AI supporting ambitions to be a global healthcare leader

AI can not only enhance medical care, but also help address Japan's labor shortages.

Conscious that its ageing population is due to exceed 40% by 2030, Japan aims to become a leader in healthcare, welfare and longevity by combining medical advancements with key technologies. The government sees AI not only enhancing medical care, but also helping address the country's labor shortages (in and outside the medical sector), and is therefore investing in research institutes and private cooperation's within the AI medical sector.

Under a myriad of initiatives, such as Society 5.0, Moonshot and SIP, the government has set long-term goals including ultra-early disease prediction and intervention (by 2050); a sustainable care system to overcome major diseases (by 2040); the ability to replace body functions with artificial organs; nanorobots in human bodies, surgical robots and personal health-care technology; and finally an 'AI Hospital System' — a highly-secure multilingual database system that makes data widely available to improve medical practices and pave the way for AI-assisted auto recording, documentation and diagnosis.

Robust infrastructure

The AI Hospital System will be part of a strong medical IT infrastructure. This the government sees as a priority, with the Agency for Medical Research & Development as key player in driving efforts to standardize data exchanges and develop a robust medical database infrastructure that will support remote healthcare delivered for example by telemedicine, telecare and care robots. Remote healthcare can be particularly important during future pandemics, by supporting traditional care and reducing infection risks. Underpinning the medical IT infrastructure is Japan's general digital infrastructure ambition, including the introduction of 6G in 2030.

Booming ecosystem

Through a myriad of routes, Japan is developing a booming medicine-related AI ecosystem.

A snapshot of current activity and initiatives:

- New AI-focused research centers established with government support include AIP, CiNet, UCRI, AIS and AIRC. Some, like AIRC, include medical services amongst their specialisms.

- The Tokyo Women's Medical University/Waseda University Joint Institute for Advanced Biomedical Sciences (TWIns) has carried out groundbreaking AI-assisted brain surgery: a robotic system enables high-resolution brain imagery during the surgery while at the same time collecting data from connected devices to aid the surgeons' decision-making. The MRI brain scan also uses deep-learning image reconstruction. The new technique is expected to increase the accuracy and efficiency of procedures, and improve workflow and results.

- The University of Tokyo's Institute of Medical Science is researching using AI to find cancer drug combinations applicable for individual patients. While Keio University is developing AI to detect lung cancer. Hitachi is running a machine-learning pilot to detect diseases and unknown warning signs from medical data. And NEC, Yamaguchi University and Kochi University are together developing an AI application for discovering potential cancer therapeutic peptide vaccines.

- IAN Tokyo is organizing various online and hybrid events in the field of LSH, and seeking partners to join the Partners for International Business program. There is also a LSH mission to Japan. Anyone interested, or simply looking to start or strengthen their activities in Japan, please contact NIN Tokyo.

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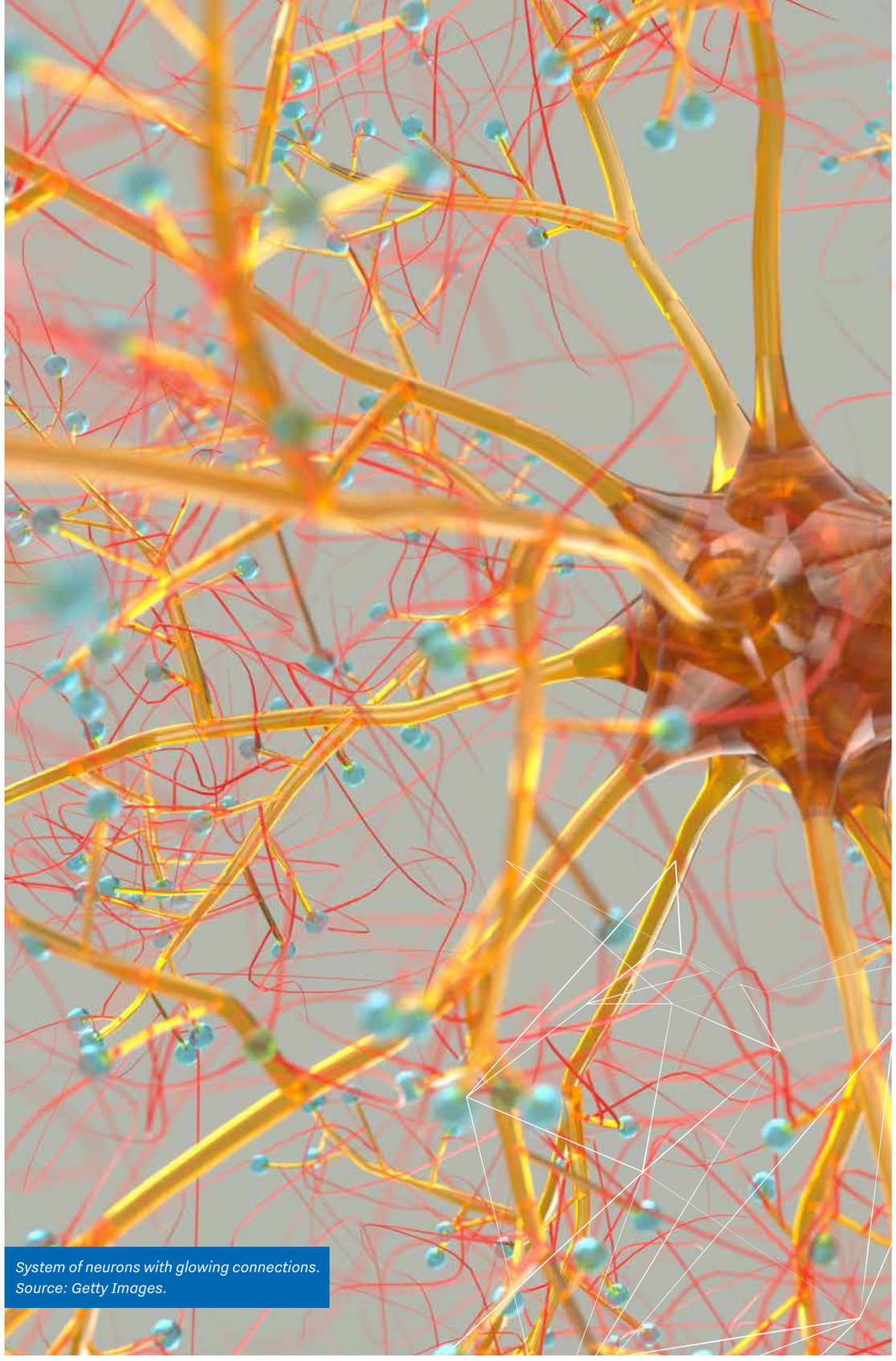

System of neurons with glowing connections. Source: Getty Images.