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## Wonders Knowledge Portal

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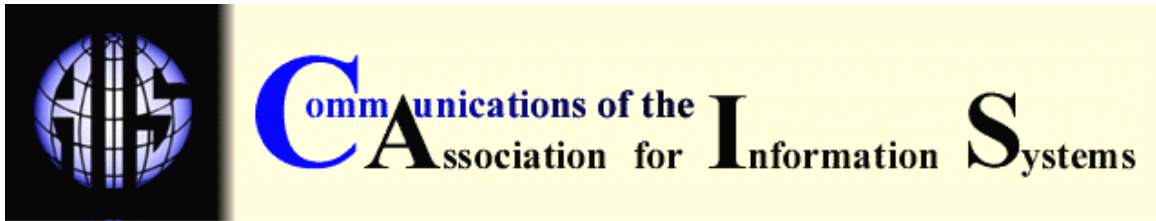
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## WONDERS KNOWLEDGE PORTAL

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### ABSTRACT

In 2002, Wonders Information Co., Ltd., a software company headquartered in Shanghai, China, started building a knowledge management system. The system, called Wonders Knowledge Portal (WKP), appeared to be well intended, well planned, and well designed. Its functionalities seemed useful and should have appealed to employees. Nevertheless, the usage of the system by the employees had been limited, and the company risked wasting its investment in the KMS.

**Keywords:** knowledge management; knowledge management systems; user acceptance

### I. INTRODUCTION<sup>1</sup>

Headquartered in Shanghai, China, Wonders Information Co., Ltd was a leader in the Chinese city informatization industry. It enjoyed great successes delivering large-scale information systems to government clients. To cope with the fast growth and to promote knowledge sharing among all employees, Wonders decided to build a knowledge management system in late 2002. The system –Wonders Knowledge Portal (WKP) – was first put into use at the end of 2003. More than a year later in January 2005, Dr. Cheng Chen, the director of Wonders' R&D department that oversaw the development of the WKP, expressed his disappointment when asked how employees had embraced the system. He admitted frankly, "While there are some successes, overall the usage has not really picked up." And he wondered what happened and what the company needed to do to change the situation.

### II. A HISTORY OF GROWTH

Wonders Information Co., Ltd. was originally a prestigious software research institute in Shanghai, China. The current company was incorporated in December 1995. After exploring for the first couple of years, the company started to focus on the city informatization market in 1997, when it successfully developed the Shanghai Industrial and Commercial Administration

<sup>1</sup> Unless specified otherwise, this segment and the next one were based on the press interview with Dr. Donald Li, the chief technology officer, and Ms. Yimin Zhang, the sales supervisor, at the 4th Annual Forum on City Informatization in the Asia-Pacific Region (May 20-22, 2004, Shanghai, China).

Information System. This project, together with a few other highly visible projects (such as the Shanghai Social Security Management Information System, the Shanghai Medical Insurance Management System, and the Pudong International Airport Management Information System), established Wonders' leading position in the city informatization industry in both Shanghai and China.

The company grew at a brisk pace, even between the years 2000 and 2003, a period called "IT winter" in China. The total number of employees had increased from 50 to more than 500. Headquartered in Shanghai, the company had branched into many other cities across China. Although most of its revenue still came from the Shanghai market, revenues from non-Shanghai markets were becoming increasingly important: They had at least doubled every year between 2000 and 2003 and were expected to reach 25% of the company's total revenues in 2004. In 2002, Wonders opened a child company in Silicon Valley in the United States.

The businesses also expanded. Wonders started as a software developer and system integrator. While traditional system integration and application software development remained the main businesses, each contributing about 40% of the company's revenues, consulting and outsourcing services together contributed about 20% by 2004. Most of the revenues were generated through nearly 20 business departments, which were grouped into four business divisions. Each business division competed in one of the following market segments: e-government, social security, public services, and business services. A fifth division provided system integration supports to the four business divisions. Typically, the business departments handled the projects with help from other functional departments, such as the marketing and legal department. (The organization chart is shown in Figure 1). For example, when the marketing department received a project lead, the information was passed to a certain business department. The business department would then lead the bidding, with help from functional departments and perhaps other business departments. If the project was won, the business department would take ownership of it and organize the system development. The maintenance of the developed system would, however, be assigned to the Maintenance and Service Department, which was separate from the business divisions. The five business divisions employed about 300 people in total, most of whom held at least a bachelor's degree. In addition, an independent R&D center employed about 25 researchers, more than half of whom held at least a master's degree.<sup>2</sup>

## THE NEED FOR A KNOWLEDGE MANAGEMENT SYSTEM

Concerned by the tough business environment Chinese IT companies faced between 2000 and 2003, the board determined to focus on "core competencies first, scale second." Accordingly, Wonders' strategy could be summed up as "to pursue competitive advantages through improving both internal processes and customer engagements." Dr. Donald Li, the chief technology officer and one of the vice presidents, was convinced that among the top items on the agenda should be investing in a knowledge management system.

