Comprehensive Commercialization Functions

Masato Mizoguchi†, Takayuki Okimura, and Atsushi Matsuda

Abstract

To meet the diverse and complicated needs of customers in the rapidly growing information and communications market, NTT is backing its R&D efforts by comprehensive commercialization functions. This article introduces NTT's commercialization activities and gives several examples of them.

1. Background

Since the reorganization of the NTT Group in 1999, the R&D Division of the holding company has steadily supplied companies in the NTT Group with research and development results. In November 2002, NTT announced its "Vision for a new optical generation — Broadband leading to the world of resonant communication" [1]. Anticipating breakthrough changes that will lead to the emergence of a safe and rich social life and business operations, it represents the common theme that unites NTT Group companies in the full-scale broadband ubiquitous era that will be ushered in by optical technology in the near future.

In line with this vision, the R&D Division introduced "comprehensive commercialization functions" in July 2003 to reinforce efforts to commercialize R&D results (**Fig. 1**). R&D activities are roughly divided into the "establishment of core technology" as a source of competitive advantages and "development for commercialization" to turn promising

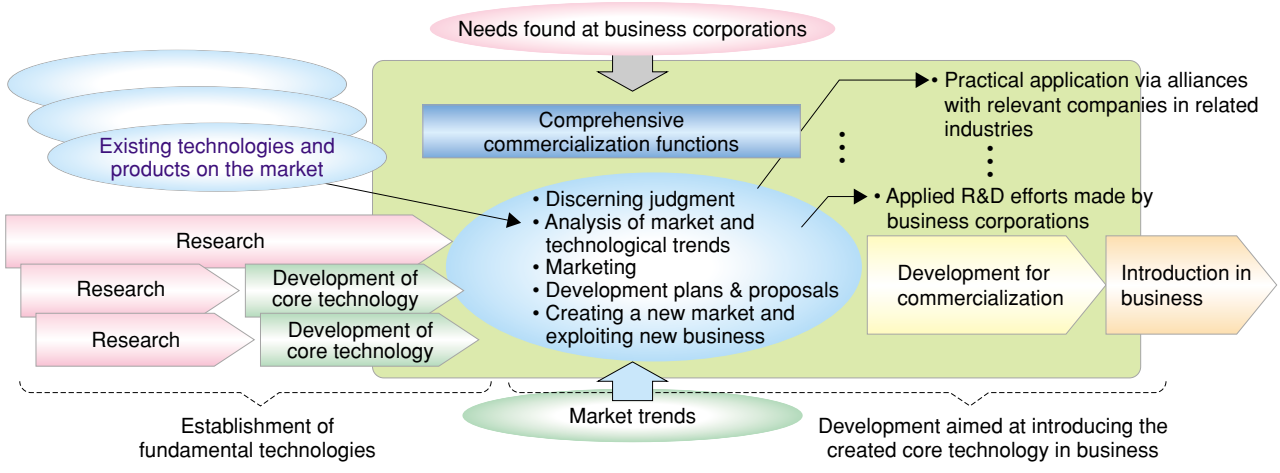


Fig. 1. Comprehensive commercialization functions.

† NTT Department III
Chiyoda-ku, Tokyo, 100-8116 Japan
E-mail: m.mizoguchi@hco.ntt.co.jp

research themes into revenue-generating business. A comprehensive producer is a person who has full authority and responsibility for managing a development for commercialization.

2. Outline

There is said to be a "valley of death" [2] between the R&D stage and the introduction of marketable products and services. Many R&D results fail to make it to commercial usefulness because of the difficulty of judging their feasibility. To overcome this barrier, the comprehensive producer tries to determine how core technology developed by NTT Laboratories can be turned into business applications. More specifically, he or she makes a discerning judgment for a technological theme, analyses market trends and customer needs, and conducts market surveys to prepare planning proposals in the development for commercialization appropriate for each technological theme. In running a development project, every comprehensive producer promises his/her own commitment targets in terms of quantitative business scale and also takes responsibility for the commercialization process. To carry out this responsibility, the comprehensive producer has overall authority for allocating and reviewing business resources and withdrawing from the project if he/she decides it will be unprofitable.

