Knowledge Management:
Case Studies for Small and Medium Enterprises

Asian Productivity Organization

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Mr. Naoki Ogiwara, Japan, served as the volume editor.

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Foreword

Knowledge management (KM) has generated considerable interest over the years. Numerous books and articles have been written on the subject, and many conferences on KM have been convened. In our attempt to understand how KM may enhance and promote productivity, the APO has also organized three international conferences and several study meetings, seminars, workshops, training courses, study missions, and research on KM practices in member countries. Through these endeavors, we noted that while KM is well entrenched and practiced among large organizations, this is not the case in the vast majority of small and medium enterprises (SMEs). Our own research indicated that SMEs are far behind in terms of KM implementation in most member countries and that KM is either poorly understood or understood differently by SMEs. Our experience also suggests that while it is easy to talk about KM, it is not necessarily easy to practice it. This in a sense is compounded by the fact that there is no one "right" way to implement KM. Likewise, there exists very little literature on KM implementation at the SME level.

With a view to assisting SMEs in member countries in applying KM, the APO thus developed an APO KM Framework, as well as a practical and simple approach for implementing KM in SMEs. *Knowledge Management: Facilitators' Guide* for utilizing the framework was published thereafter. This casebook is an accompaniment to the *Facilitators' Guide*. It describes real-time experiences of SMEs that have successfully implemented KM to provide guidance and inspiration to SME owners and managers and stimulate them to follow these exemplary cases.

I thank the editor of this volume, Mr. Naoki Ogiwara, and the authors for their contributions.

Shigeo Takenaka
Secretary-General

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Introduction

"Is KM only for large organizations?" This was the simple question we four authors asked. If we are in the knowledge era, and we wish to participate in the rapidly growing global knowledge economy, why should SMEs avoid such massive opportunities? We thought, at the very least, that knowledge management is as important for SMEs as for large firms since the wave of the knowledge era has equally affected all organizations. The authors have some reasons to believe this: all have frequently worked for KM projects with the Asian Productivity Organization, whose member countries' workforces mostly work for SMEs; even in Japan, 70% of the total workforce is engaged in the SMEs. Through the experience, we observed that SMEs are facing similar challenges as large firms: to adapt to the knowledge era and global knowledge economy in order to survive and grow.

Based on this problem perception, four authors in London, Singapore, Taipei, and Tokyo began research on this topic. We carefully inspected SME cases in Asia and Europe and found some frontrunners that have benefited from successful KM. After repeated discussion, thanks to Skype and other collaborative tools, we selected eight cases to introduce SME KM activities and extract their essences so that any SMEs can learn from the successful KM cases. We tried to keep the contents of the book as practical as possible for SME managers and staff—minimal theories and maximal realities followed by lessons learned. Before going into real cases, however, we would like to suggest to readers why knowledge management is necessary for small and medium companies. We would also like to encourage the readers to find more about the APO KM Framework and implementation approach, which has been covered in detail in the KM training manual. Suffice to say the framework is easy to follow, and makes KM implementation practical for the SMEs.

Reason 1: The Change of Competitive Focus

During the industrial era, any company—no matter how small or large it was, or no matter what industry it belonged to—could flourish by pursuing better productivity and quality if it did things right. Firms competed for efficiency in the same industry, and the competitive scheme was quite static. However, since the early 1990s, the paradigm of competition has gradually changed, from war for efficiency to war for innovation as the battleground.

Small and medium subcontractors or sub-subcontractors in manufacturing industries that used to compete for quality products and strict observance of delivery time are now competing for innovative suggestions, products, and services with prime contractors. Small subcontractors still need to pursue quality and productivity as a given high priority at all times, but it is not just the necessary and sufficient condition to survive anymore; it is just a ticket to enter the competition.

In this book, readers will find a once-flourishing metal-polishing industry consisting of many small businesses which faced serious decline and formed a business consortium to share and develop their core knowledge and skills to expand with more innovative application areas of metal-polishing. These firms took the cluster KM approach because

they realized that there was no chance to compete with Chinese competitors with much less expensive labor. Thus, they sought another way to survive by innovation: creating new application areas that resulted in great success by building up an aggregation of much larger capabilities. Another case in this book, in the chemical industry, will show readers an effort to create an organism that can sustain organizational knowledge creation for innovation.

The situation is quite similar in most service industries, too. Efficient quality services have been commoditized, so small and medium service companies, more or less, have to differentiate through the unique and innovative side of their services. Readers will find a healthcare service organization that has continuously innovated its services.

Reason 2: Knowledge as a Key Resource

Knowledge is rapidly becoming the most important asset of virtually all organizations, and small and medium enterprises are no exception. SMEs need to manage knowledge for the same reasons as larger organizations. SMEs will be able to gain competitive advantage through their ability to manage and exploit knowledge. To remain competitive, SMEs must first know what their knowledge assets are, then how to manage and make use of these assets to get maximum return. Knowledge management can be a strategic weapon for SMEs and can help them to build more sustainable and superior business practices, making them less vulnerable to the economic cycles of industry.

Knowledge is the lifeblood of SMEs. One of the SME cases in this book acknowledges the importance of knowledge. Mr. Kenny Yap, the Executive Chairman and Managing Director of Qian Hu, said, "The ornamental fish industry is indeed a knowledge-based industry. Therefore, managing knowledge and enhancing it continuously is essential in sustaining our business. We must also ensure that the knowledge we gained over the years stays within the company regardless of staff turnover." A similar case can be found in another case, that of the consulting company AIC.

SMEs have a wealth of knowledge which is embedded in people's heads, work practices, and systems. What is this knowledge? Davenport and Prusak offer a working definition of knowledge within organizations: "Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of the knower. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, networks and norms." [1]

Different SMEs found different kinds and forms of knowledge valuable: in an accounting firm, the most valuable were the expertise of senior staff and partners, partnership-style relationships with clients, and analytical knowledge gained through experience on particular projects. For a manufacturing firm, product and process innovation knowledge was the most important as it allowed the company to constantly investigate and develop new products and production techniques. In essence, these SMEs tended to have a dynamic rather than a static conception of knowledge, which was seen equal to information that could be used to act. It had to be in a form that is accessible, relevant, and ready to use.

At any SME, it is usually tacit knowledge held in the heads of individuals that is of most value to the organization. SMEs that are reliant on the tacit knowledge of a few key individuals should appreciate how vulnerable they might be in the event of the loss of such key persons. SMEs face the risk of losing their competitiveness when their key employees leave the organization. One of the key imperatives for many SMEs is the translation of individual knowledge held by key personnel into organizational knowledge.

Furthermore, SMEs in general have difficulties in attracting high-caliber, experienced employees, since talented people tend to go to larger organizations that offer higher compensation. SMEs also face the problem of retaining specialized employees because of limited career opportunities. It is often true that employees see a small or medium-sized business as a steppingstone to a larger organization. The departure of highly knowledgeable employees is a major threat to SMEs, unless that knowledge is captured, codified, and transferred throughout the organization. SMEs need to manage their key knowledge assets as much as large organizations do. However, the tools and techniques used and the focus of their efforts might require a different emphasis than that of larger organizations.

Reason 3: Need for Collaboration

In considering how SMEs may achieve even greater business excellence through the application of effective knowledge management, it is important to discuss one of the greatest recent discoveries about knowledge creation and innovation. That is, simply put, the need for collaboration.

Collaboration and, especially, collaborative teams, are now clearly recognized as the "new engine for knowledge creation and innovation" in an organization. Most importantly, this has nothing to do with the size of an organization. Indeed, SMEs can take even greater advantage of collaboration than larger, less flexible, organizations. For example, SMEs with a clear knowledge management strategy not only can create initiatives to better collaborate internally, but can create initiatives to collaborate externally, in knowledge networks with customers, partners, and "clusters" and "communities of practice."

Today, the paradox is that clusters of SMEs within each industry sector are effectively collaborating, more competitively, for the same business as much larger organizations. But let's start with a simple definition of collaboration, and then discuss the need for collaboration in more detail. Collaborating is "co-laboring," or "working together to achieve a common or shared goal or purpose." It sounds simple. And it is easy to say. But, actually, it represents a work practice, a work attitude, a work culture, that may need to be developed. One of the authors of this book was engaged, as a knowledge management consultant, by one of the largest banks in the world. One of the Directors said, "We have some of the best information technology in the world in our Bank. We can pump information around the world anywhere, at the speed of light. We can communicate information to one another. But we cannot collaborate. What good is just communicating information if we cannot collaborate, if we cannot work effectively together? Please teach us how to collaborate in teams."

If the SME does nothing else, then to the degree that it can develop a culture of collaborative team-working, it will see substantial benefits, especially in new knowledge creation and innovation. Collaborative teams are informed teams that do more: they act together. Jan Carlson, who was at one time the President of SAS Airlines, said, "People without information cannot take responsibility; people with information cannot help but take responsibility." He was talking about "empowered teams," and now, in this book, we talk about "empowered knowledge-driven teams."

Knowledge management provides better frameworks, methods, tools, and techniques to enable organizations to become more collaborative, and this book provides real-world examples and cases of organizations that are effectively creating new knowledge and innovating. One key reason for this is that they are, essentially, developing and leveraging collaborative teams as the new knowledge engines.

When people collaborate, they are not just simply sharing what they know. When people collaborate, it is not just simply the "sum of the knowledge in the team." Collaboration is much more: and that, we have learned, is its real power. Collaborative teams create "synergy" which takes the team knowledge to a higher level, a level higher than any one individual.

If you have worked in a synergistic team, you know that it is a high-performing team. NASA found this out when they created collaborative teams to put humans on the moon. The process of collaborating is well known now. Not only does it take the knowledge to a higher level, but it helps us all, as individuals, teams, organizations, and communities of practice, to grasp and transfer knowledge that might otherwise not be accessed or retained.

The need for collaboration cannot be underestimated. It is no longer just about "what new knowledge I can create" but more about "what new knowledge we can create together." Collaboration is vital for effective knowledge management. Collaboration is vital for SMEs that wish to become effective knowledge-driven organizations and to become more successful at developing their business excellence.

So, is knowledge management for SMEs? Absolutely. KM will enable the organization to continue to be even more competitive; knowledge will increasingly be regarded as the most critical asset and key resource of the SME; and the need for developing collaborative work teams, as the new engines of knowledge creation and innovation will be recognized as critical.

In writing this book, the authors describe real-world cases where, already, SMEs are making significant strategic transformations to the rapidly growing global knowledge economy, as part of the new knowledge-era paradigm. Effective KM is a vital strategy for all SMEs around the world, and the early adopters will gain significant advantage for greater growth, competitiveness, and profitability. The APO KM Framework and implementation approach, because of its simplicity and practicality, can help all organizations, especially the SMEs, in achieving their mission and business objectives by enabling KM to happen at the individual, team, organization, and inter-organization level,

as well as at the society level. The cases that follow elucidate some of these in greater detail. But before that we present a summary of the cases to highlight the key issues and challenges and the key learning points.

1. DAVENPORT, T.H. and PRUSAK, L. 1988, Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press, p. 5.

Summary of Case Studies

1. Keppie Design
This is a case study of an organization of around 250 professional people, spread across several offices in Scotland, with an international reputation for design. Rapid expansion had resulted in an impossible stress to the traditional forms of knowledge sharing.

This case demonstrates the early gains that can be achieved at little cost. The organization needed to invest in knowledge management and a standard portal to support the professional development of staff, improve simple communications and collaboration, and transfer project knowledge across the entire organization.

2. Care Service Improvement Partnership (CSIP)
This is a case study of an organization of around 70 professionals who consider themselves to be, in essence, a "Knowledge Organization" and to be "honest brokers" of knowledge to their stakeholders.

However, they were not, at the outset, familiar with the more formal, robust, collective, and systematic processes and methods, the division of roles and responsibilities, and the measurements that can bring about more effective knowledge management. This case highlights their journey, key drivers, cultural challenges, and intended next steps.

3. AdvancedTEK International Corp. (AIC)
AdvancedTEK International Corporation is a consulting company, founded in the Republic of China (ROC), which has achieved global reach with its consulting services. It has about 380 employees in the ROC and PR China.

This case is an excellent example of an SME that has achieved organizational success through the adoption of strategic knowledge management. Recognizing industry domain knowledge and best practices as an important competitive advantage for a consulting firm, it encouraged the development of a KM project. Clear corporate vision, top management support, open communication culture, and integration of an industry domain knowledge database with IT technology represent the key success factors of this KM project. There are some significant results of the KM implementation: revenue and profit have grown by 40% each year, the selling cycle has been shortened from 6–12 months to 3–6 months, and the hit rate of presales has also increased from about 20% to 40%.

The success of AdvancedTEK International Corporation demonstrates that KM can be used to build a strategic competitive advantage and lead to significant growth of the corporation.

4. Arbor Technology
Arbor Technology is a traditional Taiwanese SME founded in 1982. It has 188 employees and is skilled at manufacturing Industrial Personal Computers (IPC) with embedded and networking capability.

Traditionally, Arbor Technology was operated in a project-based way to respond to the unique requirements of customers from various industries. Thus, how to benefit from the past experience of various product designs and create value-added services becomes a strategic issue for the profitable growth of the company.

The company developed Computer-on-Module and Time-to-Market Business Models through its KM project to improve customer solutions and satisfaction. Engineers could easily deploy any embedded architecture to meet customers' requirements quickly and add value. The company has accelerated its design cycle time and improved customer service. Profits have also increased through economies of scale, and revenue increased from USD21 million in 2006 to 30 million in 2007.

SMEs in any manufacturing industry could benefit from the success story of Arbor Technology to build and apply KM in the R&D and manufacturing processes. The alignment of corporate vision, strategy, and knowledge mapping; people's engagement; and partnership with customers were the critical drivers that contributed to organizational transformation and corporate growth.

5. Qian Hu Corporation

Qian Hu Corporation is a home-grown SME in Singapore and is the world's largest ornamental fish and accessories exporter. It has a total of 650 employees in its offices in Singapore, PR China, Malaysia, and Thailand.

Qian Hu Corporation is an excellent example of an SME that has achieved organizational success and effectiveness through the adoption of strategic knowledge management. Leadership, technology, people, and processes represent the key drivers and enablers of KM in the organization. Customer knowledge is an important aspect of the organization's knowledge assets. Qian Hu looks beyond its internal resources to acquire valuable knowledge as it collaborates with external parties to develop new capabilities.

The story of Qian Hu demonstrates how KM can make a difference for SMEs in their growth and globalization strategy, especially when KM is aligned to their business objectives, and also demonstrates the importance of leveraging both internal and external sources of knowledge.

6. Goldsun

Goldsun is a Vietnamese SME founded in 1994 as a multi-advertising services company. It has 50 employees with offices in Hanoi, Ho Chi Minh City, and Da Nang.

Realizing the importance of KM in the development of the company after being awarded the ISO 9001:2000 certificate for its quality management system, Goldsun began to implement KM with a primary focus on people and technology. A KM portal—GOLDSUN Click-2-K ("Click to Knowledge")—was developed and is considered an enabler for sharing, storing, and using knowledge.

This case highlights the use of technology to enable knowledge sharing and the importance of leadership commitment in driving KM in an organization.

7. Japan Gore-Tex (JGI)

This is a case study of a chemical manufacturer with around 500 employees that seeks continuous innovation through sustainable knowledge creation. Gore-Tex is a versatile polymer, and the company has grown by expanding the range of applications to various industries.

JGI has an extremely unique organizational structure called POGAL (Project Organization Governed by Autonomous Leadership), which has no hierarchy and considers the entire JGI organization as an organic aggregation of projects. The framework has been created and improved through the company's long journey to pursue continuous knowledge creation through associates' proactive interaction across the firm. This case reveals the infinite possibilities of small and medium enterprises to pursue innovation through employees' continuous knowledge creation.

8. Migakiya Syndicate

This is a case study of a business consortium among over 40 small manufacturers specializing in metal-polishing in Japan. The small companies that make up the consortium built their businesses as subcontractors or sub-subcontractors to Western tableware manufacturers, but their business significantly declined due to overseas competitors with lower labor costs.

To deal with this difficult situation, the local Chamber of Commerce and Industry and many small manufacturers created a business consortium to jointly market their services and to apply their core knowledge and skills. By bringing different specialties from over 40 small companies together, they built up new capabilities for marketing and operating a metal-polishing business. As a result, they gained significant new businesses and built strong brand recognition. This case shows the possibilities of forming business clusters among small and medium enterprises.

1. Keppie Design: KM in a Scottish Architectural Practice

Company Overview

Keppie Design is Scotland's leading independent architectural practice. The company enjoys an international reputation in health-care design and education. The directors are proud of the company's 150-year history, including the partnership with the internationally revered Charles Rennie Mackintosh. During that history the business has secured a reputation for quality buildings that work well at a technical level as well as aesthetically. For example, some of Glasgow's 19th-century hospitals pioneered the practice of air conditioning far in advance of their time. More recently, Keppie Design architects lead in setting the standards for low-carbon office design.

The company invested in knowledge management to support the professional development of staff, particularly young trainees, and to improve internal communication of project knowledge. The initiative resulted in enhanced social and professional cohesion among staff at all levels of the organization, allowing greater project collaboration among offices. It also allowed the directors to identify those areas of the corporate knowledge base which they most wanted to develop, such as sustainable building technology and design.

Background to the KM Initiative

Keppie Design experienced a period of rapid expansion in recent years, due to large-scale public investment in health-care and education facilities, based on public–private funding partnerships. From its headquarters in Glasgow, it opened offices in four other Scottish cities and moved into Northern Ireland and the north of England. Staff numbers doubled over a period of two years.

Certain features of the staffing profile highlighted the importance of effective knowledge management. The training of architects in the UK is based on alternating periods of university education and working experience in architectural practice. After four years of university study, trainee architects spend one year in practice before returning to study for a further year at university. This is followed by a second period of practice as a trainee before taking a final examination to become a qualified architect. The profession relies on a steady supply of trainees each year and expects to invest in training and practical mentoring.

Architectural education in the UK has been marked by a shift away from the technical aspects of building construction towards a strongly aesthetic or design focus. While this has advantages in terms of the quality of the public realm, it does create gaps in the

knowledge base of young architects. Keppie Design directors were concerned by the lack of technical competence of architectural trainees entering the practice from university.

These factors combined to highlight the importance of knowledge management for the company. The rapid expansion placed impossible stresses on the traditional forms of knowledge sharing and training. The company growth relied on increasing numbers of trainees who lacked the technical understanding that was a cornerstone of the company's reputation.

This growth in the business also put new pressures on business development processes. The company produced some generic promotional material in-house, and made significant investment in high-quality bid documents for each specific project. These documents were produced by a two-woman team who pooled information from across the company and generated quality branded bidding information. As the market base expanded, there was a clear need for a dispersal of these processes to local offices. The challenge was to maintain the quality of the documents with devolved responsibility.

A Knowledge Manager was appointed with a broad remit to improve the training and professional development within the company and to capture the expertise developed in project working. She reported directly to the managing director, quickly establishing a steering group of representatives from all management levels to select priority actions and gain broad-spectrum support for the program.

What Specific Programs Were Undertaken?