*We had to be concerned about how to reduce costs and how to promote our core competencies. Software companies, especially those like us that focus on system integration and software development, depend greatly on their employees. Our company is all about projects. We need an enormous amount of knowledge in project bidding, project authorization, system development, system deployment, and system maintenance. Much of the knowledge was stored with individual employees, in their computers or in their brains. It was very difficult for others to share such knowledge. We had to build a system to accumulate, to exchange, and to share the knowledge, thus reducing our dependencies on individual employees and cutting project costs.* Dr. Donald Li.

<sup>2</sup> Source: Internal Wonders documents.

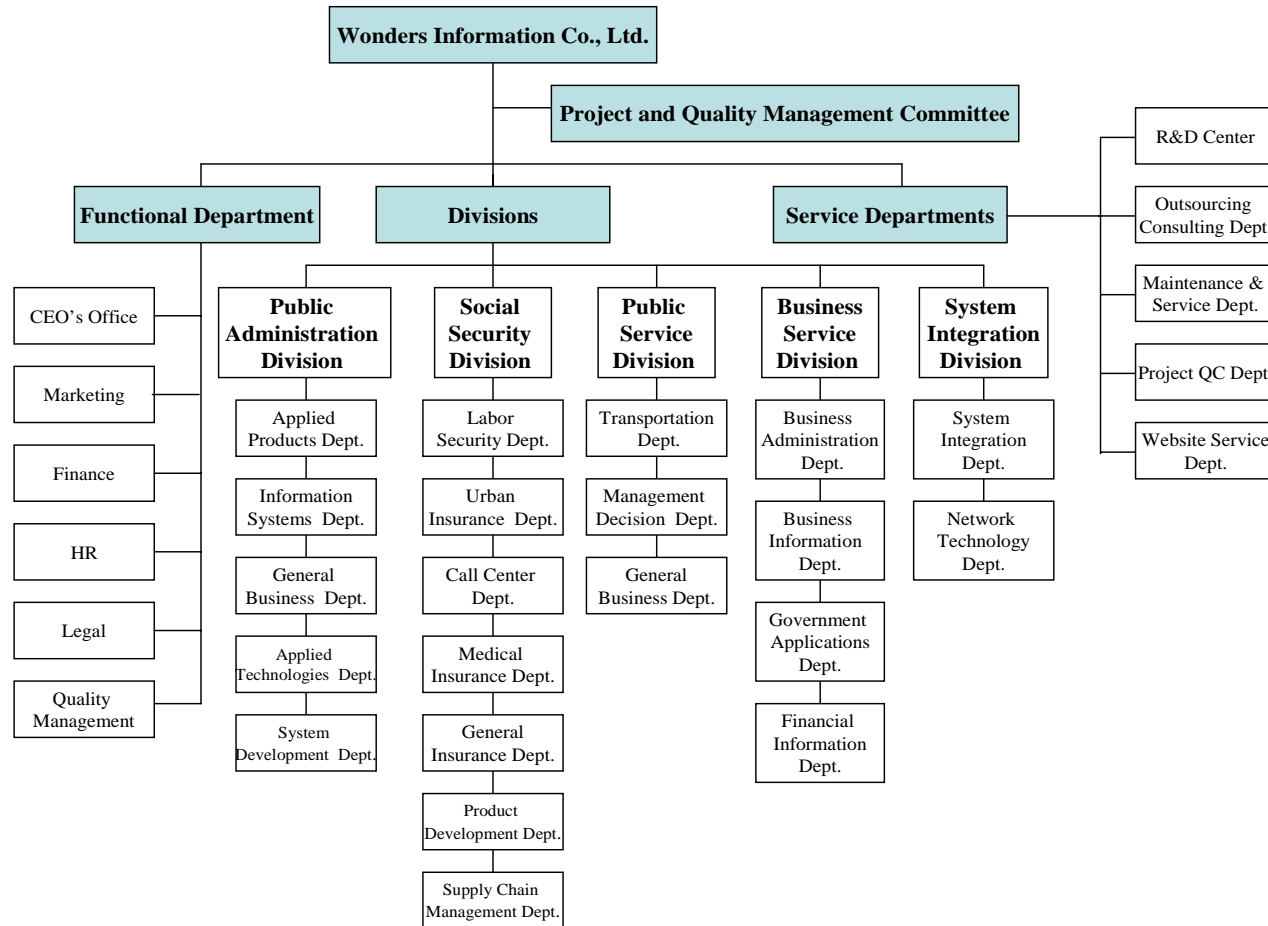


Figure 1. Wonders Organization chart

The need for better knowledge sharing was felt throughout the organizational hierarchy.

