

**Summary Translation of Question & Answer Session at
Briefings for Analysts on
Fujitsu Laboratories' Research Activities and
Fujitsu's Intellectual Property Strategy**

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Mr. Miyamoto, CLSA Securities: *You mentioned that Fujitsu Laboratories spends 40 billion yen on R&D and that, on a consolidated basis, Fujitsu spends 245 billion yen overall on R&D. Outside of Fujitsu Laboratories, in what areas is Fujitsu allocating its R&D spending?*

Dr. Murano: It is corporate-wide R&D spending, so it is spent on all of our product lines, including both hardware and software, and allocated across all of Fujitsu's business lines.

Mr. Miyamoto: *Fujitsu has a very wide range of businesses. Is your level of R&D spending sufficient to cover all of these business areas? If not, in which areas is your current level of R&D spending insufficient?*

Dr. Murano: As to whether our R&D spending is sufficient or not, I can say that, with R&D, there is no limit on what you can spend, but you learn to make do with what you have. I think it is more a matter of what level of R&D spending is appropriate, based on the scale of sales and operating income, as well as the business model and strategy. On a consolidated basis, our R&D expenditure is equivalent to about 5% of sales, and Fujitsu Laboratories accounts for 16% of the 245 billion yen in total R&D spending. In the past, our R&D expenditure as a percentage of sales was about 7-8%. The typical level of R&D expenditure in a manufacturing business is 5-6%, or perhaps 7-8%, of sales. With Fujitsu's current business model, we are shifting to more of an emphasis on software and services, and sales of systems integration services are increasing, so our level of R&D spending as a percentage of sales in those areas is declining. For hardware and semiconductors, spending on materials runs at a level of about 7-8% of sales. The proportion of R&D expenditure allocated to software and services fields is large. Again, there is never enough that can be spent on R&D, but from a management perspective, I think our current level of spending is reasonable. In terms of areas in which we would like to allocate more resources in the future, in the field of computing we would like to shift more resources into the original development of grid computing technologies and processors for server integration. In networking, we would like to allocate more resources in the next-generation network and wireless fields, and in semiconductors, we would like to devote more resources to 45nm and 32nm technologies—an area that presents significant development challenges. As we move forward, we will need to continue to make strategic decisions on how best to focus our human resources in a variety of different fields.

Mr. Miyamoto: *How many employees do you have in the Law & Intellectual Property Unit? And how many people are involved in IP matters in each of the business units? How many in-house lawyers and patent attorneys do you have in this area?*

Mr. Katoh: We have about 270 employees in the Law & Intellectual Property Unit. In our Fujitsu Techno Research subsidiary, we have 110 people, including non-regular contract employees. In the business units, there are about 80 people in total involved in IP promotion. We have 10 licensed patent attorneys, 4 lawyers licensed to practice law in Japan, and 10 lawyers licensed to practice law in the US.

Mr. Shin, UBS Securities: *In your presentation materials, you state that you have 1,650 employees worldwide in Fujitsu Laboratories, but how are your human resources allocated among each of your research groups, such as the IT Core Laboratories?*

Dr. Murano: In each of the research groups listed in the presentation materials, there are about 200 people. The Device & Materials Laboratories cover a very broad spectrum of technologies, so there are slightly more people there, but generally we have about 200 people in each area of specialization.

Mr. Shin: *How is the R&D spending budget allocated among these different groups?*

Dr. Murano: For areas such as software and solutions, the level of spending is not very high. But in hardware-related areas, the level of amortized expenses for equipment, semiconductors, and materials is large. We spend about 50% more in hardware than in software.

Mr. Shin: *How many different R&D themes are you pursuing now?*

Dr. Murano: It is difficult to define discrete themes, but we have about 50-60 subcategories.

Mr. Shin: *What do you specifically mean by “subcategories”?*

Dr. Murano: For example, Business Process Management would be one subcategory. Each of the dozen or so areas covered in today’s presentations would be a subcategory.

Mr. Shin: *In the allocation of R&D spending for each of the research groups, is the number of research themes for each group roughly the same?*

Dr. Murano: There is some variation depending on the group, but it is roughly the same.

