ShareNet – the next generation knowledge management

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Abstract

Leveraging knowledge on a global basis is a major challenge of big multinationals like Siemens. Induced by significant changes within the international telecommunication business, Siemens Information & Communication Networks (ICN) faced a shift in competitive pressures that stressed the necessity for knowledge-based competition. The ShareNet case describes how Siemens ICN succeeded in its transformation from mainly a product seller to that of a global solution provider. It outlines the role ShareNet, a global knowledge management network, played within this transformation and discusses the critical success factors involved.

Background

Kuala Lumpur, Friday afternoon. Two intensive weeks of hard work awaited Martin Wong. As the Manager at Siemens ICN Malaysia, he was responsible for the telecommunications business with Malaysia Telecom, one of Siemens' most important Asian clients. Martin needed to complete a comprehensive proposal for a voice-over IP network solution for Malaysia Telecom within two weeks. This was the first proposal of its kind for Siemens Malaysia's business unit.

While working on this proposal, Martin had to come up with answers to questions like:

- Which technical solution would suit this situation the best?
- Should Siemens immediately offer an existing service package?
- How exactly could he demonstrate to this specific customer that, in a very competitive environment, the Siemens solution would best fit his needs?
- Where could he get hold of a business plan, at short notice, that would show the customer how soon the Siemens solution would be profitable?

In the past, finding these answers alone might have taken him many weeks, or even months.

Today, the answers are just a mouse-click away for an expert salesman like Martin Wong: His company's intranet offers him access to the Siemens ICN ShareNet – a global knowledge database that provides him answers to those tough questions. In ShareNet he will find similar customer solutions with their accompanying sales arguments, descriptions of successful projects, presentations, relevant business plan, as well as several contact persons who could help him with questions on technical issues, or financial concepts. The crucial proposal can be compiled quite quickly and Martin will be able to focus on his core competence – developing strategic solutions with the customer.

ShareNet is an example of how practical knowledge management within Siemens has had a substantial effect on its business success. ShareNet links the salespeople of Siemens Information and Communication Networks (ICN) worldwide, making each salesperson's accumulated learning experiences accessible to the entire sales force. This facilitates sales, helps to save valuable time and money, and leads to increased revenue with higher profit margins.

With the telecommunication industry's strategic context characterized by great flux (as described later) the codifying and sharing of relevant knowledge through database-media has become much more difficult. Recognizing the risk of being saddled with codified knowledge in obsolete data graveyards, ICN ShareNet went beyond the mere hoarding of information in data repositories. It focused on orchestrating an interactive web of knowledge and expert networks on a global scale.

The shifting context in telecommunications

The changing landscape in telecommunications

From the inception of the telephone service until the 1980s, customers of telecommunication equipment around the world had mostly been of one type: the monolithic, integrated telephone company. The entire range of activities involved in providing telephone and data services to the end-user, i.e. the entire value chain, starting with the planning of the network to its implementation (including customer acquisition and care), was concentrated in a single, large entity. Being less cost-sensitive by nature these telecommunication monopolies usually focused on long-term business relations with just a few telecommunications suppliers. The integration of the telecommunication equipment was normally handled by the monopolists themselves.

Previously the main business of a telecommunications-equipment supplier, such as Siemens ICN, was to manage the long-term relationship with its customer and to supply a range of well-engineered equipment. Time-to-market and pricing were of secondary concern. Consequently, the telecommunication-equipment suppliers of the past came to mirror their monopolistic customers: They also became vertically integrated, less sensitive to costs and oriented to the needs of a few, stable customers. Decision-making was centralized which, in turn, resulted in the flow of information following suit.

Times changed. Over the past two decades, governments worldwide have been deregulating the telecommunications-services market to provide consumers and end-users with more competitive pricing and better service. This led to the various telecommunication markets being at a different stage of their economic development. To complicate matters, technological advances in electronics and computer science led to an explosion of new products and services in the telecommunication services market. The end-result was a previously unknown diversity of telecommunication demands from all over the world.

Another consequence of this worldwide deregulation of telecommunication was the unbundling of the integrated, monolithic telephone companies. The large few were replaced by a variety of companies, often offering services in specialized market segments, such as telecommunication to certain foreign destinations, or specifically to business customers. The new, competitive landscape also led to the disintegration of traditional value chains. Once it was possible for a company to shift costs between services, for example by charging much more for long-distance calls that actually cost very little to supply, and using the margins on this lucrative service to subsidize residential services. Today, competing long-distance service companies, with no residential business to subsidize, can provide that same service much cheaper. Cost shifting is no longer possible.