Although some of the Keppie Design directors had heard about knowledge management and were in sympathy with the ideas behind it, they did not have a clear idea of what they wanted to achieve by it. They were aware of a need for greater coordination of training, and for better learning from project experience, but had no clear plan for how that should happen.

When the Knowledge Manager was first appointed in 2006, she conducted a widespread consultation among all staff to identify the key areas of concern for the workforce. Informal conversations, discussion groups, and searches of information systems quickly revealed two key areas of concern. First, the company's IT systems had developed to serve the needs of local offices in their project work, but they could not provide a standard portal for sharing information across the business. Staff wanted a simple means of communicating throughout the company.

A number of other objectives followed on from that, including the establishment of a directory of skills and experience, a database of standard drawing details, a library of technical and design information, and a repository of standard company information for inclusion in bid documents.

The second concern was to improve personal communication among staff, particularly in terms of sharing experience. It was clear that the architects and technicians wanted to be able to talk to each other about specific recurring issues. The Knowledge Manager worked

with the top designers in the company to develop processes of design management and reflective practice. Teams were set up to develop methods of post-project review, following the completion of a building, and post-occupancy evaluation, after one to two years of building occupation.

Training had been identified as a key objective of the KM program, and a program of training seminars was set up within the first months. For half of the year, seminars were given to all staff on a range of topics including study tours, post-project reviews, and conferences. For the other six months, training focussed on the needs of architectural trainees preparing for their final examination. Specialists in a range of business functions gave talks to the trainees on a fortnightly basis, making notes available via the intranet for e-learning. By 2008 video-conference facilities allowed trainees in all offices to participate in the seminar program, building a community of learners.

How Was It Implemented?

The KM program would demand active engagement from members of staff at all levels of the organization, so it was critical to establish commitment from the outset. Although the Knowledge Manager had been appointed by the Managing Director, it was clear that many junior managers had to be engaged in the process. A steering group was set up to guide the priorities for the program and ensure personal communication across all management groups.

As each of the objectives would demand a different skill set, technical working groups were set up, coordinated by the Knowledge Manager. For example, a team of IT enthusiasts and professionals met to outline the technical brief for a demonstration intranet. The Technical Managers, including both architects and experienced architectural technologists, were a strong internal team with responsibility for the development of technical capability of the staff. They worked with the Knowledge Manager on the development of a database of standard drawing details.

During the first nine months of the program, a very basic intranet was set up, based on Word, to demonstrate to the company what might be possible with a fully web-based system of internal communication. It was delivered as a demonstration project, with the explicit objective of identifying what would be required of a full system. Nevertheless, it included a significant amount of usable data to show what was possible.

This demonstration was shared across all offices in August 2007 and immediately followed up with a series of focus groups to gain an understanding of how people might use the system. This identified a number of priorities for the full system, then under development.

The IT team were already working on identifying a suitable web-based system to develop a "real" intranet. DNN, an open-source base, was selected, based on its capacity for simple devolved editing and the flexibility for expansion to a very large support community. This system was delivered, populated, and fully accessible in April 2008, based on the content of the original prototype and the feedback generated by the focus groups. By August 2008, editorial control of the intranet was fully devolved, requiring little further engagement of the Knowledge Manager.

Work began on developing the skills and experience database in late 2008. Individual and team interviews were conducted in selected offices to identify the types of projects people worked on, as well as their particular abilities and talents. These formed the basis of staff profiles for publication on the intranet. A taxonomy was developed to identify the classes of experience relevant for searches, e.g. types of construction methods, building types, project roles, etc. This then formed the basis of a searchable staff list, pointing to individual staff profiles. This work has not yet been completed at the time of writing.

What Are Some of the Challenges?

A fundamental challenge of knowledge management is the engagement of senior, experienced staff. The immediate beneficiaries of KM systems are often junior staff and trainees, while the senior staff are the main contributors, in terms of both specialist knowledge and financial resources. Senior staff engagement is both critical and problematic. There are many reasons why this should be the case, some generic and some specific to organization type.

In general, the people with the most useful knowledge already have many demands on their time, because their wisdom is widely recognized. Many of the most experienced people are under pressure from clients, potential clients, and contractors. They have stressful lives and have little time for interacting with a computer screen.

Commonly, more experienced staff are also older and many are less confident in using web technology than younger staff. In 2006, there was a wide disparity in familiarity with web technology across the company. Younger staff members were fully engaged in web forums, chat-rooms, and social networking, while some senior directors remained reluctant even to use email. Related to this is the question of preferred communication modes. Architects, as a rule, are far more comfortable with drawing, visual representation, and conversation than they are with pages of written text.

A key process in knowledge capture was therefore the translation of practical experience into a suitable range of media for widespread communication. In the example of the database of standard drawing details, this problem was resolved by assigning a young and talented architect to a senior technical manager. The older man passed on much of his experience and understanding to the younger architect, who had the capability to capture this information in the standard drawings that he was developing. In this way the shared working context gave space for the communication of tacit knowledge. Although this tacit knowledge could not be fully expressed in the drawing information, it was simple to identify who in the company was the holder of that knowledge.

There were also significant challenges in securing sufficient resources for the project. The directors were not the primary users of the system, and they were only marginally aware of the productivity gains to be drawn from it. The company resourcing systems were not sufficiently closely managed to allow simple identification of the value of the time saved by the system. The IT team were fully engaged in the basic tasks of equipment supply and maintenance and could spare little time for the more interesting challenges of developing the intranet. Consequently, a great deal of effort was volunteered by IT enthusiasts

working from home and on weekends to get the system infrastructure established. It is a continuing challenge to secure the technical and professional resources to realize the full potential of the intranet. For some directors it remains little more than a 21st-century newsletter.

What Were Some of the Key Results?

The KM project in Keppie Design was primarily driven by the need to more rapidly raise the productivity of trainee architectural staff. In this it was entirely successful. New recruits to the company were the most vigorous users of the system, which provided instant access to a range of corporate and technical information. The staff time for induction of new recruits was reduced, as information on internal procedures and processes was available for browsing during lunch-hours.

Access to technical information was also greatly enhanced through the library portal. For example, health-care design in the UK is dominated by a wealth of best-practice guidance produced by the National Health Service. While this information is available via a government portal, it can be difficult for the novice to locate. The Keppie Design intranet could provide a localized interface to the most commonly used guidance and identify a local expert for personal advice.

The process of preparing bespoke bid documents was transformed by the availability of standard component information. The communications team could concentrate on improving the quality of project sheets, staff C.V.s, and capability statements, while local administrative staff could collate the relevant information for specific bids.

A group of trainee architects preparing for their final examinations developed a summary page of key information to which they would refer. The seminar series had established a community of learners, and they worked together to help each other and succeeding cohorts. All of the trainees who took their final examinations in 2007 were successful, which was a remarkable achievement.

At a more general level, the key contribution of KM, and of the intranet in particular, was the improvement in social cohesion among the dispersed offices of the company. The intranet had been developed with the specific objective of allowing local contribution. As a result, each office had its own online area to populate as they wished. The result was a glorious mixture of jokes, photographs, and news items as well as information about local projects and events. At the annual corporate events people from different offices mixed more readily because they had read each other's news pages. This was not only a pleasant improvement to the working environment: it allowed technicians from remote offices to ask for help from peers working elsewhere. Unusual technical problems could be opened up for ideas from across the company, based on this increased trust. Design solutions could be discussed across offices because staff were increasingly aware of the overlaps with colleagues. The mixture of social and purely work content encouraged greater use of the system and encouraged exploration of content.

What Are the Key Lessons Learned?

Don't underestimate the time commitment required. The success of a KM project depends critically on the widespread engagement of staff throughout the organization. This includes technical IT people, managers, professionals with specialist expertise, internal functional specialists, such as HR or business development staff, administrators, and junior production staff. All of these people have full-time jobs with other priorities, so it is vital to plan for sufficient engagement of human resources across the business. In the case of Keppie Design, a great deal was achieved through personal engagement, out-of-hours working, and enthusiasm. Personal recognition within a committed team was the key reward for many people.

Any KM program must deliver clear advantages to those who are required to contribute, but these advantages can take a number of forms. Experienced staff may see reductions in standard inquiries: for example, the contracts specialist in Keppie Design noticed a drop in the interruptions to his day to answer simple, standard questions. Junior members of staff are keen to contribute news and social content, as many of them already make use of social networking sites and extend this into the workplace via the intranet. For them, it provides more rapid social integration into the company. Business leaders value the platform to express their achievements or vision to the company at large. Special interest groups can raise awareness of new developments in their area, such as changes in safety regulations.

The value of personal recognition can be a critical support in this. Many internal experts believe that their value is insufficiently recognized. A KM program has the potential to validate and recognise the worth of an individual to his or her colleagues. The success of the business development element of the program was based on recognizing the value of a previously overlooked member of staff. She made a huge contribution because her work was explicitly valued by the KM system. In a small or medium-sized business this peer recognition can be a valuable addition to, or substitute for, financial rewards.

However, this highlights a risk for intranets in SMEs. If it is viewed only as a publicity platform for different interest groups, with no coherent authority, its value to the business may be limited. Knowledge management must be guided by the core values of the organization to allow it to articulate and share the knowledge that is most valuable. This can only take place with the full commitment of the business leadership.

The values of an organization are reflected in the knowledge that it chooses to exchange. The term “business epistemology” has been used to describe the processes of knowledge validation and creation at work within small organizations. Based on the work of Michel Foucault, the concept highlights the ways in which certain sources and classes of knowledge can be articulated and gain currency within specific social contexts. Foucault uses the term “authority of limitation” to describe the social structures that set limits on a discursive formation. If a company intranet is viewed as a discursive formation, the role of the Knowledge Manager is to work with the business leadership to create appropriate spaces for critical knowledge areas to develop. Thus, in the case of an architectural practice, a key area may be a space for sharing and developing ideas of good design, or exploring the potential of new materials for low-carbon design. The initial structure of

the intranet was based on improving internal communication among offices and rapid induction and training of junior staff. To that end it was highly successful. However, for the longer-term development of the corporate knowledge base, a greater commitment is needed to developing those areas of knowledge that are truly critical to the business. This requires an intellectual commitment from business leaders which may not be available.

What Next?

The future of knowledge management within Keppie Design is uncertain at this time. There remains scope for significant productivity gains through improved business processes, but management investment is limited during the current recession.

One objective that has not yet been fully realized is the development of integrated systems of reflective practice. At present projects are subject to occasional technical reviews and design reviews, but there is little systematic management of those processes. Such reviews only form part of the broader process of deliberate reflective practice starting at the early stages of tendering and continuing beyond completion to post-occupancy evaluation. At each stage there are many potential knowledge resources providing scope for learning and improvement. A coherent strategy would identify those stages likely to be most productive of new ideas, and establish procedures for knowledge capture. For example, methods of post-occupancy evaluation range from the collection of user opinions to the detailed energy use analysis of building types. As Keppie Design has extensive experience in school building in Scotland, a regular process of POE of schools could generate valuable insights into effective design. A method for standard school POE has been drafted, but has yet to be tested in implementation.

The HR processes of staff appraisals and resource allocation are not yet well integrated with the requirements of professional development. Forms for recording of professional development plans and training records have been established on the intranet, but the appraisal process remains separate. The further development of the skills and experience database is a key priority for improved knowledge management within the company.

Conclusion

Over a two-year period Keppie Design achieved substantial advantages from a relatively small financial investment in knowledge management. Trainee staff were quickly inducted into the business, reducing the time to productivity; technical information was readily accessible under the guidance of experienced technical managers; the staff directory allowed increased collaboration among dispersed teams of architects; and the efficiency of bid preparation was substantially improved. Many more opportunities remain to increase productivity through more effective internal communication, but this case study demonstrates the early gains that can be achieved at little cost.

2. Care Service Improvement Partnership (CSIP)

Organization Profile

The Care Services Improvement Partnership (CSIP) was created in the United Kingdom to support improvement and development in a range of services across health (including prison health) and local government, for children, adults, and older people, including those experiencing mental distress, physical disability, or learning disability.

CSIP have a successful track record in providing developmental support for provider organizations and commissioners across the UK National Health Service (NHS), local authorities, regional agencies, and voluntary and private organizations. In doing this CSIP can draw not only on the diverse background of the experienced clinicians, practitioners, and senior managers within the CSIP Team but also on specialists working for CSIP nationally as well as networks of people who use services and their caregivers.

CSIP is a knowledge organization and supports local organizations to ensure that their service improvement activities are based on the most up-to-date and complete evidence of good practice. CSIP has been well positioned to provide an "honest broker" and facilitative role between the NHS and local government and between both of these and the Department of Health, helping to forge the active partnerships that are critical to successful reduction of health and social care inequalities.

CSIP takes a holistic, "whole-system" approach, involving health, social care, third-sector (voluntary and community) organizations, as well as the users of care services and their caregivers.

CSIP employs a range of specialists, approximately 70 people, from a wide range of backgrounds. Many of the Program Leads are seconded from or also hold key roles within local organizations, ensuring that their expertise and knowledge are based on current service delivery, issues, and practices.

Why Did the Organization Embark on KM?

CSIP has long recognized that it is a "Knowledge Organization." The ways in which it helps its client and partner organizations to bring about service improvements relies heavily on its knowledge of, for example, the latest developments in new policy implementation and emerging good practice. Equally, CSIP is striving to "keep its own house in order" by making its internal management of key knowledge and information as effective and efficient as it can.

Therefore CSIP decided that it needed to continually develop and improve its working practices, working culture and environment, systems, and tools by implementing knowledge management initiatives and developing a knowledge management strategy to more formally identify, manage, and apply its knowledge assets.

Identifying Knowledge Needs
CSIP identified several key knowledge needs:

"We need to feel genuinely happy that we are getting best value from our knowledge, as we build on and share this within our team and the wider Health and Social Care community."

"Knowledge is our business. We are 'honest brokers' of key knowledge for implementing policy, sharing good practice and effecting improvement and innovation in the design, commissioning, and delivery of a range of priority services in Health and Social Care across England."

In terms of a more formal KM Process, the nature of the CSIP business requires them to excel in capturing, storing, sharing, collaborating, and harvesting key business knowledge. The same is true of making use of (or being!) leading experts and working in and with leading Communities of Practice.

"Prior to learning about formal KM approaches, it's fair to say that we weren't so explicitly aware of each of these aspects/elements of an overall process and what each one means or entails. Other elements of a formal process—measuring and maintaining and improving a KM system itself—were quite naturally not in our consideration before we began formally 'doing KM'."

CSIP also recognized the need to facilitate the above by encouraging and enabling those people involved to "tell their story"; sharing knowledge and communicating through as wide a variety of channels as possible.

"We need to be much better at telling our own story; because by doing so we better achieve our own organisational goals, we demonstrate our own value (to our funding organisations; to the taxpayer)."

CSIP also recognized that KM is a natural "way of doing things" for them due also to other organizational characteristics:

- many home-based and remote workers,
- virtual teams,
- networks spanning whole regions, the whole country, and sometimes beyond.

Knowledge Management Strategy
The CSIP KM Strategy (written and approved in early 2008), may be summarized as follows:-

Our KM Vision:
"Our improved KM program will make us more effective and allow us better to demonstrate our value. It will give us confidence that we are really *getting great value from our knowledge*, by;

- Capturing, storing, and sharing knowledge more effectively;
- Not repeatedly 're-inventing the wheel';

- Collaborating naturally;
- Knowing "what we know" and who knows what; improving expert location in CSIP West Midlands and beyond;
- Being happy with our systems;
- Reducing isolation and improving integration within our Team;
- Improving cooperation with our regional stakeholders and the rest of CSIP nationally;
- Continually improving and measuring our progress; and
- Maintaining our systems for doing all of the above."

What Specific Programs Were Undertaken?

- KM awareness-raising and education across the whole organization.
- Establishing a KM Working Group (members trained in a KM Consulting Methodology to the level of Knowledge Practitioners to support the KM) lead, plan, and help manage the KM program of work.
- KM assessment surveys to determine the current level of maturity.
- Identification of key knowledge areas and critical knowledge assets.
- Development of a KM strategy.
- Training people in knowledge-working skills and using relevant tools.
- Creating knowledge roles across the organization.
- Linking fulfilment of knowledge roles with training and other support, and with the organizational (NHS-wide) framework for personal knowledge and skills development.
- (Before and after establishing a formal KM program) Strongly focusing on innovative developments in flexible and collaborative IT tools and systems. Particularly high technological freedom is ensured by using web-based, open-source technologies.

How Was the KM Program Implemented?

2006 Initial cohort of Knowledge Practitioner trainees (senior management team and IT manager); great enthusiasm for and engagement with ideas of KM and some organization-wide awareness-raising and education.

2007 Funding of first full-time dedicated KM post began early 2007; early successes included:

- more awareness-raising sessions open to the whole team,
- widespread training and uptake of devolved website content management system,
- redevelopment of main external communications organ: a monthly e-bulletin (for the first time making use of now much more extensively populated website),
- publication of various Success Stories, drawing on the work of the whole organization.
- more concerted development of web-based database and accompanying tool for management of work and corporate contacts, performance reporting, and early CRM-type facilities.

2008 Training of those who then became the KM Working Group took place in early 2008:

The first CSIPWM KM Strategy was written and approved in April 2008. The KM Working Group planned and carried out three formal pilot projects (analysis and enhancing of knowledge-based networks, processes, and IT tools) and various other work, The KMWG consists of at least one Director, the HR Manager, the Finance Manager, an IT representative, a Program Lead representative, and the KM Lead. This group reports regularly to the Senior Management Team, as well as reporting regular developments to the whole organization.

Throughout the period, more training was carried out on KM awareness and explanation of the KM strategy, and what it means to individuals, teams, the organization, and beyond. Furthermore, work continued to create knowledge roles, and more supporting systems development was commissioned (ongoing) of custom software for managing work delivery and performance reporting, contacts, events, CRM, etc.

What Are Some of the Challenges?

The key challenges may be summarized as follows:

1. Conveying to and convincing colleagues of the relevance of knowledge management to their everyday work.
2. Making a convincing link between general appreciation of the principles of KM (which most colleagues will very readily accept) and the effort and personal responsibility required to make real change on a practical level; and showing that real change is possible.
3. Getting buy-in to collective responsibility for this type of organizational development.
4. Identifying opportunities for improvement without being unduly critical of people's working practices.
5. Challenging the perception that "doing KM" is something additional and onerous.
6. Overcoming the attitude in some areas that "You're trying to fill a gap that isn't there" before trying to improve ways of working. Some people must even be convinced that there is potential for improvement.

What Were Some of the Key Results?

The clear key results that CSIP is now experiencing from implementing the KM initiatives, so far, are:

1. Increased, team-wide awareness of KM and its benefits.
2. Training in knowledge-application skills; results include much greater use of a highly devolved website Content Management System, Confluence (Wiki), Skype, and other smarter features of the web and email systems. CSIP is now exploring narrative techniques as tools not only for enhanced communication but also for organizational development—both for the organization and as a service Improvement tool for its clients.
3. Adoption of knowledge roles, with much better management of knowledge bases in various areas as a result.
4. Clear increases in publication of stories of CSIP work, and a steadily increasing

volume of visits to the website.
5. Enhancements to the way CSIP has been managing and reporting on the delivery of work.
6. Improved cross-visibility and shared knowledge of completed and current work all across the team, leading to more collaboration in planning and delivery of the work.
7. Building an asset of "learning logs" from completed pieces of work.
8. Positive description, analysis, and measurement of KM maturity from questionnaires and measurement tools between 2006 and 2009.