*There was little communication between business divisions, probably because every division had its own budget. Each division used to even have its own salespersons who engaged the customers and signed project contracts. They were all parallel to each other.* Dr. Jingy Zhang, project manager, R&D center.

*We have grown bigger. There are many more departments and many more employees. In addition to the Shanghai headquarters, we also have branch offices in other cities. Each department had a different focus, and nobody knew them all. If I were to use particular knowledge, I would certainly wish that I could get it through knowledge sharing. It would also be efficient: You would rather contribute only once and make it available to everybody than have to respond to the same request again and again.* Dr. Cheng Chen.

The idea of building the knowledge management system (KMS) surfaced in late 2002 and was quickly approved by the board. The system was targeted “to improve the knowledge workers’ productivity, to expedite responses to environmental changes, to innovate the business model, and to enhance the core competencies.”<sup>3</sup> The R&D center was awarded the project due to its involvement in corporate information management and its experience in organizing and reusing corporate software assets. Dr. Li headed the project, and Dr. Chen and Dr. Zhang became leading members of the project team.

### III. THE DESIGN

The first design question the project team tackled was: “What is knowledge?” Or, what knowledge should be managed by the KMS? The team defined knowledge in a broad way.

*We defined knowledge as valuable information that is relevant to any aspect of our business, such as sales, customers, competitors, technologies, products, employees, suppliers, partners, business processes, etc. Knowledge is not limited to technology- or product-related files or documentations. As long as the information is relevant and valuable to our business, we view it as knowledge. Of course, there are two types of knowledge. One is explicit and visible, as stored in the files or documentations. The other is tacit. The tacit knowledge has to be unearthed through knowledge exchange. We have to take care of both. Only in so doing can we build a comprehensive knowledge management system.* Dr. Li

This broad view of knowledge as useful information and the emphases on both tacit and explicit knowledge greatly influenced the KMS’s design. Instead of being an isolated system focusing on technical or product knowledge, the KMS was deemed from the beginning to be part of the corporate information infrastructure, and great efforts were made to ensure that it could be easily integrated with other information systems. The project was to be implemented in four phases.<sup>4</sup> The first two phases concerned the KMS itself. Phase 1 focused on explicit and tacit knowledge and Phase 2 on useful information. In Phase 3, the Office Automation (OA) system would be integrated with the KMS, and workflow engines would be used to facilitate automatic knowledge collection. Finally, the KMS would be connected with other systems, such as the Customer Relationship Management (CRM) and Human Resource Management (HRM) systems, fully integrating it into the corporate information infrastructure (Table 1).

<sup>3</sup> Source: Internal Wonders knowledge management system project document.

<sup>4</sup> Source: Internal Wonders Knowledge Management System project document.

Table 1. System Implementation Phases<sup>5</sup>

<p>Phase 1: Implementing the knowledge functionalities of the system</p> <ul style="list-style-type: none"> <li>• User Interface</li> <li>• System Control Panel</li> <li>• Inquiry System</li> <li>• Search Engine</li> <li>• Documentation Center: <ul style="list-style-type: none"> <li>○ Knowledge category management</li> <li>○ Knowledge folder management</li> <li>○ Knowledge item management</li> <li>○ Knowledge authorization management</li> <li>○ Knowledge contribution management</li> </ul> </li> </ul> <p>Phase 2: Implementing the functionalities that handle useful information</p> <ul style="list-style-type: none"> <li>• Information Center: <ul style="list-style-type: none"> <li>○ Q&amp;A database Management</li> <li>○ Expert database Management</li> <li>○ Blog center</li> <li>○ Information filing</li> <li>○ Process documentation</li> </ul> </li> </ul> <p>Phase 3: Implementing the process/workflow management functionalities</p> <ul style="list-style-type: none"> <li>• Office Automation <ul style="list-style-type: none"> <li>○ Mail management</li> <li>○ Office management</li> <li>○ Auditing management</li> <li>○ Document management</li> <li>○ Bulletin board system (BBS)</li> </ul> </li> <li>• Standard Process Management <ul style="list-style-type: none"> <li>○ Knowledge collection process</li> <li>○ Documentation circulation process</li> <li>○ Fund application process</li> <li>○ And other processes</li> </ul> </li> </ul> <p>Phase 4: Implementing the interfaces between the knowledge management system and other systems</p>
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### MANAGING EXPLICIT KNOWLEDGE

Wonders had generated a large amount of explicit technical knowledge (e.g., reports, documentations, software components) ever since it was founded. In the past, some efforts were made to organize and reuse this knowledge. Without a corporate KMS, such efforts were sporadic and mostly within individual business divisions. Sharing such explicit knowledge across divisions proved to be difficult, if not impossible. The KMS project provided Wonders with the first opportunity to manage its explicit knowledge systematically.