Mr. Shin: *Could you explain how responsibilities are divided between the business units and Fujitsu Laboratories and how priorities are set? Do you have specific criteria for deciding how to prioritize among different research themes?*

Dr. Murano: It really varies on a case-by-case basis. For cases in which we employ what we call the “Akiruno-style” approach, in which Fujitsu Laboratories works together with the business units, it is really one team with no formal boundaries. In the linear model approach, Fujitsu Laboratories usually just hands off a project to the business unit. Fujitsu Laboratories will develop the technology, but in cases in which that technology will result in product differentiation, we bring it to the business units to commercialize the product. In other words, our core technology by itself is not a product, and therefore requires further development work in order to become a product. In addition, as an example of another approach, there are cases in which Fujitsu

Laboratories is fairly heavily involved in development work on the product commercialization end. So we use a variety of different approaches.

The decision-making process also varies depending upon the circumstances, but our business roadmap is very clear. We are coordinating very closely with the business units on issues such as when a particular technology will be ready, or when a particular product will be ready. And in these cases, in terms of setting priorities and designating responsibilities, we are really on the same page. But there are also times when we disagree with the business units. To some extent, there are conflicts. There are some projects in which the business unit may feel that there is considerable risk involved in launching a particular technology in the market, in which case they may not be very responsive. One success story that followed this pattern was palm vein authentication technology. It took us two years to convince the business unit that there was a market for this technology. Once we convinced them, it did not take very long at all to configure the technology for ATMs and get orders from banks. Everyone had thought that fingerprint authentication was good enough, but, fortunately, our timing was good in that there had been a number of cases of stolen ATM cards, and that gave us the momentum we needed for the market to recognize the value of this technology and drive it into commercialization.

Mr. Shin: Looking at your presentation materials, it seems like it takes about three years from the time Fujitsu Laboratories develops a technology until a product is commercialized. Is that about right?

Dr. Murano: It really depends. For example, for 45nm semiconductor process technology, we started about three years ago, but it was not until last year that we really started in earnest, and we still have three years to go. In the case of our Business Process Management software product, on the other hand, it took only about a year from planning stage to commercialization.

Mr. Shin: In hard disk drives, you are developing new technologies, but at the same time you are pursuing alliances. I have heard that Fujitsu does not consider hard disk drives to be a core business, but is Fujitsu's attitude toward the business changing?

Dr. Murano: Demand for hard disk drives is very strong, and the business is performing very well. We specialize in hard disk drives for servers and notebook PCs, so our business is good. As to whether it is a core business for Fujitsu or not, I am afraid that it is not my position to say.

Mr. Shin: You mentioned that other companies are also focusing on next-generation networks and grid computing. What is it that differentiates Fujitsu in these fields?

Dr. Murano: In next-generation networks, we are partnering with Cisco in routers, but when structuring an optical network, what sets Fujitsu apart is the way we combine optical transmission technology with IP technology in handling IP packets. In terms of networks in general, we have long been active in developing switches for connecting existing telephone lines with an IP network, so we have particularly strong expertise in switching software and IP connections. In terms of access networks, we have long been active in the UK in ADSL, so we are strong in technology for converting to IP. In grid computing, our development efforts are positioning us for leadership in middleware. Our technology for optimizing performance in heterogeneous environments comprising Fujitsu servers as well as IBM's or other companies' equipment also sets us apart.

Mr. Shin: Are you close to developing standards for the server side (presence management and streaming functions) of next-generation networks?

Dr. Murano: Some areas are being standardized and some are not. We were quick to focus on presence management and are developing this technology. In structuring the software, we have

focused from the start on ubiquitous networking middleware that can work with a variety of different mobile terminals. VOIP is standardized, and people like it because it is cheap, but the quality is not good when many people speak at once, so we are developing very finely tuned quality technology (operational stability technology).

Mr. Shin: *You mentioned that IP royalty revenue has exceeded royalty expenses since the latter half of the 1990s. How large is your net income from IP now?*

Mr. Katoh: I cannot tell you the figure. Almost all of our patent licensing contracts are subject to confidentiality agreements, so I cannot disclose the details. When you tack on royalties, you see various types of totals, but in looking at figures from a company such as Fujitsu, you have to ask what is included in calculating the total. In other words, is it purely royalties, or are software copyrights, usage fees, fees for business know-how, or technology transfer fees from subsidiaries or group companies included? Each company has a different way of calculating the total. You need to investigate what is behind the numbers and provide an explanation, otherwise there is likely to be a misunderstanding.