What Are Some of the Lessons Learned?

- As "KM evangelists," make your guidance and education as practical as possible. That is the best way to ensure buy-in and engagement and to be able to demonstrate the benefits of improved ways of managing and applying knowledge.
- Naturally needing, or being inclined, to work in certain ways does not automatically make people good at doing it.
- Never underestimate the extent to which your people will want to be personally supported through adopting new approaches, tools, and techniques—especially new IT systems; if you do, you will fail to maximize buy-in.
- Tie your KM-based objectives to organizational objectives and those for the personal development of your people.
- Take a methodical approach and prepare your materials well; especially when entering "new territories," your colleagues will need to think in new, exploratory ways but will also need you to be able to provide a framework and a grounded basis in structured organizational improvement.
- Set clear objectives for discrete, individual pieces of work.
- You need to both:

1) keep any eye on the Big Picture (the whole of your KM program) and take a holistic approach, and also
2) recognize and credit the importance of individual elements of the program. Otherwise people might dismiss or undervalue the whole of your KM initiatives if their experience in one area is not positive, or not clearly related to a specific improvement, as well as other areas.

What Are the Future Plans?

CSIP has prioritized the following areas for future development and embedding of the KM program—as part now of a much larger organization—for 2009–10:

- Maintain more regular and widespread assessment measurements of how the staff perceive both the KM maturity and the KM priority areas.
- Link the KM objectives as closely as possible to the organizational objectives that are being redefined as part of significant organizational change; identify practical KM developments that will visibly help stakeholders to advance—and be seen to advance—towards their organizational goals.
- Improve measures of tracking and demonstrating the benefits the KM work is bringing.
- Continue to communicate better the achievements to all of the stakeholders:

commissioners, partners, and communities.

- Build "knowledge emphasis" into project management as well as work planning and delivery. For any piece of work, define what KM elements should be captured/stored/highlighted, etc.:
  - for those commissioning the work (linking to outcomes, impact, and evaluation),
  - for the clients and partners (linking to outcomes, impact, and evaluation), and
  - for CSIP internally, to be able to measure and celebrate value and success, and to also most meaningfully add to the organizational knowledge assets.
- Achieve more personal engagement with KM among colleagues: to encourage this, the KM specialists should be better at demonstrating and convincing people of the personal benefits to be gained from better KM, including
  - enhanced personal skills profiles,
  - increased efficiency,
  - more job satisfaction, and
  - less stress.
- Rewarding and recognizing improved KM. CSIP is struggling with this and intends to build knowledge-worker skills into individual personal knowledge and skills development plans. In our new organizational set-up, Personal Development Plans will be linked directly to appraisal and pay, for incentivising knowledge and skills development.
- As an organization with a majority of remote/home- or field-workers, restructuring and giving more thought to face-to-face days as a whole team; making the most of rich, more social exchanges of knowledge, random connections, relationship-building, etc.
- Identifying, recording, and better maintaining and reporting Organizational Knowledge Assets.

3. AdvancedTEK International Corp. (AIC)

Company Profile

Industry: Consulting services
Annual Sales: USD25 million
Number of Employees: 380 (as of December 2008)
Location: Taipei, ROC
Branch Offices: Taipei, Hsinchu, Tainan, Kaohsiung, PR China Branch Offices: Shanghai, Shenzen, and Tanjing

Company Background

AdvancedTEK International Corporation (AIC) was founded in 1998 as a Greater China-based leading consulting firm. AdvancedTEK provides its customers the e-business service to facilitate their sustainable global growth. AdvancedTEK, with an unparalleled number of successful project records, is among the leaders among consulting service companies in Greater China for business process management and IT system enabling.

AdvancedTEK has successfully helped more than 500 clients in the ROC, PR China, and worldwide. Many of them are eminent global companies in semiconductor manufacturing, electronics, electrical engineering, fabrication and assembly, food processing, telecommunications, financial services, transportation, and distribution. AdvancedTEK partners only with global renowned solutions providers such as ORACLE, i2, Agile, Hyperion, OuterBay, Adexa, and Brooks Automation. Their consultants are highly competent, experienced, and certified in numerous fields such as information technology, finance, business management, electronics, industrial engineering, and many more.

Project Initiation and Goals

Consulting is a knowledge industry; most of the work is short-term and project-based. Every client has different issues raised by its specific industry environment that it has to deal with independently. That is to say, consultants have to diagnose and submit unique proposals for each client. Consulting companies have to spend a lot of time on free initial assessments, and the hit rate is low generally. On the other hand, the quality of service varies among the different consultants; they have different styles and seldom share information or experience with each other. The development of a competent consultant takes a long time. With a medium-sized company, it is difficult to devote many resources to professional development. Besides, the turnover rate is high in the consulting industry. When consultants leave, all their consulting experience and information goes with them. The company loses valuable intellectual capital—the expertise and specific industrial experience of these former employees. All of the above are basic challenges for most consulting firms. How to successfully capture working knowledge and industrial information for sharing is the key to profitable growth of a consulting company.

Recognizing the value of intellectual capital to consulting service among various industries, AdvancedTEK has initiated the KM Project. It attempts to build an industry domain knowledge database and best practice for each specific industry to assist both the clients and the consultants. The KM Project goal is to leverage industry knowledge and its advanced IT technology competencies to build a global KM system and database. It is hoped that the KM system and database will become a competitive advantage for AdvancedTEK.

AdvancedTEK also advocates a "One-Stop" service model to provide an "Integrated e-Hospital" (see Fig. 1) with total services and solutions that aim to fulfill clients' comprehensive global growth needs.

Fig. 1: AdvancedTEK's Integrated e-Hospital Concept

Project Implementation

To successfully implement the KM Project, AdvancedTEK organized a KM steering committee and project team, which is led by the general manager and the top managers of the major divisions—including Sales, Knowledge and Business Consulting, Supply Chain Management (SCM), Enterprise Resource Planning (ERP), and IT Technical Consulting. The implementation of the KM Project started from early 2006 to late 2007. The project scope included KM methodology and system implementation, which is divided into three phases. The first phase was designed as the pilot phase: only the teams from the two core departments of Supply Chain Management and Knowledge Services were selected for the pilot run of KM methodology. The second phase is designed for KM system implementation, and the third phase is designed for the full company expansion.

The detailed process of KM implementation can be outlined as follows.

Phase 1: KM methodology implementation (schedule from May 2006 to October 2006). The major activities included: 1) Developing Company Knowledge Map (see Fig. 2), KM Structure, Key Performance Indicators (KPIs), and implementation

plan; 2) Defining the priorities of specific industry domain knowledge and best practices for each stage. The first stage focused on the semiconductor industry, including design, manufacturing, testing, and distribution. The second stage expanded to the whole high-tech industry, which included the entire value chain of the semiconductor industry. The third stage will cover the major traditional industries, including food, textiles, etc.; 3) Defining the major knowledge processes and activities for the pilot phase, including presale support, project implementation, education/training/publishing, and self learning; 4) Developing the implementing methodology, tool kits, and knowledge categories by function and industry; 5) Educating the seed knowledge members; 6) Collecting and categorizing knowledge content; and 7) Trial run and modification.

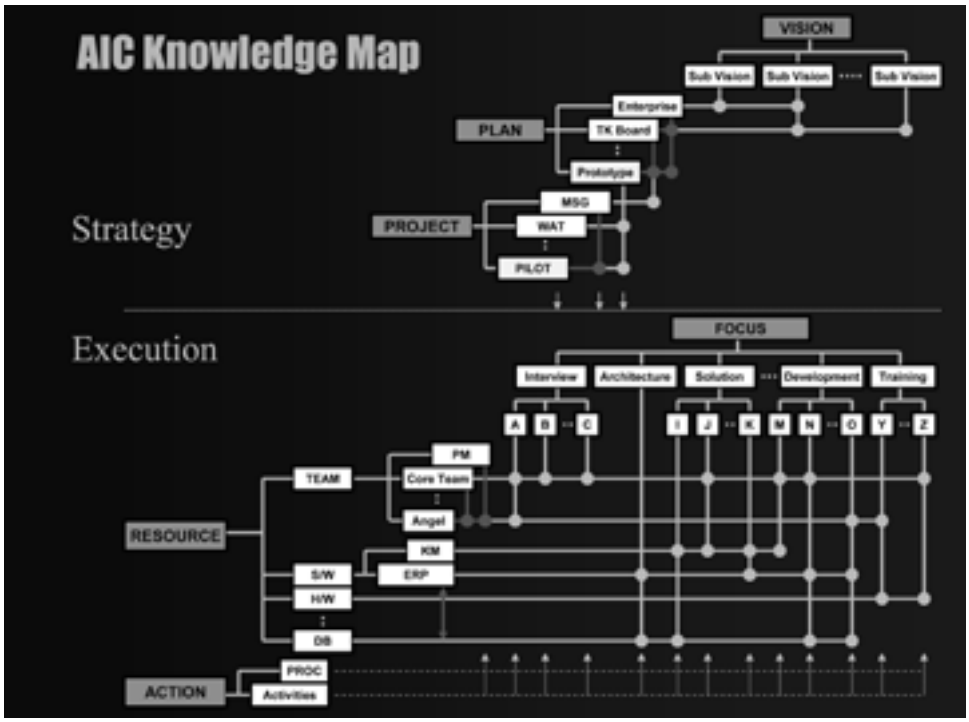

Fig. 2: A Sample of AdvancedTEK's Knowledge Map

Phase 2: KM system implementation (schedule from January 2007 to June 2007). The major activities included: KM system survey; KM system configuration; knowledge content collection; categorization with standard electronic format and indexes; and KM system training and trial.

Phase 3: Expansion of KM from the function teams to the whole company (schedule from July 2007 to June 2008). The major activities included: defining the long-term corporate KM vision, goals, strategies, and KPIs (see Fig. 3); defining the formal KM organization and the CKO's role; preparing the future KM action plan; and executing of the plan with PDCA process.

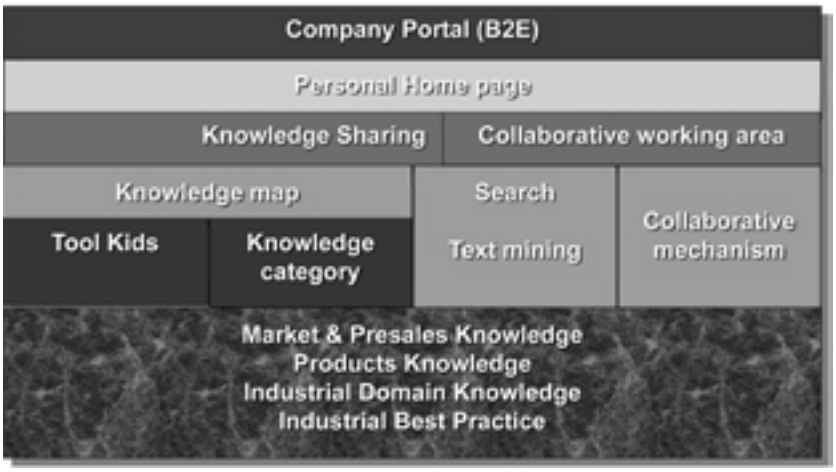

Fig. 3: AdvancedTEK KM Structure

The KM project implementation procedure and deliverables are summarized in Table 1.

Table 1: Details of KM Project Implementation Activities

Implementation Step	Activities	Deliverables
Step 0 Project Launch	0-1 Organize KM Project Team 0-2 Plan Kick-off Meeting 0-3 Set Up Working Environment	Project working statement (SOW) Project document control Kick-off meeting
Step 1 Knowledge Map Identification	1-1 Knowledge Acquisition (Top Manager) 1-2 Team Formation and Training 1-3 Knowledge Areas Identification	Questionnaire Meeting minutes Investigation report Knowledge Map
Step 2 Knowledge Measurement Metric Identification	2-1 Data Source Identification and Sample Data Review 2-2 Key Performance Indicators (KPIs) Design 2-3 IT Prototype Implementation	KM methodology KPIs (Key Performance Indicators) Knowledge Map
Step 3 Critical Knowledge Paths Identification	3-1 Analytical Hierarchy Process 3-2 Critical Chain Analysis 3-3 Sensitivity Analysis	Various analysis reports Questionnaire summary Priority sheet
Step 4 Knowledge Map Optimization	4-1 Knowledge Map Optimization Based on the Results of STEP 3 4-2 Create KM Action Plan 4-3 Perform KM Risk Analysis (Security vs. Sharing)	KM model Risk assessment report Action Plan & implementation proposal
Step 5 Knowledge Map Verification and Validation	5-1 Sample Group Simulation 5-2 Real-World Cases and Events Simulation to Confirm	Meeting minutes Acceptance report
Step 6 Launch KM Process for Continuous Improvement	6-1 KM implementation 6-2 Modification 6-3 Continuous Improvement	Performance review meeting minutes Project closed
Step 7 KM System Implementation	7-1 System cCnfiguration 7-2 System Modification 7-3 Training 7-4 Trial Run 7-5 Go-live	KM implementation plan Training materials Trial run report Acceptance & Go-live report

Knowledge Deliverable Sample for Pre-sales Process

Pre-sales are very important for a consulting project. Through the pre-sales interview process, consultants have to systematically collect critical information about the potential clients. Consultants have to collect their domain knowledge, the problems or issues, the needs and requirement, and then analyze the data and content to prepare a proposal to the clients. Because pre-sales are free and the hit rate is low, they are expensive for the consulting firms. How to shorten the pre-sales cycle and increase the hit rate becomes a critical challenge to the consulting firms. It can be achieved by designing an effective pre-sales process. Figure 4 shows the pre-sale support knowledge box developed from the KM project. A brief sample of the deliverables that emerged from the customer interview knowledge process is used as an example. The pre-sale process involves five steps with interactive knowledge activities and content described as follows.

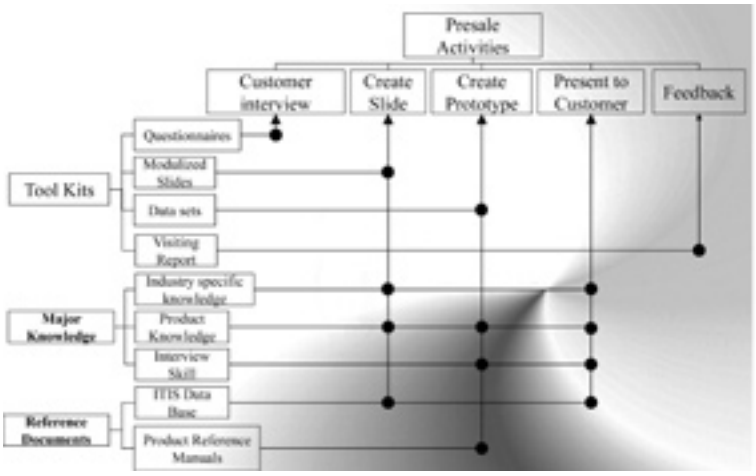

Fig. 4: AdvancedTEK's Pre-sale Support Knowledge Box

Step 1: Prepare for the interview

The intake interview is a very important knowledge activity in the pre-sale cycle. In order to identify the problems or issues effectively, the interview process has to be designed very carefully in advance. Consultants will collect the industry information about the client from secondary data. The clients are also asked to provide relevant information about the company. All the information collected will be used to define the scope and objectives of the diagnostic interview. A clearly defined objective will help to design the interview framework and determine the desired results.

Developing an interview guide and using it in the interview will help the consultants to move the discussion in the desired direction and get the desired results. The interview guide includes the questions to be asked during the interview, allocating adequate time for each major topic to be discussed, and addressing the topics in a logical order. Use open-ended questions to solicit the information needed. Open-ended questions have a more informal, conversational tone than closed questions. This makes the interviewees feel less threatened and at ease. More importantly, open-ended questions allow the interviewees to offer additional insights or information and to provide important qualitative observations.

Make sure that the discussion guide includes the most important questions. The

questions should be arranged in a logical order; prioritize the questions so that if time runs out, the most important information is gathered. Begin with simple and non-leading questions. A thoroughly prepared guide is the key to successful information-gathering. The interview guide should be sent to the person to be interviewed at least one day prior to the interview. This enables the person to prepare for the interview and to gather any information or documentation needed.

Step 2: Conduct the interview

There are three parts to an interview: the opening, the body, and the closing. The opening establishes a rapport with the individual being interviewed. The body is the bulk of the interview; it includes the questions asked and the discussion generated by those questions. The closing wraps up and completes the interview.

Opening:

It is important to establish a climate of openness and candor in order to ensure that the interview is productive. Start on time: this helps establish your credibility and shows respect for the individual. Be cordial and open when introducing yourself, and when stating the purpose and objectives of the interview. Spend the first five to ten minutes of the session setting an informal, conversational tone. If it is appropriate, assure the individual that the interview is anonymous; comments will not be attributed to specific individuals or positions. Explain that the individual's cooperation and input are needed for the success of the project, and explain how the information provided will be used.

Body:

Use the interview guide to keep the discussion focused on the key topics, and to ensure that the desired information is collected. At the same time, encourage elaboration on key questions if necessary. For the important or difficult points, ask for specific examples or detail in order to better assess the client. Be prepared to ask additional, follow-up questions to get more information and encourage more complete responses. Be flexible enough to pursue any related topics or important issues brought up by the interviewees. Pay close attention to what the interviewee says and write it down later in the interview or immediately after the interview.

Some other interview tips were offered:

- Direct the discussion, but do not control it. Do not dominate the discussion; as a general rule, the respondent should contribute 70% to 90% of the discussion.
- Actively listen to the interviewee: seek to really understand what the interviewee is saying.
- Avoid stating, implying, or signalling personal judgments of the responses.
- Interviewees might have questions about the process and the project. Anticipate the questions that may be asked and be prepared to answer them.

During the interview, be flexible with the questions and their order in the guide. The responses to questions will be coded for further analysis. It is important to guard against

possible bias, both when developing the discussion questions and when conducting the interview.

Closing:
When closing the interview, review the discussion guide and notes to make sure that all questions have been asked and answered, and that all essential points have been covered. Ask if the interviewee has anything else to add or if there are any other questions that should be asked. Answer any remaining questions the interviewee has about the project or the interview. Then thank the interviewee and state that the interview has been very helpful.

Step 3: Analyze and assess the results
The information collected in an interview can be analyzed qualitatively and quantitatively. Such analysis could be useful for analyzing the differences across organizational units and locations, or the differences in attitudes among different management levels. Qualitative analysis could be done by structuring the interview notes into discrete units and by organizing the responses to specific questions. Explain the findings by counting the frequency of specific responses, both for all respondents grouped together and for specific segments. Quantitative analysis of the interview notes can provide useful insights. However, the interviewers should guard against personal preferences that might bias the judgment. The consultants should keep an open mind about the judgment of the organization and allow for further discussion. The qualitative information observed will be used in clarifying the evaluation and judgment.