<sup>5</sup> Source: Internal Wonders Knowledge Management System project document.

The project team adopted an object-oriented way to describe knowledge: Each piece of knowledge was considered an instance of a template. The key to each template was a set of properties that described the knowledge. When submitting a piece of knowledge, a user needed to provide the values of these properties, first by identifying the right template, then creating an instance of the template, and finally filling in appropriate values for the properties defined in the template so that the knowledge can be best described. The submitted knowledge was organized hierarchically using a tree structure. For example, one of the top categories was product information, which included four subcategories:

- security,
- network,
- system software, host, and
- storage.

Security was further divided into a few third-level categories, such as antivirus, firewall, and anti-spam. Hence knowledge about Norton Antivirus, a popular antivirus software program, would fall under the category “product information – security – antivirus.” All submitted knowledge had to be categorized through to the lowest level of the hierarchy. A piece of knowledge could be placed in more than one category.

The project team, together with representatives from the business divisions, developed the templates and hierarchy. The project team was confident that the hierarchy reflected user requirements. However, such categorizations were dynamic in nature and needed to be updated constantly. For this purpose, an employee from the R&D center was designated as the contact person. Whenever a template or the hierarchy needed change, users would ask the contact person to make the necessary adjustments.

The design encouraged users to submit knowledge on their own behalf. To ensure the quality of knowledge admitted into the KMS, the submitted contents had to be first reviewed by a knowledge auditor, typically an expert in the area of the knowledge. Only knowledge that had passed the review could be admitted into the KMS. Supports for this review process also were to be built into the KMS.

## MANAGING TACIT KNOWLEDGE

Dr. Li imagined three ways in which the KMS would handle tacit knowledge:

*First, we used the coordination platform. ... Such platforms provided employees with an environment to expand their scope of knowledge exchange (beyond their local contacts) and to unearth tacit knowledge during their knowledge exchange. Second, we used the online forums, which were good places for discovering tacit knowledge. One could put forward a question, and others could answer it or discuss it. ... The third way was expert columns. Columns were for experts to put their knowledge onto the corporate platform. We had experts in all areas. These experts would regularly publish articles in the KMS. All these articles were original works. They summarized the experts' experiences, both their own and those they gained through knowledge exchange. By publishing these articles in the KMS, the experts converted their tacit knowledge into explicit knowledge and made it available to others.*

All three means of handling tacit knowledge were designed into the system. Online forums were to provide an online meeting place for employees to engage in real-time interactions. The functionalities offered were similar to those provided by popular online meeting tools, such as Microsoft NetMeeting and Yahoo! Messenger. Tools such as multimedia conferencing, electronic whiteboard, and document sharing also were provided.



The online forums allowed asynchronous discussions among employees.

*The forums were originally created in the hope of promoting informal exchanges between employees. No limitation was set on the content. ... We did not have specific expectations for the forums, except for providing the employees with a platform to chat with each other. It was also meant for the employees to express themselves: Documents had to go through the submission process and could only be put into the knowledge base after reviews. Columns were for experts. Neither was for average employees who just wanted to write something. We needed a place like the forums. Dr. Zhang*

The online forums were organized by subjects. They were designed to operate much in the same way as typical online forums that populate the Web. Since anonymous postings were disallowed, a user had to log in to post a message in the forums.

Columns were the space for the experts to share their experiences and thoughts with others. The project team, under Dr. Li's direction, identified the experts for each column. While only experts could contribute articles to columns, everybody could read the articles and interact with experts regarding the articles. For example, readers of a column could ask the system to direct their questions to a particular expert or all the experts of the column. All such interactions were logged by the system and made available to all readers.

#### **ACCOMMODATING USEFUL INFORMATION**

Some information in Wonders was not related to technologies or products, but was considered important in improving employee productivity and sometimes was even critical in securing projects. Functionalities for managing such information were also put into the KMS. Here are two examples:

*Most employees did not know administrative procedures, for example, how to get reimbursed, at all. They had to ask the secretaries. Sometimes even secretaries were not quite sure, especially when there was a change in the policy. Dr. Chen*

.....

