

Raising Development Productivity by Linking Knowledge

NTT Software Corporation

If software is the embodiment of engineers' knowledge and know-how, software development could be the process of converting users' needs (tacit knowledge) into explicit knowledge expressed in computer language. NTT Software Corporation is trying to upgrade its software development processes using knowledge sharing and linking made possible by REALCOM's KnowledgeMarket.

Becoming a Knowledgeable Company

NTT Software was established in 1985 to commercialize the advanced technologies generated by NTT's research and development activities. Based on its core mobile & security, network services and enterprise businesses, the company is growing into a solutions provider offering comprehensive services covering the entire life cycle of a system, from system-installation consulting to system integration, operation, maintenance and upkeep.

To date, many of NTT Software's development projects have been for other NTT group companies. But with the recent climb in orders from outside the group and from various industries-customer needs are increasingly segmentalized. As a result, the company must respond quickly to diverse customer demands with good ideas and greater productivity.

To resolve these management challenges, Seishiro Tsuruho, then president (and now advising board member), set forth the vision of becoming an "Intellectual Company" in April 2000, a vision that led to the company-wide introduction of knowledge management at NTT Software.

Mr. Tsuruho envisioned, "the Intellectual Company as achieving greater intellectual productivity across the entire organization. For a software company such as ourselves to increase the productivity throughout the organization, we needed a system that could share and utilize know-how amassed by each engineer across development teams and the organization as a whole."

"The process of developing software entails uncovering, identifying and conceptualizing tacit knowledge (e.g., What knowledge does our customer rely on to perform its work? What challenges does it face?). We then convert that into explicit knowledge (software). So, first we needed to pre-

serve on the system knowledge and know-how essential to the development process for future re-use by other employees. Also, to speed up decision-making in the workplace, each employee needed to learn from that wealth of knowledge. In other words, while knowledge management was a means to efficiently run the cycle of intellectual production-in this case, software development-it was also an important measure to resolve one of our management challenges," continues Mr. Tsuruho.

Meanwhile, separate from this strategic judgment, Mr. Tsuruho notes that employees had begun to recognize the necessity and importance of sharing knowledge. A group of volunteers that had begun probing a path toward becoming an Intellectual Company came together and eventually grew into a knowledge management promotion team.

Its Community Approach was the Clincher

In the latter half of 2000, studies at NTT Software's knowledge management promotion team to introduce knowledge management had moved into high gear. By then, a variety of knowledge management tools were already on the market. After a survey and analysis of these products, the company decided on REALCOM's KnowledgeMarket.

Mr. Hiroshi Sakai, a member of the knowledge management promotion team, recalls the circumstances leading up to the company's choosing KnowledgeMarket. "We studied a variety of software tools, but I was very attracted by KnowledgeMarket's product concept of using a community approach to link individuals together.

We concluded that KnowledgeMarket would enable us to successfully link and distribute individuals' know-how."

As management head, Mr. Tsuruho agreed with Mr. Sakai's determination, making the decision to introduce KnowledgeMarket official. In February 2001, only 3 months after launching a knowledge management introduction project, KnowledgeMarket was up and running.

KnowledgeMarket's operation began with a 3-month pilot targeting a few-dozen system engineers as its core users. The pilot community comprised 3 corners: an open Q&A venue; a database profiling individual employees to locate holders of specific expertise; and a forum for each employee to post their own knowledge or know-how.

Employees were free to participate in the pilot community at their own will. This was because past attempts to promote knowledge management by requiring employees to contribute knowledge had failed.

Instead of compulsory participation, the knowledge management promotion team used internal media such as email magazines and company newsletters to reach out to employees and promote KnowledgeMarket's effects. The team also kept a constant eye on questions posted to the system to ensure answers were provided. It also utilized a function of KnowledgeMarket that enables users to provide feedback on the usefulness of the knowledge by inputting how many hours the shared knowledge saved them. The company used another feature that calculates this feedback into a total number of "hours saved" for others and ranks employees by intellectual contribution to create a commendation system to incentivize experts.

Moreover, top management answered employee questions as experts themselves

to convey the communities' significance and the strategic importance of knowledge sharing and show management's commitment to it.