Step 4: Document the interview
Document each interview so that the information is available to other project team members, the analysis and assessment can be re-evaluated, and the results can be presented to top management or the project steering committee. The following information will be included in the notes:

The name and title of the individual interviewed (to maintain anonymity, do not provide names or other identifiable information to anyone not on the project team);
- The individual's unit or department and location.;
- The date of the interview;
- The names of the interviewers;
- The responses to key questions, including specific examples or comments;
- Explanations and rationales for the AdvancedTEK products and services that are being offered to meet the client’s need.

Consultants have to summarize the details and examples provided, and identify key issues revealed during the interview. In general, issues can be divided into strategy, structure, process, technology, and people. Any backup documentation or data provided by the interviewees will also be included.

Step 5: Submit business proposal
The proposal will be submitted at the final presentation of the pre-sale and assessment

after the interview process is completed. The proposal will include some major topics: Statistics Diagnosis, Process/Management Diagnosis, Application Selection, Target Applications Roadmap, Target Applications Implementation Plan (including Project Objectives, Project Scope, and Team Structure), Implementation Strategy and Schedule, and Implementation Budget and Resources.

Project Benefit

There have been some significant results after the KM project implementation.

a. The consulting business revenue and margin have grown by 40% each year, from USD9 million in 2006 to USD14 million in 2007 and 20 million in 2008.
b. A high-tech industry knowledge base and best practices can be built from the value chain perspective, which extends from manufacturing upstream and to distribution and service downstream. The best practices represent the know-how developed from the consulting projects in a specific industry.
c. Building support for pre-sales, implementation consulting, and assessment can speed up the order closing and project delivery schedules. The selling cycle is shortened from 6–12 months to 3–6 months, and the hit rate of the pre-sales increases from 20% to about 40%.

Implications

Three key factors contributed to the successful implementation of the KM project in AdvancedTEK.

1. Top management support and involvement

The top management needs to be fully involve in the project to ensure that the organization's knowledge management system is developed and implemented. Typically they will set business direction based on the influences of: knowledge about customers' needs, product trends, technology advancement, competitors' pressure, financial performance, and market share. These are the prime drivers. Top managers by themselves actively participate in the organization transformation process. They provide a role model for the employees. Their behavior demonstrates the commitment of top management to the project. Their support and involvement will engage the workforce that is required for the successful implementation of the KM project.

2. Clear vision and open communication culture

The clear vision of AdvancedTEK helps to shape the direction of the KM project. The company hopes that the industry knowledge database and KM system will become a competitive advantage for the company. That is, the KM project is aligned with the corporate vision. The kickoff meeting and the training in Phase One helped the communication of the corporate vision. AdvancedTEK also recognizes the importance of corporate culture, especially an open communication culture, which emphasis a no-blame policy and listening to all the internal voices. These policies and attitudes shape an environment of psychological safety and facilitate organizational learning and information/knowledge sharing among the organization members. Open communication culture builds trust, commitment, and loyalty among the employees. Everyone feels that they play a

part in the future direction and that it is everyone's responsibility to contribute knowledge. It is not just the "management team" that determines the future. Everyone owns the responsibility of knowledge sharing and contribution.

3. Transforming intangible experience and domain know-how into tangible knowledge content, methodology, and best practices
The consultants in AdvancedTEK take time to share and transform the consulting experience into easily readable and reusable knowledge documentation; they consolidate the different consulting styles into one methodology and then build up the industrial best practices that result. Consultants take the ownership of shared objectives and feel they play a part in the success of the organization. AdvancedTEK has designed a gain-sharing system for the employees and staff that also encourages them to contribute their knowledge to the organization. That is, the reinforcement of knowledge sharing behavior also facilitates the development of knowledge databases and best practices.

In summary, consultants are very valuable assets to a consulting firm: they provide service to their customers independently. Encouraging consultants to share their experiences and build an industry domain knowledge database and consulting methodology intensifies the competing advantage of the consulting firm, which can provide better and consistent quality service through effective methodology and a useful knowledge database. The firms help consultants to learn continuously through knowledge-sharing and abstraction of the best practices for each specific industry. The archived description of building a pre-sale support knowledge system facilitates the pre-sale process and enhances the hit rate significantly. The support and commitment of the top management creates a learning organization culture. A company's clear vision builds a consensus and consistent direction for the organization members. The IT competencies of the AdvancedTEK also facilitate its KM system development and implementation. The incentive system encourages knowledge-sharing behavior among the organization members. The successful implementation of the KM system demonstrates the common characteristics of a high-performance organization like AdvancedTEK. It also brings a significant financial return to the company.

4. Arbor Technology

Company Profile

Industry: Industrial PC
Annual Sales: USD27 million
Number of Employees: 188
Location: Taipei, ROC

Company Background

Arbor Technology was founded in 1982 with more than 10 years of experience offering embedded and networking expertise in the Industrial Personal Computer (IPC) sector. Arbor Technology has the time-tested abilities of providing processor board-level to system-integrated solutions ranging from well-defined design to manufacturing capability and know-how.

Arbor's Embedded and Networking Computing solutions have been successfully applied in the different industrial fields of transportation, e-service, medicine, manufacturing, automation, telecommunications, networking, information systems, and the military. Most users benefit from their products and service in terms of high productivity, convenience, efficiency, cost-effectiveness, and reliability.

Arbor Technology is a customer-oriented organization, as is stated in its business philosophy and mission statement (see Fig. 1). It is committed to helping its customers with advanced technology solutions and technical support, which in turn helps those customers to deliver services faster and better than their competitors. That is, Arbor Technology helps its customers to make a profit by building their competitive advantage through providing innovative technology solutions.

Fig. 1: Arbor Business Philosophy and Mission

Project Initiation and Goals

In the ever-changing and furiously competitive industrial and embedded computing market, it is very important to become a collaborative partner to the customers. Arbor Technology provides a comprehensive portfolio of embedded platforms ranging from embedded processor boards to systems which effectively facilitate the clients' projects. Just like most SMEs in the manufacturing industries, Arbor Technology operates in a project-based way to support its customers. These customers are from various industries with their various unique requirements. Arbor Technology must design processor boards and systems to meet different customers' needs. These boards and systems cannot be re-used for other customers. That is, Arbor Technology cannot create profit from volume or economies of scale. The process is very cost-intensive and ineffective for a manufacturing company.

Finding ways to benefit from past experience with various new product designs and create value-added service becomes a strategic issue for the profitable growth of Arbor Technology. Although the needs of customers differ for each specific industry, such as home and industrial automation, mobile computing, kiosk/POS, mini controllers, network appliances, and the gaming industry, it is possible to develop a standard or customized combination of customer-driven, high-performance, feature-rich, and well-made platforms for each specific industry domain. This makes the developed product (board and system) for that specific industry domain reusable. Engineers can easily deploy any embedded architecture to meet customers' requirements quickly and add value. Profits then can be obtained from economies of scale.

Traditionally, profit in the manufacturing industry only comes from the production side. In order to increase profits, companies have to provide value-added service to their customers. Therefore, transforming the business model from a manufacturing-oriented model to a Design and Build to Deliver (DBD) integrated service model becomes a new challenge for Arbor Technology. Building a product design and manufacturing knowledge base that can quickly support various industrial computing solutions requirements and transforming to a DBD integrated business model are the key objectives of the KM project, which will be very important for Arbor Technology to win customer support and to enhance profitable growth in the future.

Project Implementation

Arbor Technology organized a KM Steering Committee and project team which was led by the CEO. Top managers of the various business divisions related to the DBD Model were all included on the steering committee. The related process owners included the Sales, Design, Manufacturing, and Service departments. The KM Consulting Team was hired from an outside consulting firm to facilitate the organization transformation. The project scope included the business model transformation and KM methodology and systems implementation, which was divided into two phases.

Phase 1: Business model transformation (Schedule from March 2005 to December 2005)
The first phase was the business model transformation. The project team refined the product strategy, enhanced the design and service capability, and

developed the Design and Build to Deliver (DBD) integrated service model and process.

The DBD service model and the detail knowledge processes are shown in Fig. 2.

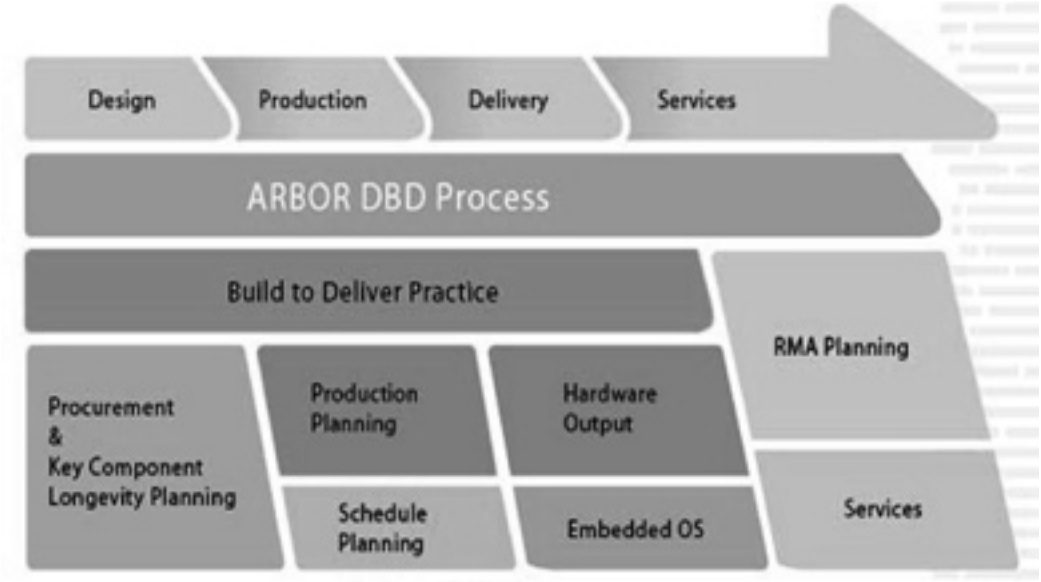

Fig. 2 Arbor Technology DBD Integrated Service Model

Phase 2: KM methodology and system implementation (Schedule from March 2006 to December 2006)

Arbor Technology implemented Dynamic Master Logic (DML) KM methodology (see Fig. 3) with the following steps:

(1) Developed KM diagnosis.
(2) Defined company knowledge map.
(3) Calculated Arbor Technology current knowledge content.
(4) Analyzed the gap between current knowledge and the knowledge map.
(5) Developed Arbor Technology KM action plan.
(6) Designed the KM system.
(7) Implemented KM methodology and system.
(8) Reviewed the project performance.

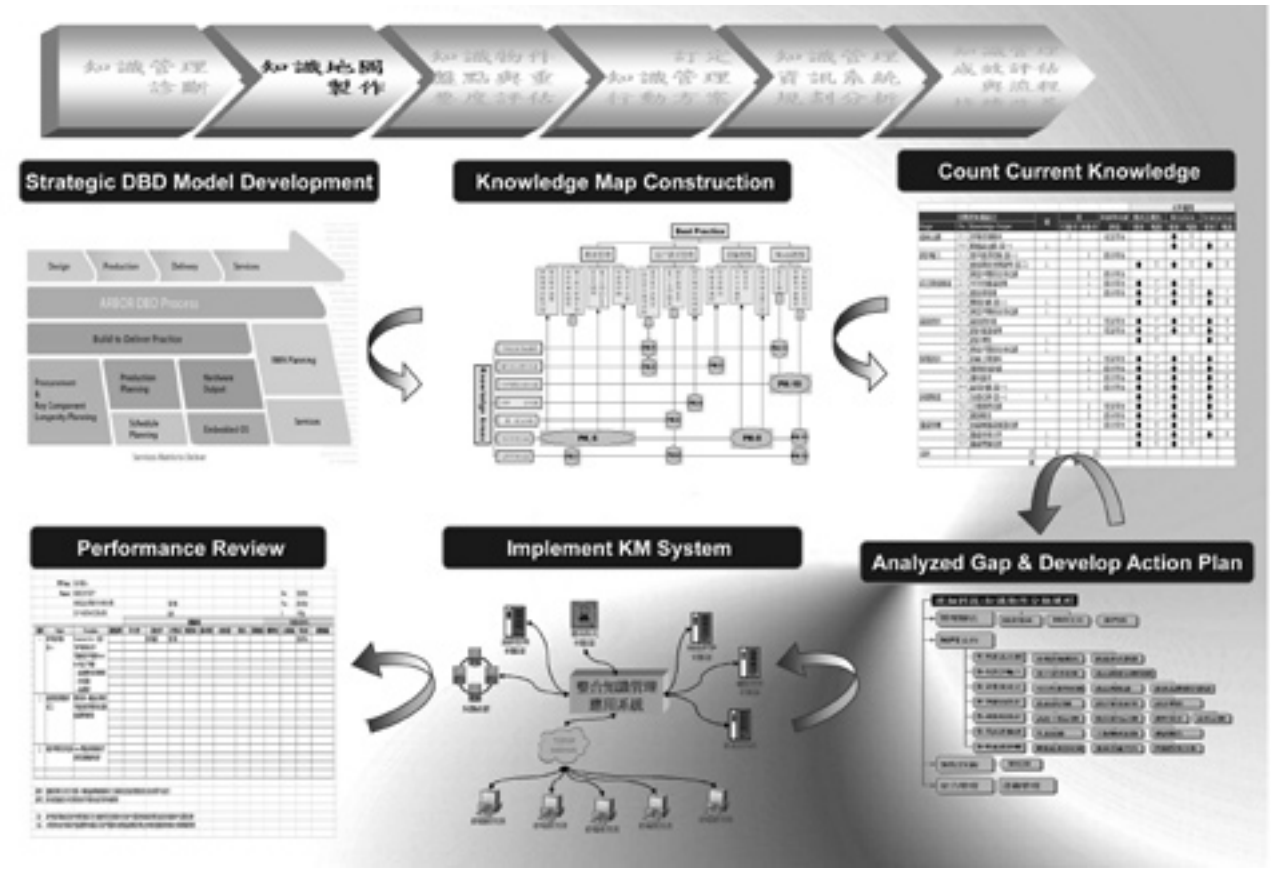

Fig. 3 Arbor Technology KM Methodology and System Implementation

Systematic methodology is an important guarantee of a successful KM project. The process of product development is restructured according to a globally accepted project management method. There are five defined elements: initiating, planning, executing, controlling, and closing. These are the milestones to verify the output at each stage along the critical path of the product development process. Arbor Technology devotes resource to improving knowledge management skills to bring the best result to an ODM project.
The KM project implementation procedure and deliverables are shown in Table 1, and the knowledge map developing process is shown in Fig. 4.

KM Project Deliverables

Arbor Technology deploys the KM Infrastructure as part of its Embedded Computing Design and Service to develop the fastest deployment and a Time-to-Market service model. With the full spectrum of embedded computing product development experience, Arbor Technology has already accumulated intensive technology networks, well-defined quality requirements, and a collaborative design process.

Time-to-market is the most critical factor in the IPC industry. However, the changing requirements and the different needs of various customers make it very difficult to use a standard platform as a common solution. Most of the developed processor boards do not take full advantage of the features required to design the solutions needed to meet customers' needs. In order to provide the greatest flexibility for customized solutions,

Arbor Technology develops a range of Computer-on-Module features and options based on its technology and design knowledge base.

Table 1: KM Project Implementation Procedure and Deliverables

Implementation Step	Activities	Deliverables
Step 0 Project kick off	0-1 Organize the KM project team 0-2 Plan the kickoff meeting 0-3 Set up the working environment	Working statement(SOW) Project document control Kick off meeting
Step 1 KM diagnosis	1-1 High-level manager value workshop 1-2 KM requirement investigation 1-3 Training & education	Investigating time sheet Questionnaire Meeting minutes Course materials Investigation report
Step 2 Knowledge map creation	2-1 Define knowledge strategies 2-2 Develop the project KPI (key performance indicators) 2-3 Design the knowledge map 2-4 Discuss and confirm	KM methodology KPI (key performance indicators) Knowledge map
Step 3 Various analyses and priority evaluations	3-1 As-Is vs. To-Be analyses 3-2 Knowledge fields evaluation 3-3 Confirm the priority	Various analysis reports Questionnaire summary Priority sheet
Step 4 KM solution design	4-1 Design KM implementation model 4-2 Risk assessment 4-3 Define the implementation plan	KM model Risk assessment report Action plan and implementation proposal
Step 5 KM solution implementation	5-1. Periodic project review 5-2 Feedback and modification 5-3 Acceptance	Meeting minutes Acceptance report
Step 6 Performance review	6-1 Performance review meeting 6-2 Project closed	Performance review meeting minutes Project closed

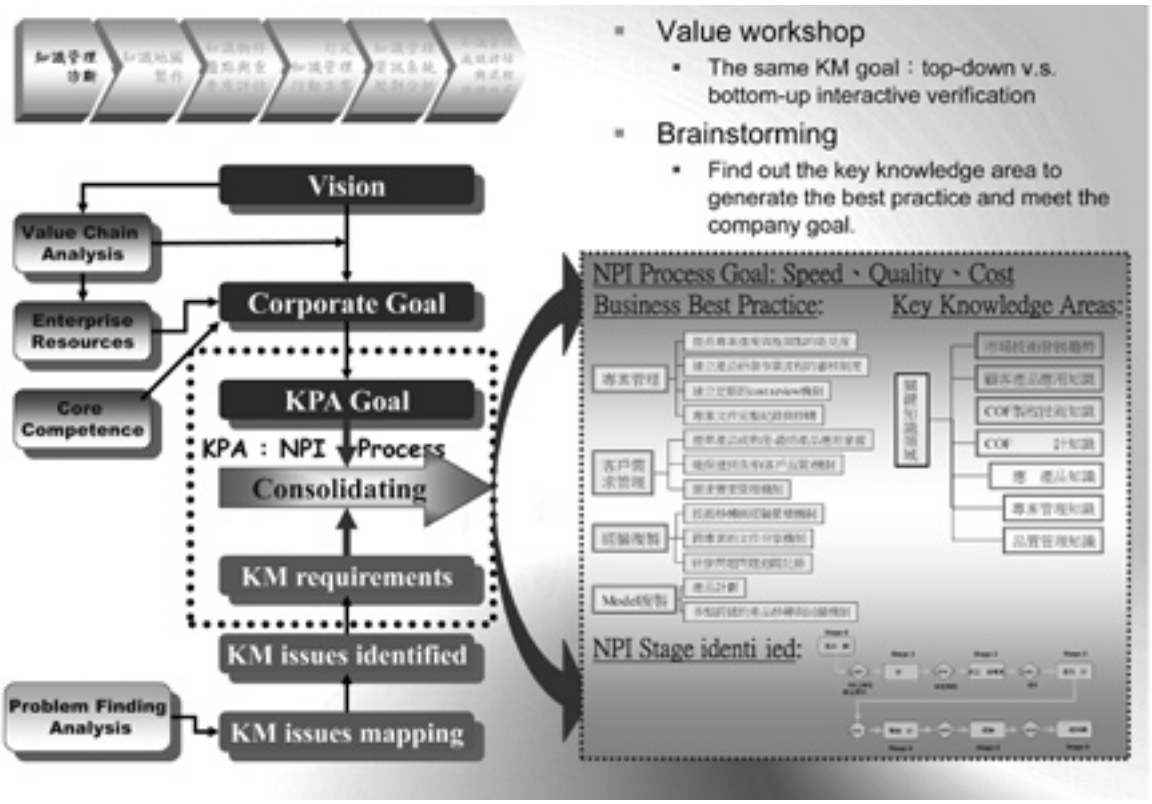

Fig. 4 Knowledge Map Developing Process

Arbor Technology speeds up customized capabilities and quick response with the newest evolution of information technology to deliver the most cost-effective solutions and faster and stronger services than ever. The portfolio of Computer-on-Modules provides a scalable processor and chipset combination across a wide range of applications to reduce the design cycle time and to improve the time to market.