Conversion into business applications is actively addressed in view of the alliances not only among companies within the NTT Group but also with companies outside the NTT Group while paying attention to the combination of widely ranging fundamental technologies owned by NTT's R&D with the existing technologies on the market at the most timely moment. In addition, we try to pursue the possibility of applying the accumulated communications-related technologies to other fields through the comprehensive commercialization functions. The establishment of the comprehensive commercialization functions clarified the burden of risk and the range of responsibilities among the Group companies, thereby enabling steadier and more efficient execution of various developments. In December 2003, NTT established NTT Resonant Inc., which focuses on commercializing new services on the basis of various business seeds created by the NTT Laboratories. The comprehensive commercialization functions will pursue NTT Group's Medium-term Management Strategy released in November 2004 [3].

3. Examples

Figure 2 shows several ongoing technological themes. Some of them are discussed in detail in the other articles in this special feature. Below, we briefly mention some that are not, but have achieved considerable success thanks to the effective comprehensive commercialization activities.

3.1 "Ate!?melo" music search service

This new service allows mobile phone users to discover the title and artist name of music that they are currently listening to by holding the phone near the sound source (e.g., TV or radio) for about 20 seconds. The service, called "Ate!?melo" (meaning "what's that melody?"), on NTT's portal site "goo" is supplied by NTT Resonant. It began on December 15, 2004 [4]. Prior the start of this service, we performed a demonstration at "in the city Tokyo 2004", an event held in October 2004 by the music entertainment industry, to hear and collect opinions from music fans and contents holders, confirm appropriate service needs, and promote the service launch [5].

This music search service was achieved by combining fast media search technology and service integration technology, both developed by NTT Laboratories. The search technology produces characteristic information called an audio "fingerprint" from a fragment of music captured by a mobile phone. Then, from this fingerprint, a specific music title is pin-

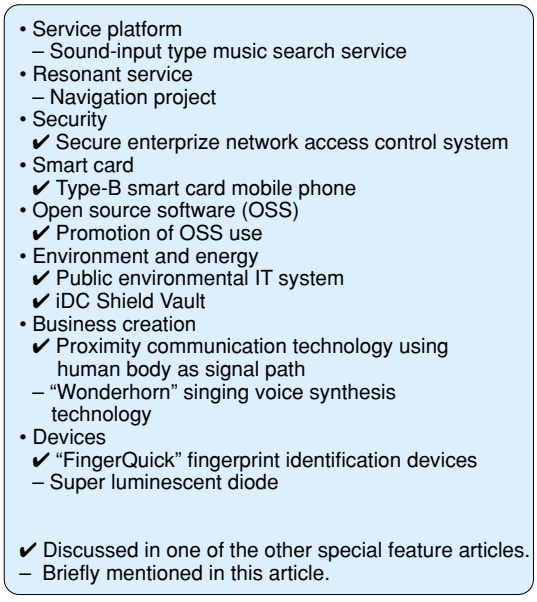


Fig. 2. Examples of themes covered by the comprehensive commercialization functions.

