowledge on a daily basis, get the help of machines in everyday life for thinking and calculation tasks, and convey our intentions more accurately by overcoming language barriers. As a result, mobile communication tools will become more advanced, along with the enhancement of human abilities as a whole. This may signify a new era of human evolution.

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