Clients can participate at any stage of the process (shown in Fig. 5) to ensure that the ideal platform for the solution is selected. Arbor delivers to customers the project results with an OBM standard or ODM hardware platform. Then customers can focus on developing applications and value-added services that fully stick to their core competitiveness.

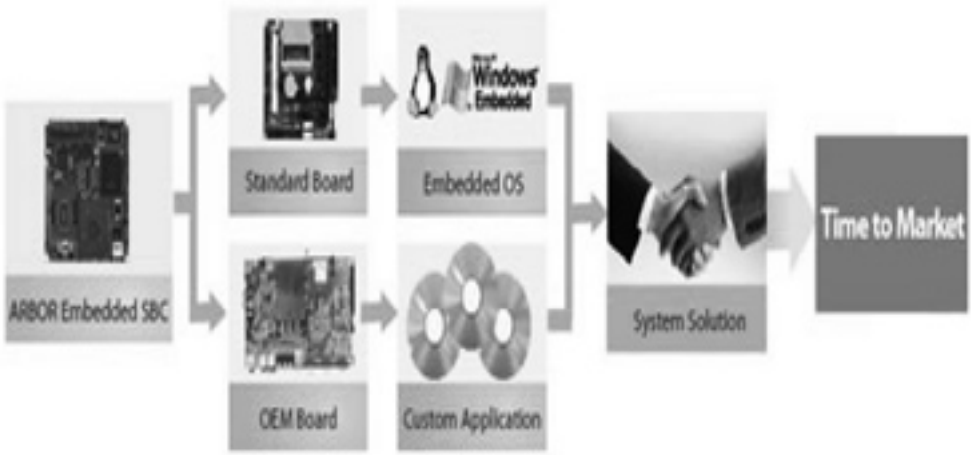

Fig. 5 Time-to-Market Service Model of Arbor Technology

The Arbor Computer-on-Module and Time-to-Market Knowledge Service Model includes five phases, from design to manufacturing service knowledge process, activities, and deliverables. The phases of the new knowledge service model are the following:

Phase 0: Concept and Objectives
Phase 1: Investigation and Requirements
Phase 2: Specification and Design
Phase 3: Development, Verification, and Manufacturing Readiness
Phase 4: Trial Run and Test
Phase 5: Production and Support

During each phase of the knowledge process of the Time-to-Market model, Arbor quickly and carefully plans the critical steps for each task based on the product knowledge base. Then follows the product life cycle management and review process to ensure the best result at each stage of knowledge activity and the completion of deliverables. Table 2 shows the new IPC (OBM Standard) product design knowledge process, activities, and deliverables, which specifies the concrete output of the each phase and the related activities.

Project Benefit

With the application of its knowledge system, Arbor Technology can make better decisions, particularly at the working level. The system is a result of the sum total of the day-to-day decisions made at the front lines of an organization. Better decisions are achieved by spending less time on information-gathering and more time on the creative process. Decision support systems help with the analysis, but are still driven by the ability to find relevant information effectively. Arbor Technology obtained the following major benefits with the implementation of the KM project:

1. Revenue increased 30%, from USD21 million in 2006 to USD30 million in 2007.
2. A New Fastest Deployment system was developed and implemented via ARBOR Computer-on-Module and Time-to-Market Model Business Models to improve customer solutions and satisfaction. It improves and accelerates design cycle time and the service and support of customers. Arbor has become a more intelligent enterprise

and produces smart, engaging products.
3. A more adaptive, responsive, dynamic, flexible organization was created. It encourages the flow of knowledge. It also enhances team collaboration and coordination.
4. The organization's use of available collective wisdom, experience, and the Brain-Power of knowledge capital assets was maximized. Waste and duplication were reduced by encouraging knowledge reuse.
5. The company was able to attract and retain motivated, loyal, and committed talent.

Implications

Global competition and customer demand drive enterprises to enhance their business operations and service value. The construction of a KM system helps an enterprise to integrate the knowledge of internal product development with the knowledge of outside customers and suppliers. It facilitates the process of product development and innovation through knowledge-sharing and collaboration. Improvements in product design and customer service enhance the capability of enterprises to strive for international orders.

The knowledge management system implemented at Arbor is designed as a new fastest deployment service model to help customize the product and services quickly for different industrial requirements. It is important to understand the key factors which contribute to the successful implementation of KM at Arbor. The following three factors are identified as major contributors to Arbor's success:

1. The alignment of corporate vision, strategy, and knowledge mapping

It is important to address People, Process, and Technology issues in tandem rather than focusing only on any one of them. The alignment of corporate vision, KM strategy, and knowledge mapping ensures the consistency of all efforts, which leads to the accomplishment of corporate objectives.

KM strategies must be aligned with a business vision and management process which ensures that staff members are onboard. It takes time to communicate the corporate vision with employees and to change their behavior. Employees must understand the importance of knowledge management in building corporate competitive advantage. Managers must practice what they preach. An open communication culture encourages free discussion and flow of ideas. Constructive feedback will enhance the trust developed between executives and the staff. Split the KM program into manageable units; think big, but start small. In addition, a knowledge audit is required that aligns the business strategy with knowledge activities and key performance indicators. The gaps found in the audit process could be used as feedback for correction, which is like a PDCA cycle.

2. People engagement

To engage people in knowledge-centric organizations is possibly the hardest challenge of all. It is the "soft" side of change. It requires rooted change in corporate culture and employees' behavior. Employees will be motivated to change only when they feel respected and recognized. An incentive system contingent on the recognition of individual contributions to the organization will enhance the motivation of employees. When

employees see that they can make a difference, they feel honored to participate in the project and to own the responsibility for the change effort. It is clear in the knowledge economy that individuals' knowledge is very important intellectual capital, which must be utilized to gain competitive advantage, innovation, and operational excellence. A strong engagement with people is required to maximize people's motivation to learn, to share, and to change.

3. Partnership with customers

An enterprise has to manage its external partnerships in order to support growth. Forming partnerships with its suppliers and customers becomes very important. Arbor invites its customers to participate in the product development process, which builds trust and intensive cooperation through partnership. It also facilitates the product development process and better solutions. Arbor builds a strong social network with its customers. It is hard for competitors to step in. Their partnership will ensure the continued growth of the business.

5. Qian Hu Corporation: Knowledge-based Ornamental Fish Farm

Company Profile

Company name: Qian Hu Corporation Limited
Industry: Ornamental fish farming
Year of establishment: 1985
Number of employees: 650
Office: Singapore (head office), PR China, Malaysia and Thailand

Background

Qian Hu Corporation Limited is a leading exporter of ornamental fish, exporting to more than 70 countries worldwide; together with other local farms it supplies more than 30% of the world's aquarium fish. As a home-grown company, Qian Hu has significantly helped Singapore to become the world's leading ornamental fish exporter and to be recognized as the world's ornamental fish capital.

Qian Hu's mission is to create a premium lifestyle experience in ornamental fish-keeping by providing a one-stop aquatic shop for both local and international wholesalers, retailers, and consumers. Its vision is to be the world's biggest ornamental fish, aquarium, and pet accessories service provider. The organization's foundation is built around the core values of integrity, value creation, entrepreneurship, and teamwork. Its four strategic thrusts, which it considers as its drivers to success, are customer focus, people excellence, quality excellence, and financial strength.

Qian Hu provides a wide spectrum of one-stop services including the distribution of over 1,000 species of ornamental fish from all around the world as well as the manufacture and distribution of a wide range of aquarium accessories, including pet foods and medications. It engages in the full ornamental fish process: import and export; breeding and quarantine; conditioning and farming; and distribution activities. Qian Hu also manufactures its own plastic bags which are used to pack the ornamental fish at points of sale. The plastic bags are also supplied to third parties in the ornamental fish, food, and electronics industries.

History

Qian Hu's history can be traced back to the early days of the company's pioneers, Mr. Yap Tik Huay and his brother Yap Hey Cha. They were in the pig farming business. Mr. Yap Tik Huay is the father of the Group's Executive Chairman, Mr. Kenny Yap. In 1985, their pig farm was eradicated due to the government's move to halt pollution and free up more land for residential development. Tik Huay's three sons joined the family business at that point in time. They converted the old pig pens into concrete ponds and started breeding guppies for the local fish exporters.

However, in 1989, during a heavy thunderstorm, their entire stock of guppies was washed away. Kenny and two of his cousins, Alvin and Andy, were not deterred by the misfortune. They were determined to rebuild the company. The new name of the company is "Qian Hu," which means "thousand lakes" in Chinese. After their failure in rearing guppies, they went on to farm high-fin loaches despite knowing very little about this particular variety of fish. Little did they realize that they were in for another disaster. Their entire stock of 4,000 loaches died. They lost almost everything, except for their resolve and drive to succeed. It is this spirit of determination that helped Qian Hu to grow into a successful and leading exporter of ornamental fish.

They learned their lesson from these misfortunes. Their mistake was not diversifying risks and not knowing enough about their products. In fact, this lesson was so valuable to them that the high-fin loach became Qian Hu's mascot, to serve as a daily reminder of where they were—and where they never want to be again.

In 1990, Qian Hu expanded into the local wholesale distribution business, and increased its range of ornamental fish to include Discus, Chichlid, and Gourami. It also began to diversify into the aquarium accessories business. According to business research, for every dollar spent on fish, S$5 to S$10 is spent on various accessories such as filters, fish tanks, pumps, and fish food. Capitalizing on this opportunity, Qian Hu developed unique and innovative aquarium and pet accessories product brands such as Ocean-Free, Bark Delikate, and Aristo-Cats Yi based on their industry knowledge.

Qian Hu started exporting to the rest of the world in 1992. While its Singapore operations continued to grow organically, the bulk of Qian Hu's growth in the next few years was driven by its overseas operations. Operations were set up in PR China, Malaysia, and Thailand. This helped to position Singapore as a major player in the export of ornamental fish. In 2009 Qian Hu set up a joint-venture operation in India for the fish and pet accessories market. Today the company distributes more than 5,000 types of aquarium and pet accessories for more than twenty major manufacturers and principals to local retailers and wholesalers in Asia.

In 1996, Qian Hu set a milestone in the industry by being the first fish farm in Singapore to be awarded the ISO 9002 certification for its quality management system; it received ISO 14001 certification in 1998. In recognition of its visionary leadership, innovative processes, and customer focus, Qian Hu also became the first SME in Singapore to be awarded the prestigious Singapore Quality Award (SQA) in 2004. The SQA is conferred on organizations that demonstrate the highest standards of business excellence.

Key Drivers for the Adoption of KM

Qian Hu recognized the importance of knowledge in its early days, when the entire stock of guppies and loaches was lost. Knowledge is integral to improving the organization's operational efficiency, enterprise planning, and decision-making, and to creating value for stakeholders.

Qian Hu's Executive Chairman and Managing Director, Mr. Kenny Yap, has actively

spearheaded the adoption of KM in Qian Hu. He acknowledges that Qian Hu is a knowledge-based company. He said, "The ornamental fish industry is indeed a knowledge-based industry. Therefore, managing the knowledge and enhancing it continuously is essential in sustaining our business. We must also ensure that the knowledge we gained over the years stays within the company regardless of staff turnover." Mr. Yap is instrumental in driving knowledge management in Qian Hu. One of his aims in adopting KM is to capture the knowledge, competencies, and experiences of his employees in order to avoid knowledge losses in case an employee decides to leave the organization. The aim of KM is to learn from experience-based knowledge and subsequently transfer it into the creation of new knowledge in the form of new products and/or service innovations.

Qian Hu's mission is to create shareholders' value by becoming a world-class ornamental fish and accessories company. Qian Hu believes that value creation and innovation are realized through systematic management of its intellectual capital. This will enable the company to achieve competitive differentiation through the development of innovative and quality products and services that add value to customers.

By leveraging its organizational knowledge assets, Qian Hu aspires to effectively deliver product knowledge, quality, timeliness, and value for money to its customers. Its deep industry knowledge and expertise as an ornamental fish breeder, distributor, and manufacturer is a major factor in the development of product innovations, delivery of high-quality services, and instillation of a learning culture.

KM to Support Organizational Goals

As a knowledge-based company, Qian Hu has continuously embarked on KM initiatives that provide an appropriate balance between short-term and long-term improvements to achieve its performance goals and create the greatest savings and efficiencies. In doing so, it optimized the organizational, cultural, and technological aspects of knowledge-based business processes. Various KM tools and techniques are utilized in line with its mission, vision, values, and strategic thrusts which revolve around customer focus, people excellence, quality excellence, and financial strength. All tools are customized and adapted to suit Qian Hu's business model, especially with its positioning as a one-stop shop for its customers.

Qian Hu's knowledge management initiatives involve considerable investments in technology, especially information technology resources. Over the years, Qian Hu invested in several million dollars in technology. The global nature of Qian Hu's business puts extreme pressure on the organization to keep a finger on the pulse of its worldwide business activities. Mr. Yap's openness towards new technologies is a key factor of his willingness to embark on new technology-enabled KM initiatives. According to him, technology is one of several key KM enablers.

To facilitate the capturing, sharing, and use of knowledge, Qian Hu developed a web-based KM system that captures and disseminates the working knowledge of individuals within the organization. The system is interactive and has features such as access control, info approval, info subscription, automated reminders, and mass broadcast capabilities.

Corporate information and documents of the company's expertise and best practices can be accessed securely via e-mail and short message service (SMS). Some of the information in the system includes corporate information, product information, operations information, expertise, product innovations, staff suggestions, and newsletters. To engage staff in the alignment of the organization's vision and mission, a Staff Interactive System (SIS) is also included in the system. There are terminal-based access points for all staff to access the SIS.

Qian Hu's highly mobile workforce could gain instant access to information on its local and overseas operational, inventory, financial, and sales performance that affects the organization's bottom line. Users can extract data from multiple secured sources, perform ad-hoc analysis, and generate flexible business reports. The collection and storage of all relevant knowledge on a common platform facilitates the transfer and sharing of knowledge from employees to a knowledge network. To capture and transfer the knowledge from the local operations, each subsidiary has its own server, all of which are linked via a virtual private network (VPN). Data is sent daily to the central system in Singapore to allow for effective knowledge management.

The reusability of the organization's intellectual capital is also emphasized. To enable this, the management of explicit and tacit knowledge of individuals and groups in the organization is critical. Capturing individual and group knowledge enables reusability of the knowledge. Tacit knowledge such as industry know-how and proven solutions are preserved and, when required, can be reused to resolve problems quickly. Track records are stored to provide future reference, avoid re-inventing the wheel, and encourage innovation. One of the ways to ensure reusability is to convert tacit knowledge into explicit training documents. A good example is the development of the fish quarantine training manual. This manual is used to train new and existing staff.

Building a Learning and Sharing Culture

Besides technology, Qian Hu also places great emphasis on continuous learning and skills upgrading as well as maintaining a culture of transparency, openness, and innovation. Through its training and skill upgrading programs, new skills and domain knowledge are passed on to the staff. Regular review sessions are held to share working knowledge and strengthen teamwork and communication among staff. Mistakes are treated as learning points. To support this, Qian Hu implemented the "Creating Value from Mistakes" (CVM) initiative across the organization. CVM encourages learning from others' mistakes and promotes positive contributions from staff members. CVM is an important feature in staff dialogue sessions and operations meetings. Some of the learning points are also published in the in-house newsletter and notices. This has resulted in the minimization of mistakes, an increase in positive contributions, and staff members becoming more conscientious in their work.

To ensure that Qian Hu's people management strategy supports its business objectives, a holistic performance reward system has been implemented. Qian Hu uses various diagnostic measures like employee opinion surveys, performance achievement, third-party feedback, employee involvement, and exit interviews to understand and enhance staff

morale. Staff feedback is gathered through informal gatherings, operational meetings, and a Staff Interactive System (SIS). These HRM practices motivate employees to actively acquire and share information, allowing for the capture and transfer of knowledge. HR mechanisms to promote bonding and help remove the barriers among the employees for knowledge-sharing are also implemented. One such HR mechanism is the corporate newsletter. The newsletter promotes the corporate identity, bonding, and knowledge-sharing among employees.

Qian Hu's senior management has set the strategic direction to create a service-oriented culture. Through leadership and personal involvement in planning, communicating, reviewing performance, and recognizing and developing people, senior managers at Qian Hu serve as role models. As the firm's senior management proactively engages in KM initiatives, employees, customers, and suppliers are also motivated to participate in corporate KM activities. Important mechanisms to ensure buy-in from stakeholders include the firm's numerous communication platforms and KM tools such as simple floor walks or tea sessions (see Table 1), which are used to capture, disseminate, and create new knowledge.

Table 1: Communication between Senior Management and Key Stakeholders

Stakeholder	Communication Platform	Senior Executive Involvement	For Whom	Frequency
Internal				
Employees	•Coffee breaks •Briefings •Informal gatherings •Focus groups •Floor walks •Committee meetings	Senior management, managers chair meetings, briefs, present prizes, discussion, tea with staff, etc Management by walking about	All employees, senior management, managers, executives, non-executives	Daily quarterly, monthly quarterly and annually as and when needed
External				
Customers	•Meetings, work plans seminars, surveys •Projects, meetings, progress/status meetings •Floor walks •Committee meetings	Senior management, managers and line managers chair meetings, briefs, present prizes, discussions, coffee with staff, etc Management by walking about	customer CEO senior management customer front line staff, customer contact staff	Weekly, monthly, quarterly and annually as and when
Suppliers	•Negotiations •Periodic meetings •Reviews	Senior management, warehouse, operations manager meetings, briefings, auditing, presenting awards	CEO of supplier organization, managers, working-level staff, professionals from supplier organizations	Annually, project-basis audits annual BBQ, games/sports as and when needed
Investors	•Results releases •Inquiries/feedback •Analyst briefings/ press conference	Senior management, corporate communications briefings/responding	Analysts and shareholders media/ public analyst and shareholders	Quarterly/ as and when needed, bi-annually

Source: Qian Hu Corporation Limited 2004 Quality Award Winner Executive Summary

Senior management works with specific committees to translate Qian Hu's values into policies, practices, and behaviors in support of the organization's culture. Strong emphasis is placed on teamwork and the promotion of "intrapreneurship."

Qian Hu also encourages innovation at various levels in the organization. Organizational behaviors and practices in Qian Hu's culture that stimulate innovation encompass openness to new ideas, trust in all relationships in the organization, creativity, encouragement of risk-taking, teamwork, and the importance of quality achievement. To empower staff, decision-making is allowed at all levels. To encourage individual employees to submit improvement ideas and suggestions, a staff suggestion scheme is implemented. This facilitates the transfer of knowledge from employees with valuable ideas to other parts of the organization that can use this knowledge for the creation and combination of new knowledge for Qian Hu. During the Singapore Innovation Awards 2003 organized by SPRING Singapore, Mr. Raymond Lim, Minister of State for Foreign Affairs and Trade and Industry of Singapore, praised Qian Hu as an icon of innovation.