*When we were bidding for a project, it was important to give information on employee qualifications. For example, how many of our engineers have certain CISCO certifications? Without the KMS, we could only take a guess and put the estimation in our bids, which was not quite the right thing to do. Dr. Chen*

#### **TO BUY OR TO BUILD**

After finishing the system design, the project team reviewed the available off-the-shelf products. They found that no single available product covered all the desired features. The project team opted for building the system with Wonders' own resources. After all, Wonders was a software company. Besides, it might be able to offer similar systems to its customers in the future. The KMS, named Wonders Knowledge Portal (WKP), was set as the home page of Wonders Intranet:

*From the company perspective, the reason we want our employees to logon the Intranet is to find the information they need or to share the information they own. This reason is probably different from those in many other companies, whose Intranets focus on Office Automation. ... We focus on knowledge, its discovery, its sharing, and its exchange. Dr. Li*



#### **IV. THE SYSTEM**

Figure 2 shows the homepage a user saw as she logged on the WKP, or for that matter, the Wonders Intranet. Functionalities were grouped into channels, which were listed right below the title bar. Table 2 summarizes the channels.

##### **CHANNELS FOR ACCOMMODATING USEFUL INFORMATION**

Six channels – news, corporate, human resource, projects, personal, and mail – offered access to useful information. The news channel included mainly recent corporate news and press reports of the corporation. The corporate channel presented information on the company, such as introductions to its organizational structure, products, research projects, and policies. Both channels were maintained by the CEO's office.

The human resource (HR) channel focused on employee training and certifications. The HR department, the owner of this channel, would post the available training opportunities to this channel. Once an employee received certain training, or obtained certain certification, the information was submitted through this channel, and the database containing such information would be updated accordingly after the HR department verified the information. This channel also included a database of employee expertise. The expertise was categorized in a way similar to how explicit knowledge was categorized: in a tree-structured hierarchy. All employees were mapped into the database. Through a search engine, employees with certain skills, training, or certifications could be identified.

The projects channel was the interface to other information systems at Wonders. After a user successfully logged onto the WKP, he could choose to enter other information systems (such as the Customer Relationship Management System) that he was authorized to use through the project channel without having to login again. The personal channel allowed users to personalize the WKP. A user could modify personal information, review past contributions, check submission status, and perform other personal tasks. For example, if the user was an expert, the personal channel would present a list of questions that were directed to her. The mail channel was simply an entrance to the company's e-mail system.

##### **CHANNELS FOR MANAGING EXPLICIT KNOWLEDGE**

Explicit knowledge was managed in two channels: document center and software assets. In the WKP, contributions made through the document center channel were called articles. The channel homepage listed the highest two levels of the explicit knowledge categorization hierarchy. Users could browse the articles by clicking on these category items, and further choosing from the list of lower-level hierarchies or articles (Figure 3). Software components were managed through the software assets channel in much the same way as articles were managed through the document center channel.

A "contributing knowledge" button was available on the home page of both channels. Clicking on this button would initiate a process by which a user could contribute explicit knowledge (i.e., an article or a software component). He would first determine the category or categories to which the knowledge belonged and then choose the correct template. The template would guide the user to supply relevant information that best described the knowledge. The information could later be used by a search engine to locate the knowledge (see Figure 3 for information on the search engine). If successfully submitted, the system would route the contribution to a knowledge auditor for review before the contribution was admitted into the WKP.

Channel list (from left to right): Home, News, Corporate, HR, Projects, Forums, Documentations center, Software assets, Columns, Coordination, Ranking, Personal, Mail

Wonders Knowledge Portal

Wonders News  
Left list: most recent news  
Right list: most recent memo

Wonders Forums  
Left list: most recent important posting  
Right list: hot postings

Documentation Center  
Left list: most recent document  
Right list: hottest document list

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Matrix  
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专家库链接:  
FreeLamp  
计算机应用文摘  
Linux伊甸园  
炎黄角马  
安全焦点

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嵌入开发网  
Linux21cn  
WEB软件技术联盟  
WSDN

万达新闻 [Enter]

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2. 热烈祝贺我司荣膺“全... (2004.02.09)
3. 热烈祝贺李光亚同志在... (2004.02.09)
4. 热烈祝贺史一兵同志当... (2004.02.09)
5. 热烈祝贺我司荣获“上... (2004.01.13)

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2. 网上投票开始了 (2004.01.08)
3. 增设特别奖通知 (2004.01.08)
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1. 沉默不是金 (作者: 许克军)

贡献知识

Button to contribute knowledge

Figure 2: Wonders Knowledge Portal Homepage

Table 2. Summary of Channel Functionalities Offered by the Wonders Knowledge Portal

