Summary Translation of Question & Answer Session at
FY2018 R&D Strategy Briefing

Date: September 20, 2018
Venue: Okada Hall, Fujitsu Laboratories, Kawasaki, Japan
Presenters: Shigeru Sasaki, CTO, Fujitsu Limited, and CEO, Fujitsu Laboratories Ltd.

Questioner A

Q1: *How would you rate the level of Fujitsu's AI technology compared to the competition? Please tell us if there are any fields where Fujitsu is a global leader.*

A1: There are two primary AI research and development areas that define Fujitsu. First is "Explainable AI", which I spoke about earlier. Second is the "Digital Annealer", which can solve combinatorial optimization problems in society that could not previously be solved. With regard to Explainable AI, we have a social responsibility as a company, and so beginning two years ago, we have been approaching companies, research institutions, and universities with the goal of putting this technology into practical use. Fujitsu Laboratories was the first in the world to create Explainable AI by combining "Knowledge Graph" with "Deep Tensor", a novel machine learning algorithm. The other technology is the "Digital Annealer". In the field of quantum computing, researchers, including physicians, are working on basic research to demonstrate its fundamental principles. Based on those principles, the "Digital Annealer" quickly and effectively solves combinatorial optimization problems, using a digital circuit design inspired by the quantum phenomena. So far, this approach is unique on a global level. We are conducting joint research with a variety of research institutions, including the University of Toronto and Waseda University, announced yesterday, in order to take the lead in applying this technology to a number of fields, including chemistry, medicine, and economics. At the same time, we are collaborating with 1QBit, which is developing software aimed at quantum computers, to increase the number of applications. To sum up, the features of Fujitsu's AI strategy is our Explainable AI and the Digital Annealer, which can solve previously unsolvable problems in society.

Questioner B

Q1: *With regard to your Explainable AI, you say that it can explain itself while it is mapping expert knowledge in such fields as healthcare and materials science, but I understand that to mean that it can explain only to someone with abundant expert knowledge. How will your technology explain itself to ordinary people, who are now at the level that they say they cannot even trust Facebook, and who do not have a system of expert knowledge?*

A1: I think that your first question is really asking whether we can only apply our Explainable AI to expert fields at present. It is true that in the areas of genomic medicine, case study databases, and drug discovery, global scientists are using this technology to convert results published in papers into Knowledge Graph, and find answers based on that accumulated knowledge. As you point out, at the moment application area of Explainable AI is focused on knowledge graphs that process global academic papers in our original method, and on finding explainable basis for answers from high level expert knowledge using Fujitsu Laboratories' original Deep Tensor technology. At the same time, yesterday we published a press release on a new AI technology called "Wide Learning". This is a machine learning technology that can

search through various possibilities from a wide range of viewpoints even with very little data, and we are continuing to develop technology to be able to explain more day-to-day problems and ethical decision-making.

Q2: *It is easy to talk about trust, but how are you handing quality control for your services? We are moving from a society in which people won contracts by promising that if an error occurred up to a certain point in their services, they would compensate their customers, to a trust-based society where no one takes responsibility. In light of this, is Fujitsu trying to shift responsibility onto the users of their services, or is it trying to shift responsibility onto service providers? Or is there something you can do as an IT vendor?*

A2: This is a difficult question, but I think that, while the meaning of trust also includes service quality control, what we spoke about today was about how Fujitsu thinks about trust in the digital era. Fujitsu aims to support the core businesses of its customers, and to grow and expand its business along with its customers. In our contracts with customers, if there is a problem with a customer's service, it may be the case that we were not sufficiently thorough in envisioning potential problems in advance, and we would consider it essential to provide some sort of technical support in order to secure trust here, as well. Fujitsu will provide the utmost support in order to help our customers grow, and would never abandon them in the midst of problems. In addition to this stance as a company, we are also using cutting-edge technology to create digital trust, and so we hope you will have faith enough to accompany us on this path.

Questioner C

Q1: *In Japan, Fujitsu's position appears to be well-established, but outside of Japan, in terms of competitiveness, it appears that Fujitsu's core business is not performing well, rather than R&D itself. In terms of R&D, was there something that could have been done in the past to promote Fujitsu's business outside of Japan? In addition, going forward, as Fujitsu targets various markets, is there anything that Fujitsu Laboratories could do with the targeted markets to promote Fujitsu's business outside Japan?*

A1: Up until now, we naively thought that, if we bring Japanese technology outside of Japan as is, we should be able to sell it. There was a time when we could run a business of bringing Japanese technology or hardware to markets outside of Japan, but in the digital era, the technology of customers and the way they use products are becoming increasingly diverse, and they are constantly changing. Accordingly, we are starting over by analyzing market trends and needs for each country using a customer-centric approach, and starting co-creation projects. Specifically, below the CTO we established a CTO Office, with technology officers in each country or region, and we have started community activities that bring together these technology officers. Each country's culture, regulation and market needs are different. We are reanalyzing each country's conditions, including market trends, the activities of government institutions, and national budgets, and changing our approach by assigning priority rankings to our business outside of Japan from the perspective of technology.