Customer Relations

Qian Hu's Customer Relationship Management (CRM) system is integrated with KM and provides a platform for global networking and knowledge-sharing among its various stakeholders such as investors, customers, suppliers, experts, hobbyists, academics, and even competitors. This is in line with its business objective of maximizing customer satisfaction and ensuring a positive and satisfying experience whenever they interact with the organization. Information is captured and shared through forums, advertisement posting, feedback forms, and sales inquiries. These are then disseminated via Internet applications, mass e-mail broadcasts, and VoiceXML application.

The company adopts various listening and learning strategies to analyze and anticipate customer and market needs. Information about existing and potential customers is gathered and managed to guide marketing, sales, and customer service activities. Customer-related information is analyzed and transformed into actionable knowledge about new customer requirements. The processes of determining customer requirements are constantly evaluated and improved to ensure that products and services add value.

By leveraging customer knowledge, Qian Hu ensures that its products and services create customer satisfaction and value. For example, some of Qian Hu's export customers have orders from various aquarium retailers in their countries. With a shipment of fish of varying markings, they face problems identifying each customer's packing list and other details regarding the order. Qian Hu came up with customized bar code stickers, containing information such as weight per box, number of bags of fish per box, and the type of fish the box contains. This solution simplified the job for the customers, solved their problems, and delighted their customers. This is a good example of how Qian Hu provided innovative customer service by leveraging customer knowledge.

To further enhance customer service, fish catalogs and associated price lists are provided online to ensure correct fish ordering and current pricing. The launch of Qian Hu Voice in 2003, which is built upon the CRM system, is the first voice-based, multilingual customer self-service system in the industry.

CRM reports are frequently reviewed by senior management with marketing or project managers. Inputs to this review comprise the customers' overall satisfaction results, letters of compliments, customer service standard results (including responsiveness to queries), quality standards, and number of warranties and complaints. The integration of this knowledge and knowledge from employees with customer contacts are then used to model the best customer relations practices.

To enhance customer relations, proper customer handling skills are imparted to customer contact employees on an ongoing basis. These staff members are also empowered to deal with customers professionally as they may deem fit for service recovery. Training courses on "Customer Services Excellence" are conducted for customer contact staff. In addition, rewards and recognition are given to deserving staff displaying a "customer-first" mindset.

Research and Development

Besides leveraging internal knowledge, Qian Hu also puts a lot of emphasis on research and development (R&D) and collaborations with external knowledge-intensive organizations to develop new knowledge. With its increased drive in the use of better technology, Qian Hu created the of world's first automated packaging machine for ornamental fish. This is a joint project with the Singapore Agri-food and Veterinary Authority (AVA) and is partially funded by the Singapore Economic Development Board's (EDB) Innovation Development Scheme. In the past, nine people would work for nine hours to pack 300 boxes of fish. The new automated system, which packs fish in plastic bags before they are put in cartons for transport, requires only three workers. The three workers only need four hours to pack 500 boxes of fish. Automation of the packing operations increased efficiency by speeding up delivery time and eliminating human errors. The state-of-the-art packing automation technology is even connected to a bar-coding system, making it possible for customers to trace and identify their purchases. The automation of the packing operation is incorporated into the supply chain management system. The PDA system is used for the inventory control of both fish and accessories.

Another example is its research collaboration with Temasek Life Sciences to enhance the breeding of the Arowana fish. The research collaboration has helped to set up an efficient method to identify breeding pairs. Qian Hu made history in the area of Arowana breeding. Simple and non-invasive methods to determine the sex of the breeders were developed by the research team. This has led Qian Hu to become more knowledge-based and to move up the technology ladder. It has also made great strides in the area of fish medicine. Their own system of medication has enabled their fish to be healthier and more likely to survive the trip to local fish retailers. Qian Hu has become an ideal place for seeking and synthesizing new and greater knowledge in fish-rearing skills. It sees itself as spearheading such knowledge-based, cutting-edge research in Singapore in ornamental fish.

Qian Hu also intensively studies best practices of other companies and adapts the appropriate ones for value creation. Specific studies of the business and marketing strategies of high-performing organizations have enabled Qian Hu to fine-tune its business strategies, operational performance levels, and deployment of resources to sustain competitive advantage. For example it learned from OSIM's (a global leader in branded

healthy lifestyle products) chain store strategy regarding their distribution strategy. It also adopted good customer service standards and practices from 77th Street (a fashion retail store) and G2000 (an office wear retail store). These standards and practices are reinforced through regular training of the retail staff. As Qian Hu's expertise and best practices are documented in the web-based KM system, employees can access information about these best practices securely via e-mail and short message service (SMS). This allows the transfer of best practices and knowledge internally.

KM Results

Qian Hu recognizes that KM not only has upgraded the skills and knowledge of its employees but also has improved the service level, increased productivity, and enhanced profitability.

To track and measure KM results, and to ensure a positive impact on productivity and innovation, the company's key performance indicators (KPIs) are tracked, monitored, and reviewed in various venues such as monthly management meetings of the various business sectors and functional groups, corporate management meetings, and the like.

Employees can also instantly access the measurements of the company's local and overseas operational, inventory, financial, and sales performance that affect the organization's bottom line. The data and key performance indicators are used to make effective decisions on a timely basis.

Performance reviews of key management support processes such as quality assurance and information systems are also conducted periodically to evaluate process effectiveness. Performance variances, if any, are then examined, and changes are made to the relevant organizational components to ensure that corporate knowledge processes are effectively managed and add value to Qian Hu. Table 2 highlights some of the various initiatives that add value for the stakeholders.

Table 2: Initiatives That Add Value

Initiatives	Value add
Process training manual for quarantine/ packing	Competency enhancement, leading to lower daily losses and D.O.A. (Dead on Arrival) rates of fish
R & D	Product, service and process improvements, more effective and efficient work
Staff suggestions, sharing in staff dialogue sessions, newsletters, notices	Lead to better staff motivation, more effectiveness and efficiency, reduce losses, continuous improvement mindset
Creating value from mistakes (CVM)	Lead to fewer mistakes, more conscientious staff, learning from positive contributions
Customer relations management	Lead to product, service, process improvements

As Qian Hu constantly explores the attainment of business excellence, value creation, and innovation through effective knowledge management, it has obtained national recognition and several national awards. Qian Hu became the first small and medium enterprise (SME) to win the Singapore Quality Award (SQA), the most prestigious award conferred on organizations that demonstrate the highest standards of business excellence, in 2004. In addition, it was also the first company in the ornamental fish industry to achieve ISO 9001 accreditation. In 2006, Qian Hu was certified and awarded the People Developer Standard by SPRING Singapore, which testifies to Qian Hu's best practices in Human Resources. These testimonials indicate the effective implementation of KM at Qian Hu over the years.

Key Lessons

One of the key lessons that can be learned from the success of the KM initiative in Qian Hu is the requirement for top management support and commitment. Mr. Kenny Yap, the Executive Chairman, firmly believed in KM and was the key driver of KM in Qian Hu. Senior management served as role models through their demonstration and reinforcement of the desired values and behaviors. The drive and strong commitment of Qian Hu's leadership testifies to the critical role of management in the success of KM in an organization.

Technology was an important enabler for KM in Qian Hu. The management invested in technology to facilitate the capturing and dissemination of the organization's intellectual capital. The web-based KM system allowed Qian Hu's highly mobile and global workforce to have instant access to information.

Inculcating a knowledge-sharing culture in the organization is also critical for the success of KM. Qian Hu encouraged continuous learning and skills upgrading as well as maintaining a culture of transparency, openness, and innovation. Various initiatives were implemented to encourage a sharing and learning culture in Qian Hu. The CVM (Creating Value through Mistakes) initiative helped staff to treat mistakes as learning points.

In essence, Qian Hu Corporation is an excellent example of an SME that has achieved organizational success and effectiveness through the adoption of strategic knowledge management. Leadership, technology, people, and processes represent the key drivers and enablers of KM (as highlighted in the APO KM Framework). Customer knowledge is an important aspect of Qian Hu's knowledge asset. Learning and collaborating with external parties such as knowledge-intensive R&D organizations are essential elements of Qian Hu's KM implementation approach. In doing so, Qian Hu looks beyond its internal resources to acquire valuable knowledge from all relevant sources to enhance organizational effectiveness. The story of Qian Hu demonstrates how KM can make a difference for SMEs in their growth and globalization strategy.

6. Goldsun Advertising and Marketing

Company Profile

Company name: Goldsun Advertising and Marketing
Industry: Media and Advertising
Year of establishment: 1994
Number of employees: 45 (parent company)
Offices: Hanoi (Head office), Ho Chi Minh, and Da Nang, Vietnam

Background

Goldsun was founded as a marketing and communication design company specializing in multiple advertising services. Goldsun's vision is to become "a leading company of the same kind in a locality." Key customers include a number of leading companies in Vietnam. Goldsun takes great pride in having contributed to the success of well-known brand names in Vietnam such as Mitsustar, Saigon Beer, Habubank, and many others. The company has contributed to the development of the advertising industry in Vietnam through its membership in the Vietnam Youth Enterprise Association. The company has increased its knowledge of the advertising world and international standards by being a member of the International Advertising Association (IAA).

The company expanded rapidly over the years and today Goldsun Group has several subsidiaries and alliances:

- TV Plus: Communication and media programming
- News Plus: PR and events
- Tee Off: Golf marketing
- Marcom Co.: Premiums and gifts
- Focus Media: Out-of-home TV network
- Framemedia: Billboards

Goldsun has a team of young and energetic employees. The company has a unique set of principles that guide the work behaviors of its staff:

- Think: Apply new thoughts to old issues!
- "Turn left" to make a difference.
- Speed up to avoid being late.
- Listen to avoid being backward.
- Always ask the question: Why?
- Be trustworthy to gain more counterparts.
- Create unique messages: Optimize media use to bring a brand name to the customer's mind at a minimum cost.

Putting in Place a Quality System

Goldsun focused on putting in place quality policies and systems before embarking on its KM journey. The founder and CEO, Mr. Hoang Hai Duong, is a firm believer in quality

systems, and he recognizes the importance of providing quality services to clients. Goldsun was certified in ISO 9001:2000 in 2001 and became the first Vietnamese advertising agency to obtain ISO certification. As a result of the certification, Goldsun was able to provide "error advertising" services to its clients. Products are checked for quality before they are delivered to the customers. Employees are also sent to training courses in such areas as creativity, negotiation, and presentation skills on a regular basis to ensure that they have the necessary skills to meet the demands of their customers. Quality standards are also applied to subcontractors, who are selected based on their quality and speed of service. Quarterly reviews on the performance of sub-ontractors are carried out. Subcontractors who fail to meet the quality standards have their contracts terminated.

Key Drivers for KM

Marketing and advertising is a relatively new industry in Vietnam. With the opening up of the economy, Goldsun faced increasing competition from many large and experienced foreign players. The management realized that in order for Goldsun to have a competitive edge, they have to provide unique and quality services to their customers. Goldsun has already committed itself to provide customers with error-free advertising service. To enhance their competitiveness, the company identified and implemented the following strategies:

- Expanded market strategy:
  --changing competitors into counterparts;
  --developing strategic linkages.

- Service diversity strategy:
  --using flexibility to control diversity.

- Personnel strategy:
  --employees are regarded as important stakeholders;
  --outstanding individuals are recognized;
  --employees are empowered.

- Technology strategy

- Investment in advanced technology

Since its establishment, Goldsun has built its capability on providing services in consulting, brand development, and full-service advertising. All these involve an intensive utilization of knowledge. The company realized that a lot of the knowledge created by its employees was not being captured properly and was therefore not fully utilized. This is especially true for its consultancy services related to brand development and advertising activities, which are a rich source of knowledge. The experience of account executives (AEs), designers, and creative staff is not systematically captured and shared. More often than not, the knowledge stays with the individuals and is not disseminated. Failures in signing contracts and in consultancy projects did not translate into lessons learned for others to benefit from. As a result, mistakes were often repeated. New knowledge and practices in

marketing, advertising, designing, and creating were neither regularly updated nor shared. A lot of time was wasted in collecting information/knowledge which already existed in the organization. In essence, the company did not capitalize on its knowledge assets.

Goldsun's CEO, Mr. Hoang Hai Duong, recognizes that in order for the company to be competitive as a service provider, it needs to leverage its organizational knowledge assets. The company must create a work environment where everyone is willing to learn and share knowledge with one another. He believes that knowledge management will help Goldsun to become a learning organization, one in which both personal and organizational learning is embraced. At the same, the increasing competition due to the opening up of the economy has created additional pressure on the employees, leaving very little time to capture knowledge. Mr. Duong realizes the importance of capturing and sharing customers' knowledge in the fastest and most efficient manner. All these have become the main driving forces for Goldsun to implement KM.

Implementation of KM

Recognizing the importance of KM in the development of the company, after being awarded the ISO 9001:2000 certificate for its quality management system, Goldsun started to implement KM with a main focus on people and technology. A KM team was formed, comprising heads of divisions to serve as pioneers and the CEO, Mr. Duong, as the chairperson of the team. One of the primary objectives of the KM initiative is to support the company's business goals.

Four KM objectives were identified to support the company's business goals:

1. To develop a document library that will provide the employees with current information on regulatory documents related to advertising activities, as well as books on advertising, creative design, sales, marketing, and brand development
2. To develop a customer information database. This contains all information about each customer, including transaction history and nature of services provided by Goldsun.
3. To update all work procedures and manuals so that they can be integrated with the ISO online system (a paperless system).
4. To build up and develop a network of suppliers who provide services on printing, out-door advertising, materials, and equipment.

After having established the four objectives, the KM team identified opportunities for attaining each objective. KM opportunities were prioritized and assessed based on their impact on the set objectives and their ease of execution. Three pilot projects for the first phase of the KM implementation were identified:

1. Knowledge base of customers (KOC);
2. Knowledge base of services (KOS);
3. Knowledge base of lessons learned on sales/marketing and consultancy (KOL).

These three projects led to the identification of other requirements to support them. For instance, for the lessons-learned knowledge base, competency profiling was deemed essential. Thus, a number of other KM initiatives were then taken into account while

planning and analyzing the requirements for the knowledge bases.

It took one month to do the planning and to work out the resource requirements for the pilot projects. The KM team identified specific roles and responsibilities for each team member, such as the collection of organizational practices, structuring of content, identification of IT support requirements, proposal of incentives, a rewards scheme for knowledge-sharing, adoption of communication systems, and training in KM and the utilization of the system. A KM portal, named GOLDSUN Click-2-K (meaning "Click to knowledge"), was identified to develop the three knowledge bases. The KM team helped to identify user requirements for the portal.

A knowledge map for sales/marketing and consultancy knowledge was developed by the KM team. A knowledge map is a tool for showing what knowledge resides where (e.g. people, databases, organizational units, or sources of knowledge outside the organization). It also shows the patterns of knowledge flow (access, distribution, learning). A sample is shown in Fig. 1.

Fig. 1. An Example of a Knowledge Map (partial)

As Goldsun provides full services to its customers, each account executive needs a complete knowledge of these services. Although Goldsun place a lot of emphasis on training, in practice it takes about six months to one year, even with the supervision of a team leader, before a professional account executive can work independently. For large projects, Goldsun sets up task forces that consist of an account executive, design and creative staff, and operations staff. In order to coordinate well and effectively, all members of the project team need to understand the job of the other team members. Each business process and each job position requires a set of basic knowledge. Furthermore, each area of knowledge has been classified according to a "knowledge owner."

After completion of the knowledge map, understanding the utilization of knowledge was crucial for the effectiveness of the KM system. The KM team conducted a number of

interviews with different users. The main question asked was how people acquire, store, share, and use knowledge to improve productivity. These analyses served as inputs for the system design.

The KM team was divided into two groups at this stage. One worked with the IT programmers to design the Click-2-K portal based on an analysis of the requirements. The second group was responsible for the collection of content based on the knowledge map. This group also proposed a mechanism to update, store, and share (based on access-right authorization), and to maintain the system.

Various knowledge assets were uploaded into the system, such as a quality management system (QMS), customer information, supplier data, and data for each service area. Information related to the advertising field, regulations, and other fields of knowledge considered to be the core competencies of Goldsun were also uploaded. There is also a sub-directory where the success stories and lessons learned by Goldsun on its sales and marketing activities can be shared. All work procedures, manuals, and forms are updated on the Click-2-K so that it can be integrated with the ISO online system.

The first version of Click-2-K was completed in October 2005. Click-2-K's twelve functions were used by the different divisions in the whole organization. Within the six-month demonstration period, while not much content was uploaded into the system, many recommendations to improve the system were collected. The KM team analyzed all requirements from the users for the next version. A more simplified feature of Click-2-K (version 2.0) was developed to make it more user-friendly. The original 12 functions were streamlined to eight functions. Click-2-K was subsequently updated in June 2006 (see Fig. 2). It is considered as an enabler for knowledge-sharing, storing, and usage.

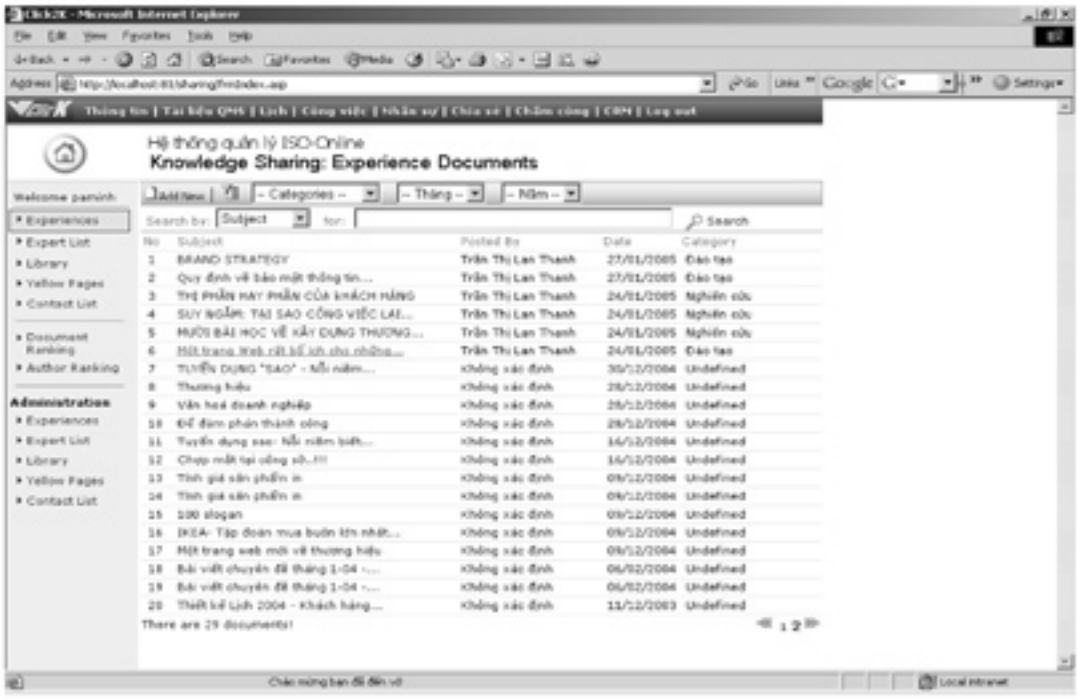

Fig. 2 .Click-2-K Knowledge Sharing—Experience Documents

The KM team also measured the effectiveness of the set KM goals and the activity levels of the KM system. In reviewing each KM goal, the team identified a set of impact indicators that will show whether the goal had been met. At the activity level, there are three indicators indicating its effectiveness:

1. Contribution of knowledge (e.g., number of lessons learned that were contributed);
2. Utilization of knowledge (e.g., time spent accessing the system);
3. Satisfaction with the system (e.g., number of comments received via a satisfaction survey)

Benefits of the KM System

Most of the employees found the KM system useful. One of them is Mrs. Tran Thi Lan Thanh, from the Human Resources Department. She found the system useful because the bulk of her job involved the scheduling of Goldsun's internal and external experts. Functions such as competency profiling and scheduling (identifying the availability of the experts) allowed her to improve her own productivity. Mrs. Thanh is also responsible for training and remuneration activities in Goldsun. She uses the clocking feature in Click-2-K to review the staff work discipline for monthly performance evaluation purposes. She is able to update the records of employees who have attended overseas training programs and also to develop a database of internal/external training materials from the events organized by Goldsun.