<b>Channel</b>	<b>Functionalities Offered</b>
<i>Channels for accommodating useful information:</i>	
News	Recent corporate news and press reports.
Corporate	Introduction to the company background and current activities/events.
Human Resource	Employee training and certification information. <ul style="list-style-type: none"> <li>• A search engine allows searching employees by expertise or certifications.</li> </ul>
Projects	Entrance to other corporate information
Personal	Customization of the WKP by individual employees.
Mail	Entrance to the email system.
<i>Channels for managing explicit knowledge:</i>	
Document Center	Mainly product- and technology-related documentations. <ul style="list-style-type: none"> <li>• Content organized in a tree-structured hierarchy .</li> <li>• Users can browse and search for content.</li> <li>• Users can submit content to the WKP.</li> </ul>
Software Assets	Software components. <ul style="list-style-type: none"> <li>• Software components organized in a tree-structured hierarchy.</li> <li>• Users can browse and search for software components.</li> <li>• Users can submit software components to the WKP.</li> </ul>
<i>Channels for managing tacit knowledge:</i>	
Forums	Online forums.
Columns	Articles by experts. <ul style="list-style-type: none"> <li>• Readers can interact with experts.</li> </ul>
Coordination	Platform that supports online collaboration between employees.
<i>Other Channel(s)</i>	
Ranking	List of most popular items on the WKP.

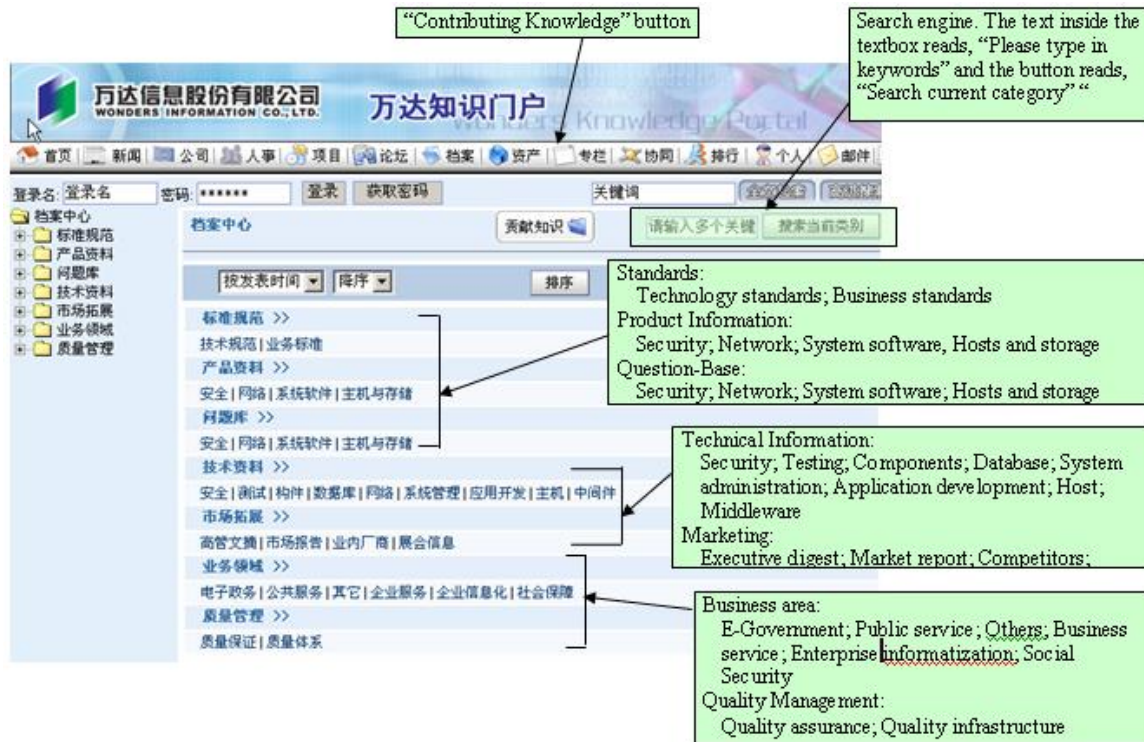


Figure 3. Document Center Home Page

**CHANNELS FOR MANAGING TACIT KNOWLEDGE**

Consistent with the system design, tacit knowledge was handled in three channels: online forums, columns, and coordination. The homepage of the online forums channel listed all online forums (Figure 4). The functionalities of the forums resembled those typical of online forums found on the Web. The coordination channel offered functionalities such as online chat, video conferencing, and electronic whiteboard. It was customized from WebEx, a popular product for online collaborations.<sup>6</sup>

The columns channel displayed a list of all columns, together with a short list of the articles and the list of experts for each of the columns (Figure 5). Clicking on an article would display the article on a new page and allowed readers to provide feedback to the author. While the list of the experts was displayed with numerical bullets, the numbers were not meant to rank the experts. Clicking on an expert’s name would open a page through which a user could send the expert a question. The WKP automatically recorded all such interactions between column readers and authors and made them available to all users

**THE RANKING CHANNEL**

In addition to all the functionality channels, the WKP also featured a ranking channel, which ranked articles contributed through the document center channel and the columns channel by number of comments received, by number of questions received, or by number of hits received. The ranking channel offered shortcut access to the most popular items contained in the WKP.