The change in the telecommunication industry led to a radical change in the nature of the telecommunications-equipment business. Siemens ICN, a leading telecommunication-equipment provider, active in over 160 countries with 60,000 employees and a revenue of US$ 13 billion, served a variety of customers with very different needs. The

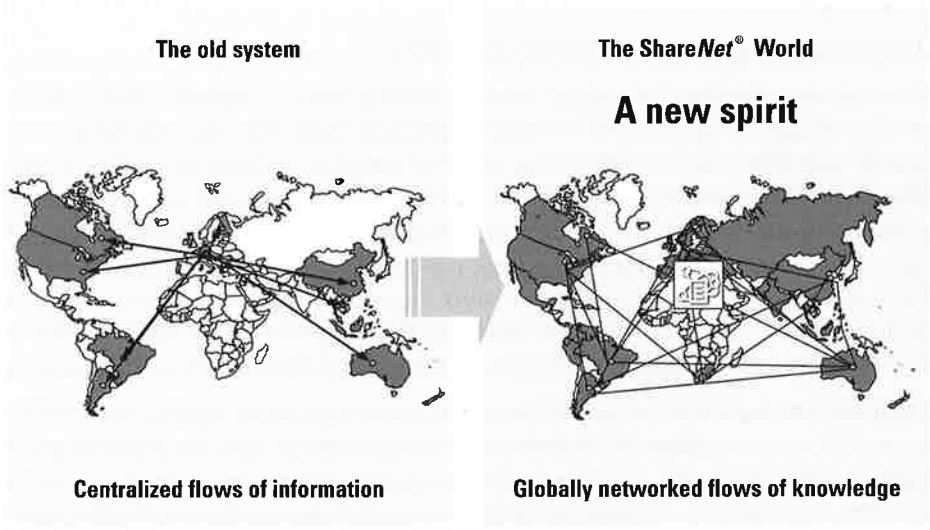

Figure 4 Old system / new system

CEO of Siemens ICN, Dr. Roland Koch, anticipated the new rules of the game: The new entrants to the telecommunication market would be competing on grounds of costs and innovative services and would be very sensitive to equipment prices. It was therefore of crucial importance that providers of such equipment bring new innovations to the market as quickly as possible.

The result was a highly complex and competitive telecommunications-equipment supply business with all processes accelerated. This, in turn, required decentralized decision-making and a flow of globally networked knowledge. While this situation certainly threatened many incumbents, it represented vast opportunities for agile companies.

Challenges and new opportunities for business

As Siemens ICN faced the tremendous increase in the complexity of its business, all telecommunication companies, both the new entrants to the telecommunications market, and the incumbents, brought new challenges. The emphasis was often on highly customized product and service packages. ICN therefore had to lower costs and develop innovative products and services simultaneously – at a pace not previously experienced.

Yet the new telecommunications landscape also brought opportunities: While the new reality threatened profit margins, it also opened up new business with higher profit margins for Siemens ICN. A case in point was the complex product and service packages that the new types of customers required. Additionally, they were often innovative and quite lean organizations with a relatively small technical staff and thus required more technical services. These ranged from systems integration and network planning to the provision, integration, tuning, and implementation of services. The new entrants needed fresh business analysis and planning to accommodate the rapidly changing markets in which they operated but many did not have the resources or experience to handle this. Most of them were also start-up ventures without sufficient capital to make cash equipment purchases, which led to their demanding new terms of financing and innovative contracts.

In the deregulated telecommunications market, a customer could therefore expect a supplier like ICN to provide most of the services involved in running a telecommunications-service business, including financing, business planning, engineering, and operation. These complex service and product packages that a telecommunications-services provider wishes to sell to his end-user, have become known as "solutions". The individual conceptual elements constituting a solution are shown in Figure 4.

Naturally, the material components, such as switches or routers, still form an important part of a solution. Another important part of a complete customer solution is the customization of the delivered components. Components, for example, often require country-specific, or customer-specific, customization for implementation in a network.

