Q&A at R&D Presentation

Date/Time: December 10, 2015 15:00-17:15 JST

Location: NEC Headquarters, Tokyo

Presenter: Katsumi Emura, Senior Vice President

Questioner A

Q. Just to confirm the presentation materials, what is the difference in meaning between the information shown in red and blue on page 37?

A. The difference between the red and blue information is that the blue represents solutions, while the red represents platforms.

Q. Looking at development expenses in the network field, your global competitors are spending around 500 billion yen on R&D expenses in 5G technology. However, in Japan, I believe that NEC and other Japanese companies are spending no more than 200 billion yen combined. With this amount of expenses, do you really think you can outlast the competition?

A. The operating environment is just as you describe. We believe there is ample scope for looking at ways to pursue technology development, including jointly with our customers. NEC has maintained a solid position in terms of the network technologies themselves. Given that NEC possesses both network and computing technologies, we are considering how to go about delivering value. We believe NEC could supply these technologies not only for use by telecom carriers but also for use in public networks, stadiums and infrastructure in buildings. We will explore opportunities for harnessing the technologies we possess from many different angles.

Q. I can understand the significance of NEC's "No.1" technologies. However, from an outside perspective, NEC's "Only 1" (one and only) technologies appear to be just unique technologies within isolated niche markets. Besides being "Only 1" technologies, I think your technologies must also provide other selling points. What is your assessment of these technologies?

A. If you take the words at face value, it can certainly seem as if our technologies are just "No.1" in extremely niche fields. However, that is not actually the case. NEC's basic policy is to first decide on solution domains. We then decide to develop "No.1" technologies and "Only 1" technologies based on the assessment criteria of whether a technology will make the greatest

contribution to a solution, and whether a technology is unique in terms of realizing that solution. We strive to remain firmly mindful of this policy as we conduct R&D.

Questioner B

Q. NEC is budgeting for R&D expenses of 145 billion yen in the fiscal year ending March 2016 (fiscal 2016). Is the graph on page 44, particularly the coloring of research investment, based on these expenses?

A. The graph on page 44 only represents the R&D expenses of Central Research Laboratories. The budgeted expenses of 145.0 billion yen for fiscal 2016 represent total R&D expenses, which include expenses used for development by each business unit. Central Research Laboratories' R&D spending accounts for around 15-20% of total R&D expenses. We intend to increase this ratio in the future.

Q. Don't you think expenses at Central Research Laboratories are small? Although it is not necessarily better to spend more, will you be able to maintain your global competitiveness with this level of R&D spending?

A. Looking at the trend in technology investments for the future, we are currently spending 15-20% of total R&D expenses in this area. Ten years ago, this percentage was around 10%, so the ratio has been increasing. As you point out, the absolute amount of R&D investment is small. However, we have intentionally increased investment in priority domains within our budget. Our approach is to focus on our priority domains and thereby ensure our success in those domains. Conversely, we will not engage in domains where we cannot be successful. We intend to address those domains through open innovation instead.

Q. I believe companies differ in terms of their degree of focus on development themes. What are some of NEC's characteristics in this regard?

A. NEC focuses sharply on its development themes. In terms of which themes we focus on, it is summarized on page 22 of the presentation materials. Although this page lists technologies, we have focused on the six domains shown on this page. NEC is working to demonstrate its strengths to the fullest extent in those six domains. We intend to maximize growth in each of these domains. On the other hand, having many small technologies will not necessarily guarantee success. For example, we have continuously ranked first in face recognition technology based on benchmark tests by the National Institute of Standards and Technology (NIST). NEC has long continued to strengthen its hand in biometrics including face recognition. Leveraging its

biometrics technology, we believe NEC will be able to provide groundbreaking solutions. We have already won business in areas such as immigration control systems, and we believe that this business will help to drive NEC's growth and competitiveness. We constantly give thought to our capacity for investment and the best ways to go about maximizing this investment capacity.

Q. In terms of the number of researchers, I have understood that you are focusing on the artificial intelligence (AI) field among the six priority domains. How many researchers will be assigned to the other domains?

A. In the AI field, we intend to increase the number of researchers from approximately 150 to 300 in the areas of visualization, analysis, and control and guidance. We also intend to enhance the security field. Here, although we have already doubled the number of researchers, we plan to increase their number a little to around 100. Combined with the networking and computing domains of ICT platforms, we intend to concentrate 70% of all our researchers in these six domains. NEC has around 1,000 researchers on a global basis, and we plan to concentrate around 70% of these researchers in these domains.

Questioner C

Q. I am interested in how your R&D achievements will contribute to your businesses. Which domains will become businesses that generate several billions of yen in sales in the relatively short space of the next three years or so, following in the footsteps of face recognition and Software-Defined Networking (SDN)?Could you please give two or three examples based on your rough expectations at this time?

A. In the safety domain for ensuring the safety and security of cities, which overlaps with face recognition, we have already begun developing specific businesses and are producing results. Although it is difficult to discuss other examples individually, NEC as a whole is targeting net sales of 100 billion yen from solutions leveraging big data. We believe these platform technologies will start to materialize in the near future.

Q. Compared to the previous year, there are a greater number of technologies listed in the diagram about "No.1" and "Only 1" technologies shown on page 22 of the presentation materials. I suspect that considerable resources must be allocated just to maintain these technologies. As these "No.1" and "Only 1" technologies increase, wouldn't your resources become stretched too thin across each technology, despite having focused on your domains? Do you have any concerns about this ultimately reducing your competitiveness? For example, have you been able to put a balanced technology portfolio in place as

a result of discontinuing research on any technologies not listed here?

A. First, we are increasing the ratio of priority domains to 70%. This means we have been discontinuing certain technologies in other areas. In this sense, we are prioritizing technologies through a process of selection and concentration. In our discussion earlier about increasing value, I touched on the example of water management. The demand prediction services we had previously offered were no longer adequate, so we are now attempting to optimize water distribution plans. In this process, we have seen the emergence of predictive robust optimization framework. Rather than trying to develop "No.1" technologies in distant fields, we have a structure in place where new "No.1" technologies emerge as we continuously drive the evolution of our solutions. We believe the key to increasing value lies in how to go about developing technologies using limited resources, in conjunction with making our strong technologies even stronger. When creating new value, we work to develop the new technologies needed to realize that value. Accordingly, we conduct operations that are structured so as to avoid excessive diversification of our activities.