The homepage of the ranking channel listed the ranking results, parts of which were also included in the WKP homepage. Clicking on a particular item would open a page that displayed the item’s content.

<sup>6</sup> For more information on WebEx, visit <http://www.webex.com/>.



论坛名称	版主	主题 / 消息	最后更新
社区网格化 社区网格化	李光亚 陈诚	0 / 0	2005-3-11 下午5:00
商业智能BI 商业智能BI	张敬道	2 / 2	2005-3-1 下午12:28 by: 陈诚 >
Java编程 Java编程论坛	张峰昌	14 / 35	2005-1-21 下午1:30 by: 王敏 >
Linux研究 Linux研究论坛	周栋 马裕	9 / 19	2004-9-28 下午5:43 by: 陈诚 >
软件工程 软件工程论坛	李光亚 陈诚 张敬道	7 / 11	2005-1-26 下午1:33 by: 王敏 >
行业标准 行业标准论坛	李光亚 肖筱华 张峰昌	5 / 6	2004-9-2 下午1:04 by: 肖筱华 >
安全技术	暂无	1 / 1	2005-1-11 下午2:30 by: 周栋 >
维护服务 维护服务	亮 王晴岗 汤伟华 孙杰 顾峻	81 / 183	2005-2-23 下午5:53 by: 陈诚 >
人事点评 人事点评论坛	邵宏源	2 / 8	2003-11-13 上午9:25 by: 陈诚 >

Figure 4. Online Forums Channel Homepage

**V. USAGE**

The programming of the WKP started in February 2003. The channels were developed in two stages. Most channels were implemented in the first stage, which was completed in November 2003. The second stage included development of three channels: news, corporate, and human resource, and was finished by the end of 2004. Table 3 shows a timeline of important events associated with the KMS.

The WKP was pilot-tested as soon as the first-stage development ended. A memo announcing the pilot test was sent to all Wonder employees. The R&D center also hosted a few activities in two of the business divisions to promote the WKP and to train employees on how to use the WKP. The other three business divisions were not targeted for formal promotions. In January 2004, the WKP was officially put into use.

When second-stage development concluded, the new channels were added to the WKP, and the functionalities were made available to the users.

**CURRENT STATUS OF SYSTEM USAGE**

January 2005 marked the first anniversary of the go-live for the WKP. However, Dr. Chen was disappointed. Even though he had no statistics on the usage of the WKP, he had a feeling that the system was not used a lot. In his assessment, the efforts in collecting software assets were fairly successful, but other efforts fell well short of expectations. Overall, Dr. Chen felt that the usage never really picked up and not many employees were enthusiastic about using the WKP.



Figure 5. Columns Channel Homepage

Table 3. Timeline

<p>1995</p> <p>2004</p>	<p>1995: Wonders Information Co., Ltd. incorporated.</p> <p>1997: Wonders started entering the city informatization industry.</p> <p>1998-2003: Fast growth period. (2000-2003: IT Winter in China.)</p> <p>End of 2002: KMS project proposal approved by the board. KMS design and off-the-shelf product review started.</p> <p>February 2003: KMS first phase development started.</p> <p>November 2003: KMS first- phase development concluded. KMS named Wonders Knowledge Portal (WKP) Limited promotion and one-month pilot test started. WKP second phase development started.</p> <p>January 2004: WKP first-stage officially delivered.</p> <p>November 2004: WKP second-stage development concluded and delivered.</p>
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When asked about his concerns about the usage of the WKP, Dr. Li was more worried about managing tacit knowledge than explicit knowledge.