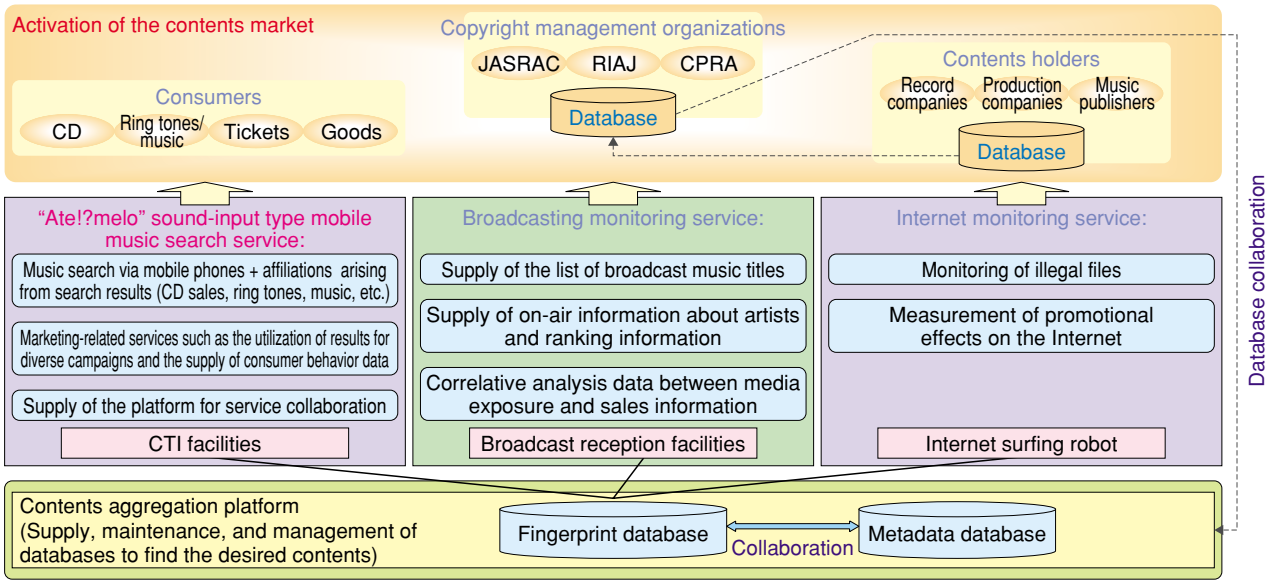


Fig. 3. Contents aggregation platform and services bound for the contents market.

pointed in a huge database that includes attribute information (metadata) about the contents. In addition, the service integration technology lets several servers, including computer-telephony integration (CTI) servers for receiving and handling phone calls and fingerprint-matching servers, collaborate with each other, enabling us to flexibly extend or change the service in the future.

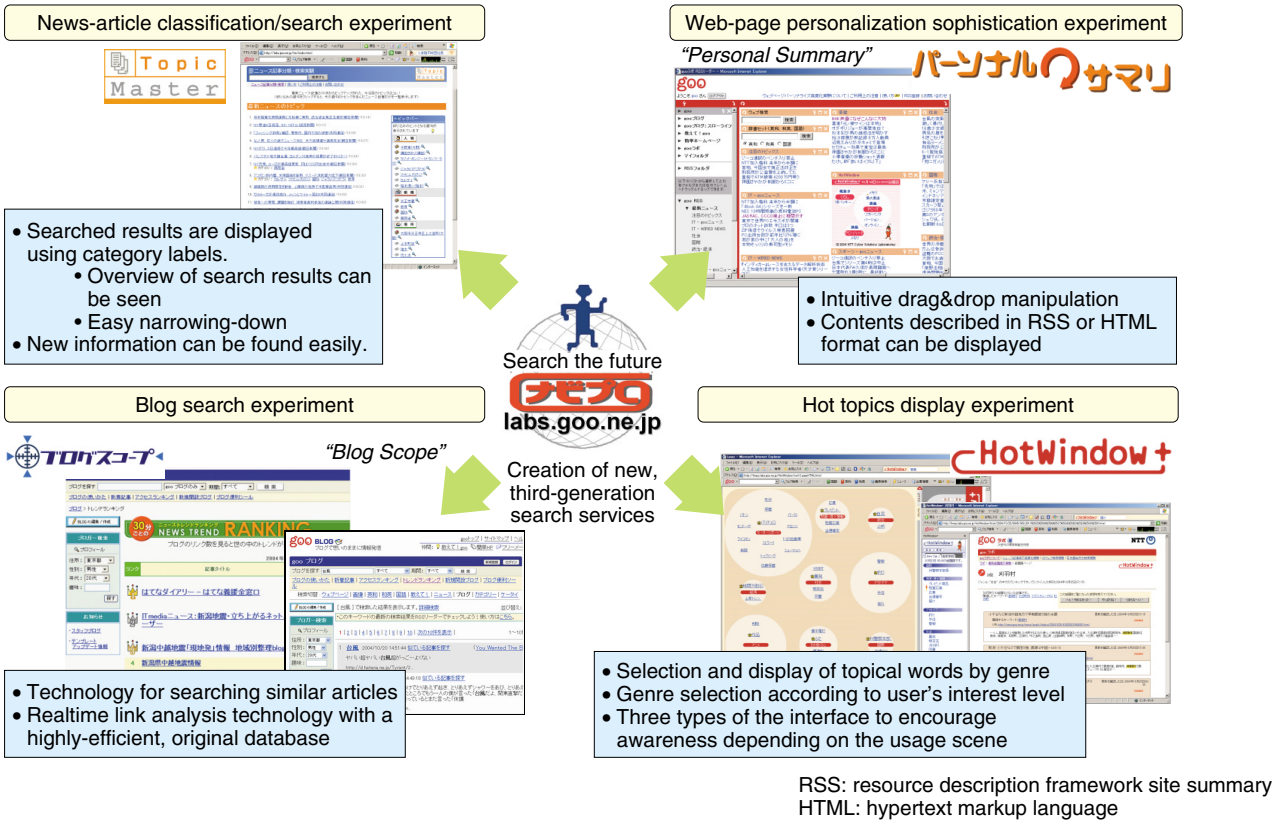
We attempted to diversify search methods through a mobile phone such as supporting a humming search, searching by humming a part of a tune, or voice recognition search. Based on the audio fingerprint database, NTT plans to build up an evolving "contents aggregation platform" including broadcasting/Internet monitoring service and music ID conversion service useful for various affiliation services for contents holders, copyright management organizations and broadcasting service operators through repeated experimental tests jointly performed with partners in each industry (**Fig. 3**).