To meet the demands of these new customers, components offering the technical and functional know-how are highly important – and highly reusable as well. A so-called

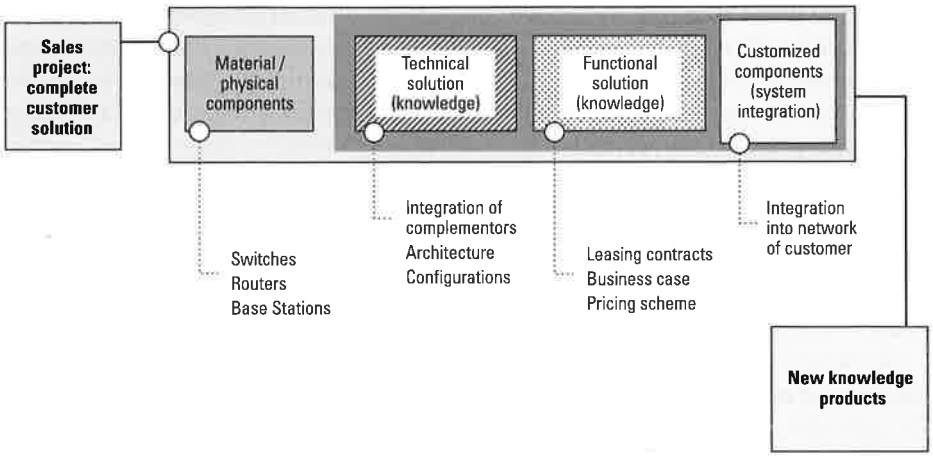

Figure 5 Conceptual elements constituting a telecommunication solution

technical-solution component consists of a service such as network planning, or performance optimization, and is, therefore, based on technical knowledge. Functional solutions include such components as leasing contracts, or the development of customer-specific business cases, and are often based on commercial practices, or knowledge about the customer's business.

While many of the new entrants to the market were seeking solutions from telecommunications businesses, other elements of this business were yielding significantly lower profit margins. The high value-added aspect of the telecommunications-solution selling business, contributed significantly to its importance, leading to solution creation and solution selling becoming key competitive levers for ICN.

Orchestrating a global network of knowledge sharing

The need for new competencies

The changing rules of the game in telecommunications have had a significant impact on sales people like Martin Wong.

In the past, it had been the customer who formulated a demand that was then forwarded to the telecommunication supplier's ordering system by the salesperson. In the new landscape, Martin himself often has to proactively present a business idea to customers, helping them to develop innovative business strategies. His new clients do not want just a product, but complex solutions. There are no shortcuts to these solutions, as the customers often articulate their intentions and needs in broad terms only. It takes time, meetings, and negotiations before a project aim and some milestones can be defined.

Martin and his sales colleagues all over the world had to face new challenges regarding competency development. The new demands, differing so entirely from those their customers required in the "old days", require sales staff whose competency portfolios are aligned accordingly. Furthermore, the shifts in the competitive landscape have greatly increased most businesses' knowledge intensity. This means that sales personnel at ICN require comprehensive knowledge of both the individual components of solutions as well as the integration of these components. This again represented new challenges to be mastered.

One industrial relationship manager reasoned:

"We will have to unlearn thinking in packaged products and applications. The way we work together is the most important clue to success. Once we start negotiations about a new project with the customer, we have to immediately identify internal and external qualified people to build and operate these new businesses jointly with the customer. Because of the multifaceted knowledge needed, we have to learn how to source our knowledge from convenient sources. We have to get used to integrating internal and external know-how".

It had been clear to Martin that he and his colleagues could no longer rely just on former product knowledge. Where, in the past, they had often anticipated customer needs even before they had been articulated, they now had to guess, try to assess and discuss the complex needs of the new entrants to the telecommunications market. By doing this proactively, the salesperson had to gather information about the new clients and develop in-depth knowledge about the customer's way of doing business – beforehand. Unlike their established customers, who had placed orders in a relatively predictable way, these new customers had latent wishes, which had to be served.

The industrial relationship manager illustrated this as follows:

"What we need most is intimate customer knowledge, especially knowledge about the customer's economic branch. We have to make pro-active suggestions about where our customer's business may go and in which field he may be operating the next years. Up to now, we have only become involved in the sales process once it reached the stage of ordering products and applications. The challenge is to start discussions much earlier: We have to play the role of a strategy-management consultant who is able to interpret trends and to design new business opportunities together with the customer".

Martin knew how time-consuming, difficult, and complicated this consulting role could be. Successful solutions selling requires an organizational set-up which is geared towards the rapid, purposeful identifying and sharing of relevant information and knowledge, across markets around the world, and a continual refining of competencies, to keep pace with market developments. This implied identifying best practices quickly, sharing them on a global scale, and ensuring that they were reused for profit in similar settings. The objective was to detect local innovations and leverage them on a global scale.