*When designing the system, we put equal emphasis on explicit and tacit knowledge. But now it seems that most activities center on explicit knowledge. After all, it takes time and effort to discover tacit knowledge. Consequently, sharing tacit knowledge is not as frequent or as fast as sharing explicit knowledge. Dr. Li*

The experts – the designated authors of the columns channel – both shared and contradicted Dr. Li's concerns. One expert agreed with Dr. Li and acknowledged frankly, "My job was to develop systems. I would love to benefit from the columns, but probably would not be able to share my thoughts or make any contributions." Another expert thought that although the ideas of experts and columns were good, they did not work because "there is simply too little knowledge contributed by the experts, and too little contributions to audit by the experts." Nevertheless, to him, contributing to his column did not cost too much at all:

*Because I needed to use the knowledge in the area in my project, I did a little research on the web and organized the information I found a little bit. It came to me that a little more work would make what I've got a rather comprehensive article. With a little formatting and a little editing, I put it into my column. I spent little time – 15 minutes at most – making this article ready for my column. Actually, I don't even care whether it is worth my time and efforts or not: I just wish it could help those who would work in the area later. An expert*

### **BENEFITING FROM THE WKP**

Even with the limited usage, some employees started to experience the usefulness of the WKP. For example, Dr. Zhang unexpectedly benefited from the WKP when she was bidding for a project: Her team needed a member with expertise in Lotus Domino,<sup>7</sup> but Lotus Domino was not used much in the company. Neither she nor other members of her team knew the right person. Nevertheless, a simple search on certification information under the HR channel solved the problem quickly.

Department managers also took advantage of the WKP:

*A lot of times when we were trouble-shooting systems, we spent a lot of man-hours only to find that the dramatic drop in system performance was caused by the same simple errors in the codes. We now can expose these frequently-made yet simple errors on the WKP and make it possible for the programmers to learn from the mistakes. A department manager*

To some, WKP was becoming an important outlet for knowledge sharing. For example,

*At the end of 2003, we were performing a scheduled examination of a client system. Suddenly the system crashed. It turned out that our scanning tool scanned a bug in the system. Such scheduled examinations were routine practices, and we didn't expect any problem. Unfortunately, we were brought down this time. After this accident, we decided that risk levels must be estimated before all scheduled examinations. If there is a risk, precautions must be taken. To prevent us from making the same mistake again, we summarized this accident and posted this case to the Maintenance and Service online forum. Assistant manager of the Maintenance and Service department*

Dr. Zhang was impressed by how the Maintenance and Service department transformed its online forum into an important space for knowledge sharing:

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<sup>7</sup> Popular server software from IBM that allows online collaboration.



*The Maintenance and Service Department uses an online forum to discuss the problems it encountered, such as what to do when a server had a problem or caught a virus. Right now, this forum is hot. We didn't expect this. We designed the online forums to provide a space for employees to post messages informally and to communicate with each other. We expected to collect knowledge through formal methods. In the end, surprisingly, knowledge was collected through such informal forums. Dr. Zhang*

Even Dr. Chen detected some positive changes caused by the WKP.

*This platform allows the employees to be exposed to certain ideas and to communicate with each other, which is just part of the story. I think what is even more important is that through building and promoting this knowledge sharing platform, we now have a much better atmosphere for knowledge sharing and a much better awareness of knowledge sharing among all the employees. Before, we just worked on our own products. Even when we were working with other business divisions on client projects, they didn't quite care what we were doing. Now, the business divisions often come to ask us what we have, either directly or through Donald. Dr. Chen*

## VI. THE FUTURE

Even as some doubted how much the WKP would be used and how much knowledge would be contributed to the WKP, Dr. Li remained optimistic:

*At a matter of fact, many employees will not use the WKP as the only way to acquire knowledge. There have to be other channels. However, employees should not resist the system. It is a good thing to have one more channel to acquire knowledge. They should embrace the system. I think the acceptance is increasing. Users may increasingly take the WKP as something they have to read every day. Of course, this has to involve changes in organizational culture, that is, whether all employees would like to share what they know, or they just want to read what others contribute. ... There is certainly nothing wrong with just reading. But we hope more will take part in organizing and contributing knowledge. This is what we have been striving for. Dr. Li*

He also was confident in the WKP's future:

*As far as system functionalities are concerned, the WKP reaches the design goals. The next step will be about how to promote it and how to extend its use. That is, how to take best advantage of the system, and how to increase user participation. We will think of some measures – for example, linking participation in the WKP with employee performance evaluations – to really take advantage of the functionalities we designed. Given that we already have all the functionalities, we just need to keep making improvements. Dr. Li*

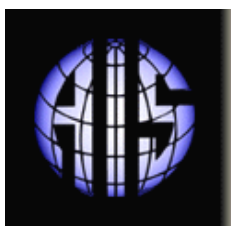
Editor's Notes:

1. This case study was received on December 8, 2005 and was published on February 24, 2006. It was with the author for one revision.
2. A teaching note for faculty listed in the IS World Faculty Directory is available from [Wei.zhang@umb.edu](mailto:Wei.zhang@umb.edu)

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