As a Quality Management Representative (QMR), Mrs. Thanh no longer has to distribute quality documents in hard copy to each division. She just uploads them easily using the QMS function in Click-2-K. All procedures, forms, and quality records are available in the system. Employees find it easier to work with the online quality system than in the past. They can now search for a document they need online instead of searching for it in very thick hard-copy files.

Click-2-K also allowed all units within Goldsun to exchange and verify the service delivery systems via its job management function. When an account executive receives an order from a customer, he or she can send a request to the design and operation units for inputs regarding cost, style, time of service and other options for the customer. All information related to the services and the customer’s order will be stored in Click-2-K. Thus, all the relevant staff can access the necessary information for the assigned jobs depending on their access level. The access is controlled by an ID and password.

Employees are also satisfied with the News feature in Click-2-K. This function was designed with three sections. One is for official announcements from Goldsun’s management. This is for internal decisions and replaces the usual hard copy. The second section is for General News such as news on the business environment, best practices, economic statistics, and other information which is considered useful for Goldsun employees. The third section is the Sharing Corner. Feedback from new employees showed that they found this section particularly useful as many practical lessons and experiences from senior staff are shared. The Sharing Corner allows the employees to update their information, knowledge, and experiences. They can even post a question to seek assistance and solutions from their colleagues when they encounter difficulties.

Customer knowledge is captured and shared as well to enhance the service level to customers. Mr. Doan Manh Cuong, Head of the Customer Department, commented: "This system is good for sharing information about customers. It can also help me manage sales accounts."

Mr. Nguyen Van Hien, Managing Director, said: *"Click-2-K helps me to know the working time, work progress of employees, and work plan of individuals so that I can monitor and direct them better. It also helps in developing a database, sharing knowledge among senior staff and junior staff, maintaining and developing resources even with personnel changes. Especially, Click-2-K helps me control the job online and from a distance and without any interference, which is good for the business!"*

The most tangible benefit that everyone can see is that Goldsun is becoming a paperless office, although there are no statistics on the amount of paper that has been saved so far. In the past, everything had to be printed out and distributed in hard copy, from internal managerial decisions to quality documents and the internal newsletter. Through the knowledge portal, employees can get all these easily and quickly since they are able to search by key words. More importantly, employees are able to interact with each other via the online forum on any subject.

Organizational events and personal calendars are the two important elements in Click-2-K for job planning within the whole organization. Mr. Nguyen Van Hien, the Goldsun Director, used to find it difficult to control the numerous events of different departments and individuals. Now, with just a few clicks in the Calendar Corner, he is able see to what is happening in the office and know the latest developments. Better supervision and effective resource allocation makes him more productive as a manager.

Goldsun's Click-2-K system has really become a learning portal, where everyone can find the information they need. A number of lessons learned appear in the Sharing Corner, where people accessing the system are able to post a question on a discussion board called TEO (To Every One). Senior staff respond to these questions posted based on their knowledge and past experience. The CEO himself, Mr. Duong, regularly contributes his views in the corner. In addition, learning from other institutions such as partners, customers, and suppliers are also posted in the system. All the best practices and designs are gathered by the account executives and uploaded into the system so that Goldsun management can refer to them as and when necessary.

Overall, the KM initiatives that were implemented had a positive impact on Goldsun's business performance. In particular, the Click-2-K and CRM systems have helped to meet and satisfy the customers' requirements. All these initiatives have enabled Goldsun to increase its competitiveness in the industry.

Challenges Faced

The management understood that KM has to be a strategic and long-term initiative in order to be successful. The commitment and participation of all employees is imperative to transform Goldsun into a learning organization. For this reason, the activities of the

KM team have been supported strongly by the CEO and the management team. The CEO, Mr. Duong, himself made a special presentation to all employees to explain the benefits of the KM project and to encourage the participation of all employees in the project. He demonstrated his commitment and support through the provision of resources. He acted as a role model through his regular contributions to the knowledge base in Click-2-K. He constantly encouraged the KM team to speed up the pilot projects. After six months of implementation, Goldsun realized several benefits from the projects.

The KM team faced a number of challenges. One of the biggest challenges was in the area of content management. There was a lack of useful content to encourage people to access the system. Some employees mentioned that they did not utilize the system since there was nothing useful inside. Thus, in the beginning, only some features were used. The most challenging task for the KM team is how to have meaningful content within the system and, at the same time, encourage people to create and upload useful content proactively. To encourage employees to contribute, the KM team designed an incentive scheme whereby each contribution is given a score that is aligned to the reward system in Goldsun. The KM team also faced the dilemma of "too much content or too little content." As Goldsun works on a wide range of activities, a lot of knowledge is created. The challenge was identifying the "right" knowledge for inclusion in the system. The KM team asked the knowledge owner in each respective knowledge area as determined in the knowledge map to screen and validate the knowledge to be uploaded.

Another barrier is fostering a learning culture within Goldsun. The challenge the KM team faced was to encourage the habit of sharing and learning among employees. Employees are generally more familiar with traditional training— i.e., acquiring knowledge and keeping it only for their own use. The KM team had many meetings and discussions with the CEO to arrive at measures so that the company can get all employees to share their knowledge. Some of the measures implemented include setting a rule to make employees use the Click-2-K for updating customer information and transactions through the Quality Management System (QMS). The service contracts are only signed by the CEO when this information is updated in the system. A reward mechanism was put in place through a point system for the contribution and the sharing of knowledge within the system. Goldsun developed a movement named "I Have a New Idea," and gives an award to individuals and units that have outstanding contributions for the year.

The KM team learned that KM is a transformation journey. Change cannot be achieved overnight. In 2007, the management translated the company's business plans into Key Performance Indicators (KPIs) based on the Balance Scorecard system. They used the Click-2-K system to evaluate and monitor the outcomes. To develop a learning culture within Goldsun, the leaders reiterated their commitment to reinforcing some of the company's unique principles such as, "Turn left to make a difference"; "Keep asking the question: Why?"; "Don't be an idea killer;" and "Learn from anybody," including the janitor.

Lessons Learned

Organizations can certainly reap huge benefits through the implementation of KM. However, the key for it to succeed is that KM programs must be aligned to meet the

organization's business goals. The driving force for the KM initiative in Goldsun is to enhance its competitiveness. This is also the starting point of KM in the APO KM Framework. The vision and mission of Goldsun provided the strategic directions for KM. They helped to identify the specific KM objectives to achieve Goldsun's business objectives.

Although the pilot phase of the KM implementation was just six months, there has already been much many positive feedback about the benefits of KM. Preliminary output is encouraging and serves as a motivator for the deployment of KM organization-wide. Even if there are a number of constraints in the pilot project, it is important to highlight even the smallest achievements in order for it to succeed. Persistence and perseverance are imperative for the success of KM.

The APO Framework highlighted four accelerators which help to propel and speed up the KM initiative in the organization: namely, leadership, people, process, and technology. These four accelerators have clearly helped Goldsun to successfully implement KM in the company. The commitment and support of management is paramount. Leadership played a critical role in the learning process within Goldsun. Mr. Duong firmly believes that KM will provide Goldsun a competitive edge. A continuous learning spirit is always encouraged by him and the senior management. This makes for a very favorable learning environment within Goldsun. Mr. Duong's leadership and commitment were vital in driving KM in Goldsun. He acted as a role model through his regular contributions to the knowledge base in Click-2-K. Without the support and commitment of the CEO and senior management, the KM system could not have achieved the positive feedback and outcomes that it did.

The involvement of people is also critical in Goldsun. Once the KM system has been established, the learning behaviors of staff need to be addressed. KM is about changing people's mindsets and habits regarding learning and sharing. So the more the KM system recognizes the contribution of users, the more employees are encouraged to share and contribute. When employees feel their efforts are recognized, it will lead to improvement in staff morale and productivity and ultimately create a good work environment. Building a sharing culture among the employees of Goldsun is an integral part of ensuring the success of KM.

Mr. Duong also believes in having systematic and effective processes in the company. He ensured that the processes were streamlined and standardized to meet the ISO 9001:2000 requirements. This enabled understanding the knowledge flow in the processes. In the case of Goldsun, the Quality system was built first before embarking on KM as the next logical step to enhance its competitiveness. Quality management and knowledge management build and support each other.

Technology is an enabler of knowledge-sharing in Goldsun. Since most the creative people and account executives spend a large portion of their working hours meeting their customers, there is very little opportunity to meet and share their experiences face-to-face. Click-2-K provided a platform to capture and share knowledge virtually. In essence Click-2-K became a learning portal for Goldsun.

Goldsun adopted a systematic and comprehensive approach to implementing KM. Their approach closely resembles the APO KM Implementation Approach:

Discover Stage:	Knowledge needs and gaps identified
Design Stage:	Pilot KM projects identified and designed
Develop Stage:	Implementation of pilot projects
Deploy Stage:	Organization-wide implementation

At the Discover stage, Goldsun identified the knowledge gaps and defined the four KM objectives. At the Design stage the three pilot projects were identified. At the Develop stage the Click-2-K knowledge portal was developed. The sharing behaviors of the employees and the goal of building a learning culture within Goldsun were also addressed at this stage. The next stage is the Deploy stage, which is the implementation of KM across the whole organization. A systematic and comprehensive methodology helped to focus on KM projects that will make a difference for Goldsun.

What's Next?

The KM team is now looking for a way to calculate the Return On Investment (ROI) of the KM initiative in Goldsun. Employees recognize the benefits in terms of savings in time; effective decision-making due to the efficient use of available knowledge; quicker access to customers' records; avoiding "reinventing the wheel"; avoiding mistakes through the lessons learned from experience, etc. All these benefits have not yet been quantified in monetary terms. They are based on the users' perceptions of the benefits of KM.

The KM implementation is still in progress with current activities in the deployment stage as in the APO KM Framework. KM initiatives and activities are being identified for the whole organization. The experiences of the first phase will certainly be useful for the deployment of the KM initiative across the whole of Goldsun.

7. Japan Gore-Tex (JGI): Sustainable Knowledge Creation for Innovation

Company Profile

Industry: Chemical manufacture
Annual Sales: JPY28 billion
Number of Employees: 488 (as of September 2008)
Location: Tokyo, Japan

Background

Japan Gore-Tex (JGI) was founded in 1974 through joint capital investment by W. L. Gore & Associates and Junkosha, a Japanese polymer manufacturer, to develop and market Gore-Tex in Japan. "Gore-Tex" is a versatile polymer that exhibits an amazing array of properties such as high thermal resistance, high chemical resistance, low flammability, and low water adsorption. The company has grown by expanding the range of applications from fabrics to electronic, medical, and industrial materials. In other words, the history of JGI's growth is the history of knowledge creation to apply the remarkable polymer to many fields.

Upholding "Dreams, Creation, and Never-Ending Progress" as the company credo, Mr. Tadashi Inoue, the president of JGI, has firmly believed knowledge creation as the core of all business activities to realize continuous innovation in both technologies and marketing.

JGI does not use the term "knowledge management" or have any formal KM organization, as the company believes knowledge should be created by every associate. The company regards all individuals as potential knowledge creators, and all tasks as potential knowledge creation.

Based on this concept, JGI has created an unusual organizational structure as well as many unique ways of work and has been improving them for more than a decade. This case will present one extreme example of knowledge management in a medium-sized company that has truly focused on continuous knowledge creation.

The First Step in Knowledge Creation: "Make Corporate Philosophy Work"

Needless to say, a company is an aggregation of individuals who have different values. A corporate philosophy is widely believed to direct such an aggregation of people when it is deeply shared among them. However, at Japan Gore-Tex, it seems "shared corporate philosophy" is not sufficient; the corporate philosophy should "work," according to president Inoue. This concept dates back to the birth of the business.

"Every company starts up with an idea. It always envisions an ideal organization, and associates have a strong sense of passion and mission. They share the vision with the management, and there is neither hierarchy nor organizational walls. However, when

a company becomes successful and grows larger, hierarchy appears, the organization gradually becomes rigid, and the motivation of employees decreases," according to Mr. Inoue. "I believe the key to maintaining the ideal situation of an organization in the early years is the sense of mission which is shared among employees. I also believe that people buckle down to work most actively when they marry the corporate mission with their spontaneous motivation. If these hypotheses are correct, an organization is always filled with dynamism driven by the sense of mission of all the associates. This dynamism is a base of knowledge creation for innovation. Our organization is managed based on this concept. Sharing the corporate philosophy stands as the first step for knowledge creation which is to let people feel the sense of mission."

At JGI, the corporate philosophy outlined below is definitely "working" to nurture associates' sense of mission, as it is firmly believed that knowledge creation eventually relies heavily on individuals with a sense of mission and passion.

Basic Philosophy:
- Share our dreams, and challenge new value creation for tomorrow.
- Enrich people, associates, and ourselves.
- Head for the unknown world by overcoming continuous difficulties and risks.
- Always fill our workplace with intellectual energy.
- Keep dreaming, and aim at never-ending progress for new value creation.

Company Credo:
- Dreams, Creation, and Never-Ending Progress

Like the company philosophy at most organizations, JGI's is an aggregation of abstract concepts. President Inoue admits: *"Our philosophy is just a place to go back to when someone is unsure of his/her judgment. 'Is it dream-inspiring?' 'Is it worthy of being called creation?' 'Can we call it progress?' It's the first step of knowledge creation. To make corporate philosophy work, we need tangible methodologies."*

At JGI, "corporate philosophy has been working" is used synonymously with "knowledge has been created." And their organizational framework, named POGAL, is one of the tangible methodologies; it is so unique that it is hardly seen at any other organizations.

Project-based Organization: POGAL

POGAL (Project Organization Governed by Autonomous Leadership) is JGI's original organizational concept that has no hierarchy and considers Japan Gore-Tex as one organic aggregation of projects. Projects are permanently based units that connect "people" and "work." They are the most important component of POGAL and serve as the basis for knowledge creation. All business activities, ranging from research and development, sales and marketing to general affairs and human resources, consist of projects. The size of a project varies from a single person to more than 20 associates, and some of them work for two or more projects.

The major difference between projects at JGI and divisions at other organizations would

be that members autonomously set their mission, vision, range of work, and objectives. When a new project is developed at JGI, potential members verify the following eight guidelines for project development to create a mission statement:

Eight Guidelines for Project Development:
1. Is the project appropriate to practice corporate philosophy?
2. Is the mission of the project profound enough to bring out a sense of responsibility?
3. Is the vision of the project based on unerring future prediction?
4. Does the direction of the project match basic policies and strategies of the business?
5. Can we consider the substance of the work challenging for innovation and creation?
6. Can we consider the target of the project challenging enough?
7. Is the target of the project achievable, instead of just being ideal?
8. Will the project activities be able to contribute to generate sufficient revenue?

Normally, project members spend 2–3 days creating a "project sheet," writing down all the necessary information for the project including answers to the eight guideline questions. This process brings out not only members' autonomy and commitment but also their shared focus on creating and utilizing core knowledge to accomplish the project. One project leader said that he revised the project sheet fourteen times with his members until every member was satisfied. He said: *"The project was about customer services. When we first created it and made a presentation, many people spoke very harshly about it. To overcome the situation, we revised the project sheet fourteen times. After we had revised the project sheet more than ten times, all members felt that it did not really matter if no one understands it, because we firmly had shared a common view on what knowledge we have to create and build a relationship of trust. After that, we felt that the quality of our knowledge creation activities dramatically changed."* At JGI, the process of making a project sheet may be more important than the project sheet itself to motivate the associates.

Collaboration Between Projects

One of the assumptions underlying the project at JGI is that work is dynamic and its range always changes depending on the context. According to JGI, any static organizational structure cannot avoid a gap region of work, as the range of work is elastic like a rubber string. Accepting the reality of work, JGI has formed a unique project-based organization that uses a great degree of flexibility to respond to dynamic changes in work (see Fig. 1).

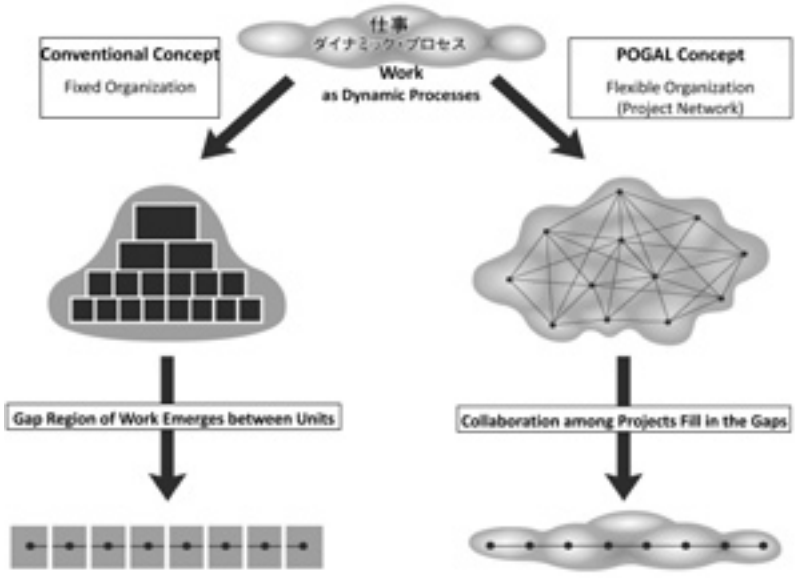

Fig. 1: POGAL Concept

Every project at JGI takes collaboration with other projects for granted. In other words, collaboration between different projects is the key activity that leads to sharing and creating knowledge. For example, a project on selling a particular product has to collaborate at least with projects on developing and manufacturing on a daily basis. To create collaborative relationships as well as mutual understanding among projects, they often have meetings together. "Meeting, meeting, meeting; this is our nature of business. Even I often feel that we probably have too many meetings. However, it is the only way to make POGAL work as everybody needs to know who does what, or else each project will be isolated," said President Inoue.