A prerequisite for this global reuse of local innovations was the ability to transfer the explicit elements of knowledge that could be easily transferred, or stored in databases,

as well as the more tacit elements of knowledge that arise from joint business development with a customer. Each of these types of knowledge elements demand a fundamentally different transfer and management mechanism. Personalized knowledge, bound to the individual mind, cannot be transferred easily without actually transferring the person. Knowledge codified in databases, manuals, and project debriefings, however, can be transferred with relative ease. And yet, both are needed to make true knowledge sharing happen on a global level. How could this gap be bridged?

Bridging the gap

The shift to solutions selling greatly increased the impact of knowledge on the competitive success of ICN. To succeed in providing solutions, the individual sales person had, in effect, to act like a consultant. He or she had to consider a wide array of aspects concerning the telecommunications-business offering, including financing, business analysis, and network planning. This included substantial amounts of tacit and, therefore, highly personalized knowledge together with important elements of codified knowledge.

Tacit knowledge is usually transferred by people exchanging knowledge through social interaction, e.g. during meetings, videoconferences, or in discussion groups. Transferring codified knowledge by means of a codification strategy is realized by capturing and storing knowledge in documents and transferring it via databases or similar means. Both types of knowledge have to be transferred to make true knowledge sharing happen. An over-reliance on personalized knowledge at the expense of codified forms would sacrifice the leverage that can be gained from conveniently transferring codified knowledge. Likewise, an overemphasis on codified knowledge can miss out on important tacit elements that constitute an integral component of the added value that solution selling provides.

Bridging this gap was often described as a dilemma, where the one could not be achieved without negatively affecting the other. And yet, the solution to this dilemma would be fundamental to the way in which ICN was to operate in a global environment – where added value emanates less from selling products than from providing complex integrated solutions.

The solution was found in the development of a tool and conceptual apparatus that provides the salesperson with convenient access to the two fundamental building blocks of all solutions. The orchestration of a global network of shared knowledge, using both a personalization and a codification strategy, has become the heart of ICN's competitive strategy.

ShareNet – leveraging local innovations globally

Dr. Roland Koch, CEO of Siemens ICN, was quick to recognize the opportunities that the reuse of knowledge would provide. Having decided to focus on the selling of com-

plex solutions, ICN developed a practical approach that leveraged what had developed into a key factor in competitiveness in the new telecommunications landscape – sales knowledge and innovation. In order to stimulate and encourage empowerment, creativity, and innovation, Dr. Koch assigned the department Business Transformation Partners (BTP) the challenge of developing, rolling out and monitoring ICN ShareNet.

ShareNet is an interactive knowledge-management tool through which a global network of shared knowledge could be established. It was developed in close co-operation with the ICN board members, with Joachim Doering, the head of BTP and ICN Vice President, actively promoting the initiative in the different local companies.

The initial development of ShareNet

To ensure that ShareNet would be relevant to the day-to-day work of the sales people, the first step was to assemble a selection of the company's most successful sales people in a hands-on, knowledge-mapping process. Members of this core ShareNet team included sales representatives and local company heads from markets around the world, covering the full spectrum of business situations faced by the company. The question that this team addressed was "How do we sell solutions?"

The team developed a map of the solutions-selling process and identified broad categories of business-relevant knowledge for each aspect of this process. This rigorous approach also helped the sales people to realize how much they had to learn from one