Mr. Kawada, Mizuho Securities: *Within your five priority areas for intellectual property, can you give any specific examples of patents you hold that other companies cannot avoid using? And is that likely to lead to higher IP revenue in the future?*

Mr. Katoh: There are various priority areas in addition to these five. In terms of what patents are enforceable against other companies, there are a thousand different scenarios, depending on what products the other party is making. Our feeling is that, depending on the circumstances, it may make sense to enter into a cross-licensing arrangement.

Not a few Fujitsu patents are included in technology standards. Members of a standardization organization voluntarily create a patent pool, and the participating corporations agree to have their respective patents included in the technology standards. In a situation like this, it is easy to get a grasp of patent usage trends, but it is difficult to isolate the contribution of specific patents.

Mr. Kawada: *In terms of valuing intellectual property on Fujitsu's balance sheet, what do you think about the value of Fujitsu's intellectual property as intangible assets?*

Mr. Katoh: There are a myriad of ways of measuring intellectual property. You cannot simply reflect intellectual property on the balance sheet immediately as intangible assets, but my view of intellectual property is that, ultimately, our R&D results will be transformed from implicit knowledge into explicit knowledge. From that perspective, the value of our intellectual property should be equal to our past investments in R&D.

Mr. Kawada: *Could you tell us what specific systems you have in place for monitoring whether other companies are infringing on Fujitsu's patents and what criteria you use in deciding whether to initiate litigation?*

Mr. Katoh: We are monitoring counterfeit goods in Japan, Southeast Asia and other regions as well. In Japan, the Law & Intellectual Property Unit as well as the business units monitor other firms in our industry, and we also consult with outside technology experts. Monitoring the market overseas is more difficult, but our subsidiaries and business units are on the look-out, and both the Law & Intellectual Property Unit as well as outside technology experts are constantly monitoring whether there are any products on the market that infringe on our patents.

Mr. Kawada: What specific Fujitsu patents are in technology standards?

Mr. Katoh: There are technology standards for MPEG, mobile phone and other communications technologies. Specifically, we submit a patent statement to the respective standards organization and state that we hold a particular patent, specifying the patent number.

Mr. Shimada, Mitsubishi UFJ Securities: *Internally, how are the telecommunications and IT sides within Fujitsu collaborating on the development of next-generation networks?*

Dr. Murano: The network itself will rely on the telecommunications group's technologies, but it will use technologies from the IT side, such as multimedia transmission technologies from the IP multimedia server and, for the mobile terminals, technology for streaming media to PCs, so the business will be a true collaboration. The IT side is also developing technologies to address issues such as network fragilities, or technologies for operational stability that will, for example, quickly detect whether any servers are down and then bypass the problem, or other network congestion problems stemming from fundamental problems of IP networks that have yet to be fully addressed.

Also, in regard to fixed-mobile convergence, seamless roaming will be managed not only by the network side but also by service session for users. So even if the terminal changes, we will make it so that from the application's point of view, we can identify that it is the same user. To do this, we will use middleware technology from the IT side. Currently, it is difficult to enable seamless roaming across different types of networks using only the technology from the telecommunications side. To make seamless roaming a reality, we need to be able to handle all types of networks and view users at the application level, similar to an ASP service. We need to provide the servers and services that will enable seamless roaming.

Mr. Shimada: *Including collaborations between Fujitsu Laboratories and the business units, how are you approaching the convergence of telecommunications and IT?*

Dr. Murano: In the future, for example, I think we could provide software used for seamless roaming as part of our middleware offerings. I am also thinking that, as an ASP-type service, we could have a business in which members could enroll for a service, and, no matter what network they use, they would be connected to the same server and get access to the same service. By bringing this sort of ASP-type service to fruition as a partial extension of our outsourcing business, I think we could reap synergies from our strengths in both telecommunications and IT. We are now in the midst of developing the technologies that will make this a reality.