The kick-off meeting of each project is participated in by the members of its related projects. The project teams also hold quarterly, monthly, and weekly meetings as needed. At JGI, these face-to-face meetings are nurseries to share and create knowledge among projects. Whether or not to participate in other project meetings depends upon individual decisions (including those of top managers). The project-based organization at the company definitely works when associates judge autonomously.

Disciplines of Professionals: "Lobbying" and "Counter-Lobbying"

Collaboration among different projects is a business challenge at JGI, just as collaboration among different units/divisions is at any other organization. "Every project works on the basis of good collaboration with other projects. To collaborate well with other projects, associates always have to grasp the whole picture of work and actively communicate with members of the other projects on a routine basis," said President Inoue. This expected behaviour of JGI's associates is one of the key aspects for knowledge creation and sharing.

At JGI, the positive attitude that gets other people involved in one's work is called "lobbying"—in a good sense. Strong lobbying in both quantitative and qualitative ways is one of the most important qualifications for JGI associates. Projects/associates lobbied are also expected to "counter-lobby," to create a collaborative relationship. One of the

associates said, "When a project faces a difficult situation that cannot be solved by just project members, we immediately lobby the members of other projects. They always counter-lobby us if they think that it is reasonable enough to collaborate. We cannot do this without the relationship of trust, and thus, daily communications with the members of other related projects are extremely important for us at JGI." When a project faces any difficulties, the members usually know who to work together with to create new knowledge to solve the problem.

The project sheet described in the section of POGAL, as well as the product sheet, the project review sheet, and the action sheet are all tools to share direction and key knowledge not only within the project but also with other relevant projects. For example, when a review meeting is held, members invite members of other relevant projects. At the same time, even if not invited, an associate may voluntarily participate in the meeting if he/she thinks it is necessary. These sheets are used not for recording and reporting but for "lobbying" and "counter-lobbying" at JGI.

Through such close cooperation, members of relevant projects mutually share the mission and vision as well as daily knowledge. They call it a "shared knowledge platform." This phrase is used among associates on a daily basis, just as "lobbying" is.

Based on such associates' spontaneous lobbying and counter-lobbying beyond projects, the POGAL organization can constantly change its shape and continue knowledge-sharing and creation.

Support Mechanism for Collaboration: OPU/DIU

In addition to the in-depth lobbying and counter-lobbying beyond projects, there is another mechanism to enable POGAL to work. Organic partnership between projects in POGAL is further nurtured and strengthened through two different types of projects: OPUs (Operating Activity Units) and DIUs(Directing Activity Units). OPU projects assume integral functions for corporate activities such as sales, production, technology development, accounting, and legal affairs that aim for partial optimization. DIU projects, on the other hand, assume total optimization by directing multiple relevant projects. A project that has responsibility for directing OPU projects on development, production, marketing, and sales in the fabrics business is one example of the DIU project. At the moment, JGI has ten DIU projects, including one corporate management project responsible for central management and five business management projects responsible for business results.

The reason to categorize two different projects is to generate healthy, constructive confrontation between their inherently different points of view: partial and total optimization. This kind of healthy confrontation is often a key for knowledge creation as the teams need to synthesize multiple different positions. The "shared knowledge platform" is actually shared based on the organic chemistry between OPUs and DIUs.

Partnership: The Soil for Growing Active Communication

For the POGAL organization premised on associates' autonomy, JGI believes that coordinative relationships, not hierarchic ones, among associates is the key. This

concept is called "partnership" at JGI. This indicates that the company highly respects each individual, who has autonomy and independence. To erase the sense of hierarchy, words such as "order" and "approve" are not used at JGI. Everyone at JGI has rights and responsibilities to lobby and counter-lobby others that often trigger new knowledge creation.

Implications

KM at JGI looks quite unique; however, we can find common success factors of KM that can be applied to any small and medium enterprises especially the following three points.

1) Defining the Purposes of KM Clearly

Firstly, the company very clearly defines the purpose of knowledge management: to realize continuous innovation through knowledge creation. It has a strong business rationale: because Gore-Tex has been the cornerstone of their business, only generating new applications of the unique polymer could make JGI grow. Continuous knowledge creation is truly the central activity at JGI, and every associate has to contribute to the objective. In this regard, the uniquely-shaped organization, POGAL, makes sense to encourage all associates to think and create new knowledge.

There is no one-size-fits-all KM solution. To envision suitable KM, every company has to start by defining the purpose of KM based on its own business rationales.

2) Human-centric Design

Secondly, JGI firmly believes that knowledge creation always begins from motivated individuals, and that active interaction among such individuals enables creating and sharing knowledge. Based on this understanding, they designed human-centric KM systems by focusing on face-to-face interaction. Associates at JGI always have to—and be willing to—lobby and counter-lobby actively in the organic systems. As readers may have noticed, IT did not play a key role in JGI's knowledge creating activities.

JGI proves that we cannot plan innovation, but we can create an environment where knowledge creation flourishes through human-centric design.

3) Consistency of Work Environment

At JGI, all KM infrastructure and tools such as POGAL, guidelines for project development, project sheets, "lobbying" and "counter-lobbying," sa hared knowledge platform, and DIU/OPU are designed based on one concept: knowledge creation by motivated individuals through in-depth interaction. All of these infrastructures and tools send associates a common strong message: "We need collaboration to continuously create knowledge."

It is often undervalued, but this kind of consistency in KM concept is one of the most important success factors. All too often, KM implementation does not go well due to one or more infrastructure/tools sending different messages. We have to consider what messages the infrastructure, rules, systems, and tools around the work environment send to associates. If all the surrounding factors send one core message, KM will be driven very strongly.

8. Migakiya Syndicate: Cluster KM for Businesses Co-Creation among SMEs

Organization Profile

Industry: Local Consortium of Manufacturers
Business Domain: Joint Operation of Metallic Polishing
Number of Member Companies: 47 (as of March, 2009)
Location: Niigata, Japan

Introduction

Migakiya Syndicate is a local consortium of small manufacturers specializing in metallic polishing. The syndicate is run by the Chamber of Commerce and Industry in Tsubame, which is a small city with a population of 84,000 located about 300 km north of Tokyo, Japan. The city has long been home to small metal-processing companies, some of which have existed for more than 150 years. Tsubame's metal-processing companies have produced about 90% of the metallic Western tableware in Japan. However, as manufacturing plants have shifted overseas to seek less expensive labor over the last 20 years, Tsubame's metal-processing industry has faced serious decline.

This movement forced local small metal-polishing enterprises to begin to apply their knowledge and skills in producing low-value-added Western tableware to the field of high-value-added products and industries. Migakiya Syndicate was established in 2003 to conduct business collaboratively for many small metal-polishing companies. "Migakiya" is a coined word in Japanese that means "Polishing (Migaki)" and "Guild (Ya)." The syndicate has successfully expanded its members' skills and abilities to include automotive components, IT products, and medical instruments. This has revitalized the traditional local industry, with 47 small companies opening in the past five years. This case will show the possibilities of KM for SMEs, which can share and create core knowledge and skills beyond their individual enterprises—and thus establish strong business clusters.

Background of the KM Initiative

Metal Polish as a Depressed Industry: Pressing Need for Collaborative KM

The metal processing industry in Tsubame dates back to the 17th century, when peasants made extra money by manufacturing Japanese nails. The industry shifted to copperware and then to metallic Western tableware about a century ago. Tsubame is recognized as one of the dominant Western tableware production centers in the world. Half of Western tableware imported to the U.S. was made in Tsubame in the early 1970s. However, many growing countries, especially PR China, have been able to quickly take over the market because of their lower labor costs. As a result, the number of Tsubame craftspeople doing metal-polishing has declined from 1,700 to 600.

In 2001, as managers of more than 30 of Tsubame's small metal-polishing companies became more alarmed at the decline, they joined with representatives from the Chamber of Commerce and Industry, as well as a consultant, to discuss how to revive the

structurally-depressed industry. The size of most metal-polishing companies was very small, with just a few employees. Traditionally, these workers were in a weak position: they were subcontractors or sub-subcontractors who specialized in metal-polishing of Western tableware. But they hadn't realized their strength, which would come from sharing and/or creating knowledge and skills in order to revive the failing industry. These were literally the darkest days before the dawn.

Discovering Hidden Knowledge and Skills: Polishing as Their Strength

The enterprise representatives, Chamber of Commerce and Industry staff, and the consultant gathered twice a month for six months to have intensive discussions. At first, they were unable to develop strong ideas for revitalizing Tsubame's metal-polishing industry. This was because they only saw themselves as subcontractors/sub-subcontractors who performed the finishing steps in the tableware manufacturing process. But soon they began to realize they would never revitalize the industry as long as they defined themselves as only serving the tableware industry.

The compelling event that changed the members' mindset was a benchmarking visit to Chinese manufacturers of Western tableware in 2002. They visited factories that produced commodities such as pans and thermos bottles. They saw efficient metal-polishing operations staffed by many young factory workers in facilities with substandard safety and hygiene and cheap production equipment. They realized there was no way they could beat these Chinese manufacturers. The only way to revitalize their industry, it seemed, was to expand their businesses into higher value-added products.

Intensive discussions and benchmarking led members to gradually understand that their core knowledge and skill was in metal-polishing, not tableware production. Mr. Takano, who led Migakiya Syndicate and is working for the Tsubame Chamber of Commerce and Industry, said: "At first, nobody thought metal-polishing was our core competence, because we saw ourselves belonging to the Western tableware industry. However, the Chinese factories wakened us to the fact that we had to move to another industry. After intensive discussions we concluded that metal-polishing could be our core knowledge and skill, although we did not have much experience to apply our skill to other industries." Based on this shared understanding, their discussion moved to the next stage.

Identify Obstacles and Solutions before the Launch

After they defined metal-polishing as their core competency, they sketched a rough plan for a consortium that would collaboratively market and operate the metal-polishing industry. According to the plan, they began applying their core knowledge and skills to other industries' needs—to polishing anything customers needed polished. Marketing would be primarily through the Internet. At first, none of the discussion group members was sure if the plan would work. They benchmarked several similar successful business consortiums in Japan. More importantly, they also benchmarked an unsuccessful consortium. "The failed consortium built a very sophisticated IT system to take orders and collaborate on it with huge investment. Then, they marketed both participants and customers, but did not gain any result. What we learned was that success all depended on relationship of trust among participating companies. We have to build consensus on all systems for the consortium before establishing IT systems," said Mr. Takano.

This was invaluable learning for them. To build consensus, they identified three big obstacles:

1. Information flow: Who chooses which companies will get orders—and how?
2. Production and quality management: Who is in charge of quality, cost ,and delivery of products/services, and will they manage this process?
3. Public relations: How will we market? Will anyone order metal-polishing services through the Internet?

The discussion members were divided into three teams. Each team had intensive discussions to solve the above three problems. They hoped that by having the intensive discussions, they could avoid pitfalls and create practical systems in 2003, in spite of a limited budget.

KM Implementation

Collaborative KM: (1) The Model

Before Migakiya Syndicate launched, every metal-polishing company simply waited to receive orders from tableware manufacturers and subcontractors, who received their orders from trading companies. Metal-polishing companies sat at the bottom of the pyramid structure, and they did not have connections with each other. Migakiya Syndicate drastically changed this dynamic.

The Syndicate opened its website (see Fig. 1) to orders from industries as varied as medical, automobile, and high-tech.

Fig. 1: Migakiya Syndicate's Website

More than 40 companies joined Migakiya Syndicate initially. Most of them were in-home manufacturing operations with just a few craftspeople. This structure allowed great flexibility to respond to high-mix–low-volume production. For high-volume production, the order was shared among multiple enterprises.

Collaborative KM: (2) Systems of Order Intake
Before launch, the Syndicate created a manual for the collective order intake that became the basis of its business. The intensive discussion to address the three obstacles played a significant role in creating and sharing the manual among participating companies.

According to the manual, the Tsubame Chamber of Commerce and Industry plays the role of a contact for customers and head offices, while nine companies become administrative agents for credit management, production management, and quality management. All the participating metal-polishing companies receive a fax from the head office once the syndicate receives an inquiry from a potential customer. Every company can provide an estimate and product sample, and the potential customer can meet all candidate companies to decide which company they will order from. If a repeat order is received, the head office directly forwards it to the same metal-polishing company. These well-considered rules were products of intensive discussion on three potential obstacles.

Collaborative KM: (3) Technological Innovation
The intensive discussion also identified a potential area of knowledge and skills that they needed: magnesium polishing. Although magnesium was widely used in high-tech industries such as IT, automobile manufacture, and precision machining, it had been thought that it was impossible to polish due to the risk of dust exposure. However, Migakiya Syndicate realized the potential of the magnesium polishing market. High-level craftspeople across the Syndicate came together to share and standardize their knowledge and skills. By doing so, they were able to improve their polishing technology from the 1 millimeter level to the 0.01 millimeter level. This made them eligible to provide magnesium polishing services. This innovative knowledge creation through numerous face-to-face discussions and demonstrations by high-level craftspeople significantly widened the range of their polishing services.

Collaborative KM: (4) Public Relations
The Migakiya Syndicate had a very limited budget, so they exercised their ingenuity to generate effective public relations. SEO (Search Engine Optimization) played an important role at the first stage. Their use of keyword targeting to generate a high hit rate on Internet searches attracted some very large customer orders for prototype polishing.

The Syndicate's PR team also sent artful news releases to generate attention from newspapers, magazines, and TV reporters. As a result, the state-run broadcasting station reported on the Migakiya Syndicate as a traditional local manufacturing industry that successfully adapted its knowledge and skills to other industries in 2004 and 2005. This coverage created significant free advertising—and motivated the Syndicate's craftspeople. Through such public relations activities, the Syndicate became so popular that the Prime Minister of Japan inspected Migakiya Syndicate in 2006.

In addition, the Syndicate developed its first consumer product, a beer mug that promoted its metal-polishing skills. Eight companies with different skills collaborated to create the polished stainless steel item that would keep the fine yeast of beer and avoid the smell of metal (see Fig. 2).

Despite its high price of 14,000 JPY, the beer mug became a best-seller. Customers had to wait for more than a year to receive the product.

Fig. 2: Beer Mugs

The Results Achieved

Gain of New Business

The collaborative KM effort gained, contrary to all expectations, business results immediately after the launch of Migakiya Syndicate in 2003. A consumer-electronics manufacturer ordered metal-polishing of digital cameras and cases for hard discs. Soon after that, a parts manufacturer ordered metal-polishing of parts for motorbikes. The Syndicate also received orders from the building-products industry, among others. After the success of the beer mug, the business also expanded to novelties such as a metallic tumbler for a beer company and a metallic shoehorn for a shoe company.

Many readers may have seen the back side of Apple's iPod portable music player. It shines like a mirror. This part is also polished by Tsubame's metal-polishing craftspeople.

As a result, the revenue for their businesses in the first year reached JPY20 million, and increased to JPY30 million in the following year, and JPY100 million yen in the last year. The once-declining industry achieved its revitalization through sharing and improving its core knowledge and skills.

Increase of Craftspeople's Motivation

Migakiya Syndicate also gained an invaluable asset through the collaborative KM activities: a significant increase in its craftspeople's motivation. Before the Syndicate started, most craftspeople were not especially motivated, mostly because their businesses were consistently declining. However, they realized by sharing their knowledge and skills, they could improve the technical capabilities of the entire Migakiya Syndicate—and increase their own business. They also realized they were not sub-subcontractors anymore; they

could deliver their own products to consumers—and even see them on TV. This experience changed their mindset, which dramatically increased their motivation.

What is Next?

Tsubame Protium Network

As the consortium received many orders, its members discovered that many requests could not be fulfilled through metal-polishing. These specialized requests also required knowledge and skills in other processes, such as metallic mold, sheet processing, and metallic processing. To respond to such requests, the Syndicate launched Tsubame Protium Network, with a number of manufacturers specializing in various areas. They also launched the "Sales Promotion Syndicate" to receive orders for sales promotion tools by packaging, printing, and creating promotional tools, instead of just manufacturing the novelties. These consortia were based on the success of Migakiya Syndicate , and they began to generate decent sales and revitalize local industries.

Technician Development

As the Western tableware industry in Tsubame had declined, many of the young people had been less attracted to the industry. As a result, most technicians were rapidly aging, which was another big issue for Tsubame's metal-polishing industry. To solve this problem, Tsubame City built a training centre named "Migakiya Ichibankan" in 2006. They held workshops and recruited young trainees. Seven young people (in their 20s and 30s) joined the training in the first year, and they have gained substantial metal-polishing knowledge and skills during the intensive training.

Implications:

See Knowledge and Skills from a Different Perspective

One of the key turning points in the Migakiya story was the redefinition of their core knowledge and skills from manufacturing Western tableware to metal-polishing. Their intensive discussion with outsiders (the Chamber of Commerce and Industry and a consultant) for more than a year led them to identify this key knowledge asset. People in the same industry often share a similar myopic perspective, and it is truly difficult to find such hidden knowledge assets. When a firm must consider transformation of its business, cognitive diversity often provides new ideas that enable the redefinition of their core knowledge and skills.

Build Relations of Trust before IT Infrastructure

Mr. Takano, the leader of Migakiya, said, "There was a lot of conflict among participating firms, and there still is! It's inevitable because they are different companies. Thus, we have to discuss and discuss until we can build relations of trust. That's the necessary infrastructure for consortium-type KM." Migakiya's success story, and the failed story they benchmarked, reveal how trust among players contributes to successful KM, especially collaborative KM among multiple companies.

Form a Business Cluster among SMEs

One of Migakiya's members said, "Craftspeople have been loners who don't share their good skills with other people. However, we realized that, by bringing our specialties together, every small firm can boost its capability and build up an aggregation of much

larger businesses.” Migakiya shows us possibilities of forming business clusters among SME, which is probably the most important implication of this case.

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Knowledge Management:
Case Studies for Small and Medium Enterprises

Small and medium enterprises (SMEs) are an important engine of the economy. In every sector, they keep creating new knowledge to offer more value to society. This book illustrate the process by which SMEs with visions of the future create unique and valuable knowledge through relentless pursuit of excellence beyond the analytical strategic approach.

IKUJIRO NONAKA, Professor Emeritus, Hitotsubashi University

This is an original and fascinating report of how some Asian SMEs have used the tools and methods developed for KM to give them a global advantage. In general the larger firms get all the attention in this space so it is both enlightening and useful to read about smaller firms making great progress in working better with knowledge. The authors are to be congratulated for documenting and analyzing these cases so that their experiences and lessons can be used by any SMEs (and larger firms, too) anywhere.

LAURENCE PRUSAK, Senior Advisor to NASA and the World Bank

I am often asked if KM applies to small and medium businesses. I know the answer must be "Yes" since it works in the APQC and we are a small firm. But until this book, I could only offer theory and our personal example. (Most of the APQC's KM work has focused on large enterprises.) This book provides specific, compelling examples—with insightful analysis—of how the principles of KM apply to all firms, large or small, and the marvelous range of needs KM can address in small and medium size firms. Any small and medium enterprise no matter what industry it is in can learn from this book how to survive and grow in the knowledge economy.

CARLA O'DELL, President, American Productivity & Quality Center

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