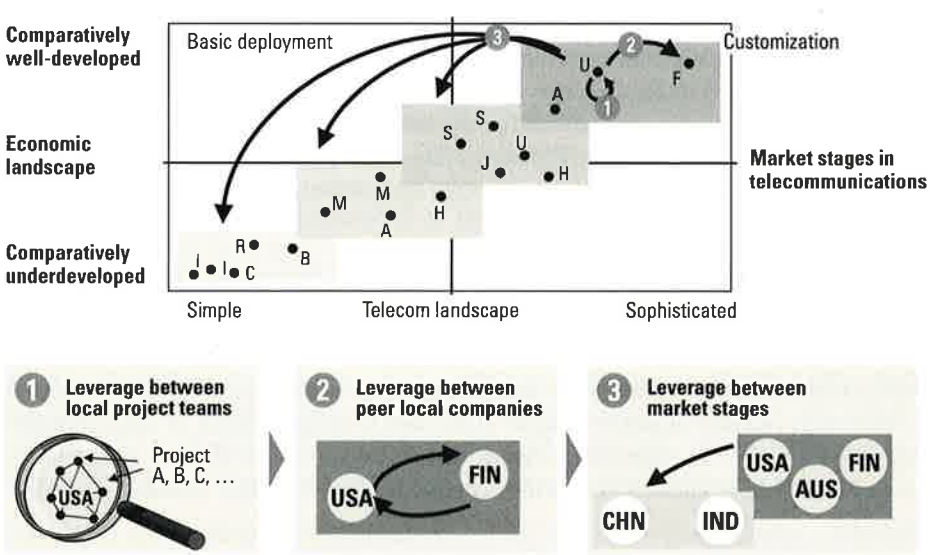

Figure 6 Types of sharing

another. A key insight gained through this mapping process was that not only the software and hardware building blocks of different solutions, but virtually every activity enabling a telecommunication service for the end-user, constituted a potential solution element that could be leveraged and re-deployed.

It soon became clear that knowledge sharing between the local project teams within a country – focusing on the same market, facing the same competitors, and therefore challenged by the same problems – could lead to a substantial competitive advantage. This type of knowledge sharing is called *leverage between local project teams (process 1).*

However, a fundamental question still remained to be answered: What would be the benefit of leveraging knowledge globally? Telecommunications markets were in different stages of development, leading to differing demands in these markets. The market stage depended on a country's economic development, as well as on the development of the telecom landscape.

Each country could be positioned on a two-dimensional graph by determining:

- its economic development – ranging from comparatively underdeveloped to comparatively well-developed – by means of its GNP
- its telecom landscape development – ranging from a simple landscape to a sophisticated one – by means of most important influencing factor, namely the degree of deregulation in the market.

Based on its position on this graph, a country's market stage in telecommunications could be determined. The market stage, in turn, determined the kinds of solutions demanded in the market.

Why then should solutions be leveraged across countries? The mapping of the sales process suggested that countries in the same market stage often addressed similar needs and therefore tended to seek similar solutions. By the same token, evolving telecommunication markets often encountered problems or upgrade pressures engendered by their more demanding end-users. These problems and upgrade pressures, again, tended to be similar to those previously encountered by markets that had now evolved to a more sophisticated stage.

This suggested that a solution sold in one country could be leveraged to another country at the same market stage, forming a so-called peer group. This type of knowledge sharing is called *leverage between local peer companies (process 2).*

As markets develop, solutions of the next market stage become more and more relevant to customers' market success. To allow customers to develop ahead of their competition, Siemens ICN leveraged solutions of higher market stages to those of the lower stages. This type of knowledge sharing is called *leverage between market stages (process 3).*

These three types of knowledge sharing do not require three types of systems. Leveraging between local project teams in itself leads to a significant competitive advantage,

therefore installing a system to allow this kind of sharing should be profitable. If the same kind of system were installed all over the world, the system's interoperability would be guaranteed and knowledge would be reused. This would not only enable knowledge sharing between local project teams but also knowledge sharing between peer local companies and between market stages. By utilizing a single worldwide tool for knowledge sharing within one country (process 1), two additional byproducts are also obtained, virtually gratis – knowledge sharing between peer countries (process 2) and between market stages (process 3) – making it a very attractive prospect.

ShareNet – a business application system

The knowledge management initiative ShareNet was launched early in 1999 to provide sales people, worldwide, with relevant knowledge about solutions and applications, sales processes, and projects. With its aim to leverage knowledge and innovation globally, it was explicitly designed to foster the emergence of best-practice sharing, thus enabling a powerful learning process.

In this context, ShareNet nurtures the changed role of local Siemens companies throughout the world. In the face of new customer demands, these local companies evolve from mere outlets to companies with full responsibility for customer management. At the local-company level, the goal is to detect local innovations and leverage them on a global scale.

ShareNet avoids the problem of too great an emphasis being placed on information technology at the expense of in-depth business understanding that has proved to be a pitfall of many similar knowledge-management systems. Unlike traditional, often intranet-based, knowledge-management systems that have primarily been conceived as "document repositories", ShareNet provides a network that has been explicitly designed as an interactive medium. Instead of functioning as an infrastructure that exists alongside people's actual work, ShareNet functions as a business application, seamlessly dovetailing with employees' ways of solving customer problems. It covers both the explicit and tacit knowledge of the sales value-creation process, including project know-how, technical- and functional-solution components, and knowledge about the business environment (e.g. customer, competitor, market, technology, and partner knowledge). The emphasis here is on experience-based knowledge. As shown in Figure 7, knowledge about the different steps of the value-creation chain was transferred to ShareNet solution objects (e.g. technical- or functional-solution knowledge) and ShareNet environment objects (e.g. customer or market knowledge). ShareNet's focus is less on "brochureware", than on personal statements, comments, the "field experience" of sales employees, or the real-life tested pros and cons of a solution.