3.2 Navigation project using goo labs.

Navigating technology is becoming more and more important to enable effective utilization of Internet information, which continues to grow at an exponential rate along with the rapid propagation of broadband communications. NTT and NTT Resonant set up a joint navigation experiment to test third-generation search services that will enable users to get appropriate information related to business and entertainment. Marketing in preparation for the launch of commercial services is in progress with some open joint tests on goo labs. [6], a Web site designed for field evaluation of NTT's research results. The open experiments started by this project include "TopicMaster" to classify and display search results of news articles, "BlogScope" to efficiently search all sentences of web-log articles and topical articles (launched in goo's commercial service on February 1st), "Personal Summary" that allows users to view their favorite contents arranged in a free layout via simple drag&drop manipulation, and "HotWindow+" to automatically select and display the latest topics from news sites and blog sites (**Fig. 4**). The project encourages many customers to directly experience new navigation techniques and provide frank feedback so that both applied technologies and services can be enhanced as soon as possible.

3.3 "Wonderhorn" singing voice synthesis technology

"Wonderhorn" is a computerized synthesis technology for creating voice messages in a particular person's singing voice. It blends music and lyrics that the user inputs with a singing voice taken from a personalized database of previously registered voices by applying a model for reproducing the harmonic overtone structure appropriate to each individual and mixture technology for special residual noises extracted from actual singing voices (**Fig. 5**). "Wonderhorn" has already been furnished by NTT Advanced Technology (NTT-AT) to companies in the entertainment



RSS: resource description framework site summary
HTML: hypertext markup language

Fig. 4. Navigation project.

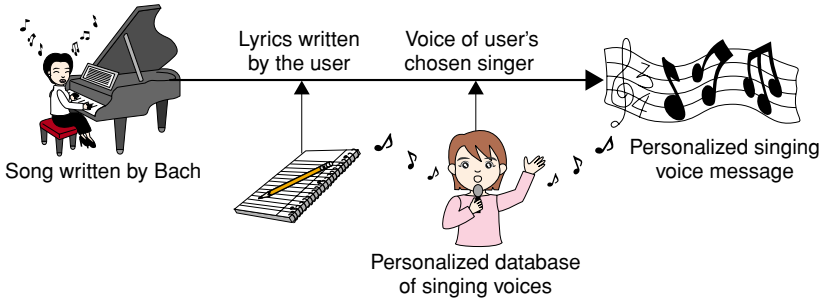


Fig. 5. Example of using "Wonderhorn".

field including game and music education. Anyone can try the singing voice synthesis function using the sample voice database Utabara.com [7] operated by NTT-AT.