From Sharing Techniques to Creating Knowledge and Practices

These efforts bore fruit. One and a half years after launch, the pilot project had grown to the point where 70% of employees were viewing it. According to the feedback points, the pilot had saved a cumulative 9,000 hours. Costs saved by reducing duplicative work alone translated to a return in line with the investment.

Besides cost savings, KnowledgeMarket contributed to speedier and more sophisticated customer service. In some cases, experts answered queries posted to the Q&A forum in as few as 5 minutes, enabling speedy customer response. Employees noted that they were able to gather ideas for customer proposals from across the company. Q&A involved interdepartmental interaction in over 75% of the cases. Moreover, knowledge flowed unshackled by rank or seniority; just as veteran employees answered questions from new hires, lower-level managers answered middle management's queries. In sum, the company had gained a degree of success toward its initial goal-to share know-how and techniques among individual engineers.

In March 2003, NTT Software concentrated its existing technology- and development-related knowledge into a Design and Development Community and launched three additional communities: Business Proposals, Work Support and Intellectual Curiosity. The company credits these measures with sowing the seeds of a new work process--sales representatives and system



Seishiro Tsuruho
Advising board member, NTT Software

engineers began using KnowledgeMarket's communities to discuss and implement actions for customer requests. Managing knowledge at the company had progressed beyond getting engineers to share know-how. Now, it was approaching the next stage--spreading knowledge to sales reps and system engineers and creating best practices to improve the entire organization's development capabilities.

Finally, Mr. Tsuruho adds, "the software industry is a knowledge industry, and so much of software development is about knowledge management. By managing knowledge with KnowledgeMarket's focus on people, we were able to return to our roots of productive development by mobilizing knowledge from inside and outside the company and sharing know-how in a timely fashion."

CASE STUDY OVERVIEW

Purpose of knowledge management

- Raise software development efficiency and productivity by sharing and utilizing individuals' know-how throughout the company
- Increase customer service speed and sophistication by collectively organizing everyone's knowledge
- Create best practices to boost development capabilities

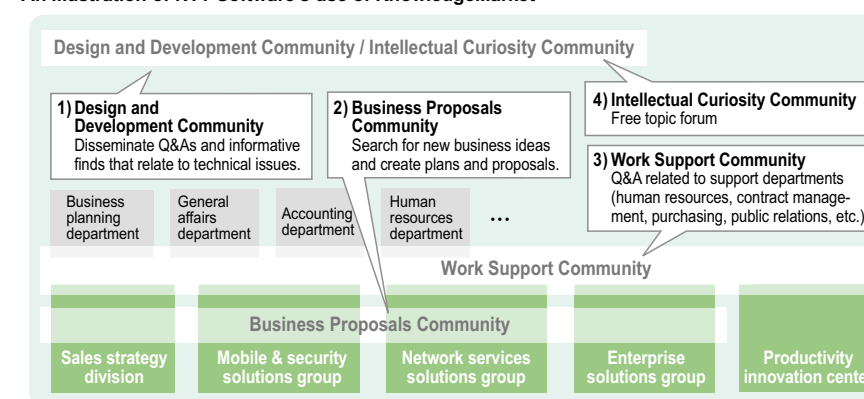
Benefits from knowledge management

- Quicker acquisition of specialized knowledge and greater skill improvement by employees using the Q&A system
- More efficient collection and utilization of hints and know-how to resolve customer issues
- Improved intellectual productivity throughout the organization by utilizing expert knowledge (lower costs)

Number of users

- Approximately 1,500 (all employees)

An illustration of NTT Software's use of KnowledgeMarket



USER'S PROFILE

Company name: NTT Software

Corporation Capital: 500 million yen

Employees: approximately 1,500

Areas of business:

Software design, development, sales, operation, maintenance and quality control. Network systems design, development, construction, management, operation, maintenance and system evaluation. Network information provision, information processing and settlement (including proxy collection), correspondence sales services, distance education services. Hardware development, manufacturing, sales and installation. New technology studies, applied development, consulting, education and training.

Places of operation:

Tokyo, with business offices in Nagoya, Osaka, Yokohama and other cities.

Revenue: 39,858,859,000 yen (FY2002 results)

URL: <http://www.ntts.co.jp/>