In addition to structured "questionnaires" on the above-mentioned topics, ShareNet provides less structured spaces, such as chat rooms, community news, discussion groups on special issues, and so called urgent requests. Urgent requests are basically forums for asking all kinds of urgent questions, such as, "My customer needs a busi-

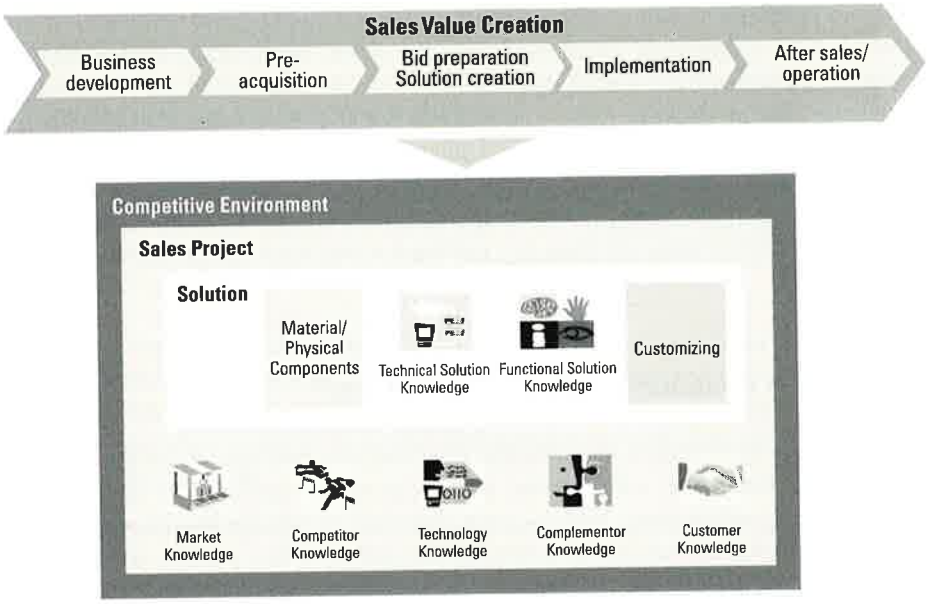

Figure 7 Value creation chain

ness case for implementing the new technology X by next Monday. Who can help me?" or "Does anybody have a list of recent network projects by competitor Y?" These are, in other words, questions that do not have a defined organizational owner. As ShareNet works independently of time zones and organizational boundaries, members usually receive answers within hours. In many cases, the right answers are "harvested" and made available for later use in a FAQ (Frequently Asked Questions) section. Thus, unlike traditional knowledge-management systems, ShareNet is based on an interactive approach and mobilizing knowledge and innovation in sales.

Mobilizing global knowledge sharing

Identifying areas of intervention

An important concern in the development of ShareNet was the adequate positioning of initiative as a true value-adder that helps to solve relevant problems in employees' day-to-day work. It was critical to emphasize this to prevent ShareNet from being portrayed as yet another headquarters project that would be demanding precious resources. This was the goal from the onset. It started with ShareNet's development as a joint effort of a core team of sales people from all over the world who recognized that local sales and marketing people felt that they too had a vested interest in the development of such a system. This was mainly achieved by addressing four interrelated areas of intervention.

1. Cognitive knowledge – or know-what – is defined as basic technical mastery and is achieved through extensive training and certification. For ShareNet this means technical knowledge, for example in the form of pricing concepts, represents an essential, but not complete, aspect to ensure commercial viability.
2. Skills – or know-how – refers to the effective execution and application of abstract rules and regulations in the real-world context. ShareNet achieves this through the feedback given by sales professionals in de-briefing projects.
3. Systems understanding – or know-why – refers to a deep understanding of cause-and-effect-relationships underlying an experience. In a global-sales-and-marketing context, this enables professionals to anticipate subtle aspects in their interaction with a customer. This understanding is especially important in view of the increased complexity of the sales process. For example, an experienced key account manager will instinctively know which components of a solution can be developed further, be leveraged and re-deployed in other countries, or even re-invented to suit different requirements. The Systems understanding therefore represents a particularly important area of intervention.
4. Self-motivated creativity – or care-why – refers to an active and caring involvement in a given cause. For ShareNet this means systematically identifying and promoting highly motivated and creative groups of employees. Indeed, such groups often outperform other groups with greater resources.

