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Nippon Telegraph and Telephone Corporation
Nippon Telegraph and Telephone West Corporation
Matsushita Electric Industrial Co., Ltd.
Matsushita Communications Industrial Co., Ltd.
Hokuriku Matsushita Life Electronics Corporation

Report on Results of Kanazawa Trial FTTH Service Project

On June 30, Nippon Telegraph and Telephone Corporation (Headquarters: Chiyoda-ku, Tokyo; President and representative director: Jun-Ichiro Miyazu), Nippon Telegraph and Telephone West Corporation (Headquarters: Chuo-ku, Osaka; President and representative director: Kazuo Asada), Matsushita Electric Industrial Co., Ltd. (Headquarters: Kadoma, Osaka; President and representative director: Kunio Nakamura), Matsushita Communications Industrial Co., Ltd. (Headquarters: Yokohama, Kanagawa Prefecture; President and representative director: Yasuo Katsura), and Hokuriku Matsushita Life Electronics Corporation (Headquarters: Nonoichi-machi, Ishikawa-gun, Ishikawa Prefecture; President and representative director: Takeo Fukuzono) completed a project in which the five companies provided FTTH services on a trial basis to users in the Kanazawa area. Largely due to the kind cooperation of users and content providers participating in the trial service, the project proved to be a successful means of investigating the viability of such services.

Main findings:

- * A number of attractive business models were developed, and knowledge was gained concerning the types of services which must be provided and the nature of the business environment needed in order to ensure the viability of related businesses.
- * Knowledge was gained about the use of content and the building of services.
- * We were able to evaluate fiber-optic networks under different traffic conditions.
 - Users reported that they experienced very good response times.
- * Problems to be solved in developing commercial home gateway devices were identified and new business models using such gateways were developed.

1. Description of trial project

The trial project was designed to verify the feasibility of local information distribution businesses in which data is transmitted over a fiber-optic network to household information appliances. In the project, approximately 120 households, businesses, and organizations were provided with wide LAN services via fiber-optic cables. The users included several SOHO users (27 lines), residents of apartment buildings (5 lines), users of public access stations (2 lines), government organizations (2 lines), and users based at special testing centers (5 lines). (See

[Attachment 1](#) for further details.) By providing access to a high-speed fiber-optic network, participants could not only download large-volume content from the trial site (site name: Hikari channel), but also upload their own content to the site in return. Over forty different types of content -- including user-created content -- were made available covering a wide variety of areas from entertainment to highly personalized information, thus making it possible to evaluate the nature of user demand for different types of content and the viability of business models built around each type of content. (See [Attachment 2](#).) The performance of the network under different traffic conditions was evaluated, and free prototype home gateway devices were provided to some of the participants to allow those with gateways to access the trial site and the Internet through their television sets as part of a project designed to learn more about the usefulness and usability of such a system. One factor that distinguished this trial project from similar projects was that participants could transmit as well as receive data content, thus enabling them to create their own content and to investigate the effectiveness of possible business models on their own. Thus, the project was oriented towards user participation. By providing an environment and services whereby users could achieve their own objectives, NTT and Matsushita were able to evaluate the effectiveness of the system from the user's perspective.

2. Findings

A number of promising business models were developed through the trial project. The most important findings were knowledge concerning the problems involved in creating services, conditions under which services ought to be provided, and the market environment required to guarantee the viability of businesses using the trial system.

- The business-to-business (B2B) communications market has already matured sufficiently to ensure the viability of services using the system even in regional cities. The actual services provided in the current trial project, which included the sale of content and the transfer of massive amounts of data by printing and publishing businesses, proved to be effective business tools by the participating users. Many users were greatly impressed by the system, with comments such as, "Once you've used the system, you couldn't go back to copper wire!" (See [Attachment 3](#).)
- The business-to-consumer (B2C) communications market is still growing, but the system was still a very effective business tool for users involved in the distribution of images or music, Internet sales, or running SOHO businesses. The current trial included test broadcasts of live musical performances, the distribution of video and advertising materials, and other multimedia applications, and made it possible to identify which applications have the greatest growth potential. Of special note was the Busdoco service which displays the current location of buses in real time and which is already being used in an actual working business.
- The consumer-to-consumer (C2C) communications market has greatest potential, and could become the core of most future businesses built around the distribution of information.
Note, however, that while many prototype services were investigated during the trial project, no 'killer service' emerged.

In terms of content distribution, the trial project included services which allowed users to view live broadcasts and download movies, thus making it possible to investigate and evaluate the performance of the network under different traffic conditions. Users' satisfaction with the speed of service was surveyed, and revealed general satisfaction with service quality. The trial was also useful for learning how to make the best use of content; for instance, the trial included a test service which involved the secondary use of programming from local broadcast stations to improve cost-performance; the results showed that the nature of the content largely determines the viability of such content businesses.

As for the home gateways that were fitted with many features designed for evaluation, it was found that the gateway units must be made more compact and easier to use. Also, a number of new film and music distribution services were developed using the gateway units' copyright protection features, and the success of these services demonstrated the potential of a new market for such services. The trial project showed that there is a huge demand for fiber-optic-enabled home information appliances. Solving the problems encountered should lead to the development of new products.

3. Other effects of the trial

The city of Kanazawa and its surrounding areas are heavily committed to the promotion of information technology, and this trial project helped accelerate the conversion to optical fiber. Kanazawa Institute of Technology, one of the organizations participating in the trial, built a LAN network with several hundred lines connecting university networks with student dormitories, enabling students to connect to the university network or the Internet over high-speed network lines. A group of stores in the Tatemachi shopping district of Kanazawa is also working to use the fiber-optic network to improve the data communications capabilities of the shopping district and so raise the image of the district.

In response to the overwhelming demand for the continuation of these services, NTT, Matsushita, and related companies plan to continue developing local information services in Kanazawa.

In preparation for the time when broadband communications become part of everyday life, it is hoped that the findings of this trial project will be used to stimulate further demand for optical network and fiber-optic services, to open new markets for the local distribution of information, and to create new businesses for the companies of the NTT and Matsushita groups of companies.

- ([Attachment 1](#)) [Overview of trial program](#)
- ([Attachment 2](#)) [Types of content provided](#)
- ([Attachment 3](#)) [Reactions from participants](#)

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