3.4 Super luminescent diode used for medical imaging

We are trying to apply some of the leading-edge optical device technology developed by NTT for optical communications systems to other fields. One such technology is a super luminescent diode (SLD) light source, which we are trying to apply to optical coherence tomography (OCT) for medical purposes. OCT is a noninvasive *in-vivo* imaging technique. **Figure 6** shows OCT images of masu salmon eggs provided by Yamagata Promotional Organization for Industrial Technology. The combination of OCT with an endoscope is expected to provide early detection and medical treatment of various cancers. The SLD light source provides a wide bandwidth (1310-nm band) and high intensity (at least 30 mW for fiber-coupled emission). It should lead to much clearer and finer tomographic images. The SLD light source is already being sold by NTT Electronics (NEL) [8].

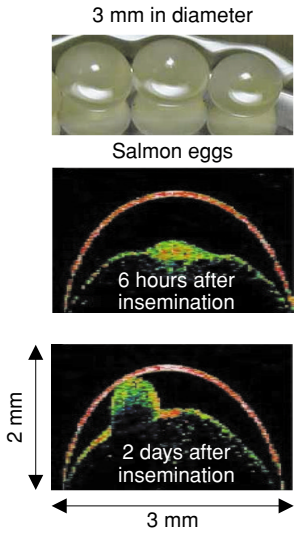
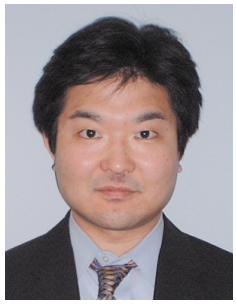


Fig. 6. OCT images showing the growth state of masu salmon eggs.

References

[1] N. Wada, "Vision for a New Optical Generation," NTT Technical Review, Vol. 1, No. 1, pp. 6-17, 2003.
[2] http://www.atp.nist.gov/atp/secy_rept/evans_rpt.htm
[3] "NTT Group's Medium-term Management Strategy," NTT Technical Review, Vol. 3, No. 2, pp. 38-44, 2005.
[4] http://mobile.goo.ne.jp/melody/ (in Japanese).
[5] http://www.inthecity.jp/ (in Japanese).
[6] http://labs.goo.ne.jp/ (in Japanese).
[7] http://www.utabara.com/ (in Japanese).
[8] http://www.nel-world.com/news/news_sep04_1.html



Masato Mizoguchi
Senior Manager, R&D Produce Group, NTT Department III (R&D Strategy Department).
He received the B.E. and M.E. degrees in electrical engineering from Tokyo University of Science, Tokyo in 1989 and 1991, respectively. Since joining NTT in 1991, he has mainly been engaged in R&D of the personal handy-phone system (PHS) and high data rate wireless LANs such as IEEE 802.11a. Since 2004, he has been working in the R&D Planning Team for comprehensive commercialization functions. He received the Young Researcher's Award and the Best Paper Award from the Institute of Electronics, Information and Communication Engineers (IEICE) of Japan in 1998 and 2000, respectively. He is a member of IEICE and IEEE.

Takayuki Okimura
Senior Manager, R&D Produce Group, NTT Department III (R&D Strategy Department).
He received the B.E. and M.E. degrees in electronics from Kyushu University, Fukuoka in 1985 and 1987, respectively. In 1987, he joined NTT, where he was engaged in R&D of electronic display systems. He is now engaged in R&D planning for comprehensive commercialization functions. He is a member of IEICE and the Institute of Image Information and Television Engineers.

Atsushi Matsuda
Senior Manager, R&D Produce Group, NTT Department III (R&D Strategy Department).
He received the B.E. and M.E. degrees in civil engineering from Tokyo Institute of Technology, Tokyo in 1982 and 1984, respectively. In 1984, he joined NTT, where he was engaged in the development of outside plant and telecommunications plant planning management. For three years prior to his present position, he was in charge of the audio visual and sales department in NTT Learning Systems. He is currently a chief of the R&D Planning Team for comprehensive commercialization functions.