These four areas of intervention together ensured that a user-friendly, accessible tool with authentic added value was developed for the sales and marketing staff. In the words of a senior key account manager:

"Offering a user-friendly tool, which can be accessed via the Intranet is not enough. You have to care for the people who are actually using it. You need a deep understanding of their ways of doing business and the problems they encounter. Ultimately, this ensures that you get the right attention and co-operation".

Critical success factors for global knowledge sharing

Designing a user-friendly tool was one thing but what it would look like in practice was another. In order to make knowledge sharing happen on a world-wide level, potential barriers obstructing the free flow of knowledge within Siemens ICN had to be anticipated and systematically eliminated. Joachim Doering and his ShareNet team identified five critical success factors that had to be considered, namely (1) leadership, (2) organizational structure, (3) motivation and reward systems, (4) organizational culture, and (5) a viable business case.

Leadership

Perhaps the most important critical success factor to making global knowledge sharing happen is the unconditional support of top management. In the words of Roland Koch, CEO of Siemens ICN:

"ShareNet is about collaboration beyond all existing organizational barriers. Our future lies in the creation of a net of knowledge spanning between all our employees".

Top management's support enhanced the value and strategic quality of the knowledge-management initiative and sent a signal to channel organizational resources and individual commitment towards this element. Management helped to communicate the idea of ShareNet across organizational levels and functional departments to ensure its added value was understood and appreciated.

The responsibility for the ShareNet initiative was given to the ShareNet Committee, the highest decision-making body of the unit. It was responsible for the strategic development of ShareNet worldwide. The committee was composed of eleven members: One member served on the ICN board, two members came from ICN Business Transformation Partners BTP, but the majority of the members were local company representatives. This guaranteed that the opinions of the local users of ShareNet would be heard and that they would be actively involved in the initiative. The size of the committee was deliberately kept small to enable its members to develop consistent decision-making competency and to react quickly to stimuli and suggestions from the field.

Organizational structure and rollout

The concept of ShareNet is probably more concerned about the managerial system and processes than about the technical platform itself. These managerial processes have been managed carefully from the first emergence of ShareNet. They cover the input of valuable knowledge as well as the elevation of this knowledge to more reusable (and thereby: abstract) knowledge. This task of making the knowledge inside the ShareNet system richer and more general and reusable is the prime task of the content editors, which are part of the ShareNet organization. This organization also contains country-specific consultants, IT-support, and a telephone and email hotline, providing answers and help for all users worldwide.

The ShareNet committee is the highest decision body of ShareNet. It consists of several heads of the Siemens ICN local companies and a few high-ranking headquarter managers, including the CEO himself. This committee was of utmost importance for the ShareNet rollout – which demanded devoting resources from all local companies. Local ShareNet managers are these resources. They are facilitators and trainers, ensuring the roll-out and support in their respective countries. Without the network of the ShareNet managers, the rollout of ShareNet would not have been possible. The ShareNet managers were trained, prepared, and outfitted for their task at one worldwide ShareNet bootcamp, organized by the ICN Business Transformation Partners organization.

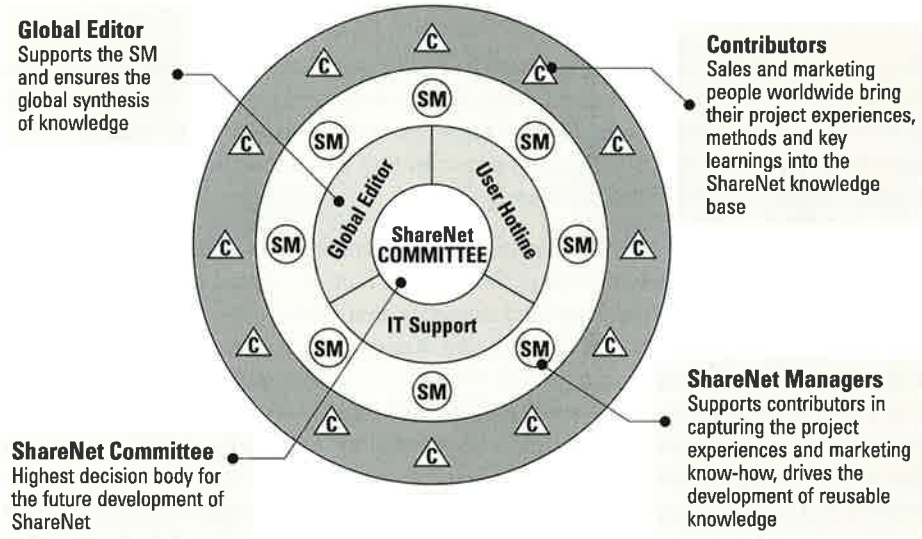

Figure 8 The ShareNet organization

The backbone of the ShareNet organization are – of course – the users, which are contributors at the same time. They are the main driving force behind the system, and they form the network of friends and colleagues that make knowledge management work for Siemens ICN.

While technology can certainly act as a facilitator for global knowledge creation and sharing, especially in the case of explicit knowledge, it is erroneous to believe that high-volume, quantitative data repositories can significantly improve organizational knowledge assets. Since knowledge is not static, but subject to continuous modification, it cannot be frozen into depositories. In recognition of this, ShareNet had to ensure adequate levels of interactivity in order to conserve the dynamic nature of knowledge.

To make knowledge sharing happen, interactivity was also required on an inter-departmental, inter-divisional, and inter-functional level. It is often difficult to accept and adopt another person's knowledge, especially if this person is from another division or department. An account manager at ICN commented on this "not invented here" syndrome:

"Sometimes knowledge, which has been brought in from external sources, such as another Siemens departments or divisions, raises defense reactions. People often do not use it for the simple and stupid reason that they did not invent it. We have to develop people who can integrate suggestions from different origins and make a successful project out of it. In short, make things happen, even if a project is composed of external inputs only".

Motivation and reward system

It was necessary to systematically identify and eliminate any organizational structures that could prevent knowledge from being shared, leveraged, and enriched by different functions and departments – and across organizational levels. A critical success factor, therefore, was firstly the establishment of a targeting and compensation system for top managers (see the "Bonus on Top Case").

But a targeting and compensation system for top managers was not enough. On the level of the employees actually using ShareNet, a motivation and reward system was developed that removed the fears and anxieties that could prevent the exchange of knowledge across divisions and departments. Knowledge in general, and sales knowledge in particular, is bound to a person. It cannot be shared with others against a person's will. This raises questions about motivating people to share their knowledge. Getting a person to enhance other people's knowledge by voluntarily contributing his or her own does not happen easily. A further constraint is that it is considered a time-consuming and tedious exercise. In fact, the individual contributor might wonder how he or she could possibly benefit. An important benefit for the individual contributor is to portray the individual concerned as an expert in a certain field. The drawback is that once this reputation had been gained, others may often solicit this expert's opinion, leading to time lost for the individual's own projects.

The need to motivate and reward such sharing is equally important for both the contributor (or "giver of knowledge"), and the re-user (or "taker of knowledge"). The contributor, who receives no direct reward for making experiences available, has to be specifically rewarded for the time invested in sharing his or her knowledge. The main reward for the re-user is the knowledge itself, which facilitates daily work. Yet, rewarding individual performance can lead to another counterproductive result. During the ShareNet implementation people were reluctant to adopt knowledge from others. The "not invented here"-syndrome described in the organizational structure, is closely related to this. The willingness to re-use existing knowledge became crucial for this initiative to fully succeed.

For the re-user to benefit and thus gain the reward, ShareNet had to ensure that the available knowledge was truly useful. This was done through stringent quality control. Nevertheless, a reward beyond that of gaining knowledge, significantly improved the re-user's motivation to re-use knowledge. The ICN ShareNet Quality Assurance and Reward System is designed analogous to frequent flyer mile systems found in the airline industry. As shown in Figure 9, contributing and re-using knowledge is rewarded by ShareNet "shares". Depending on the number of shares accumulated during a year, employees are awarded with several incentives, such as conference participation or telecommunication equipment. The number of shares given to the contributor depends on the re-use feedback of the taker of knowledge, thus rewarding the usefulness of the transferred knowledge. The higher the usefulness of the knowledge, the higher the reward is. The feedback mechanism is an important part of the quality-assurance system, too. The quality of available knowledge can be quantified through re-use feedback from several knowledge re-users. Based on this feedback, knowledge of an inferior

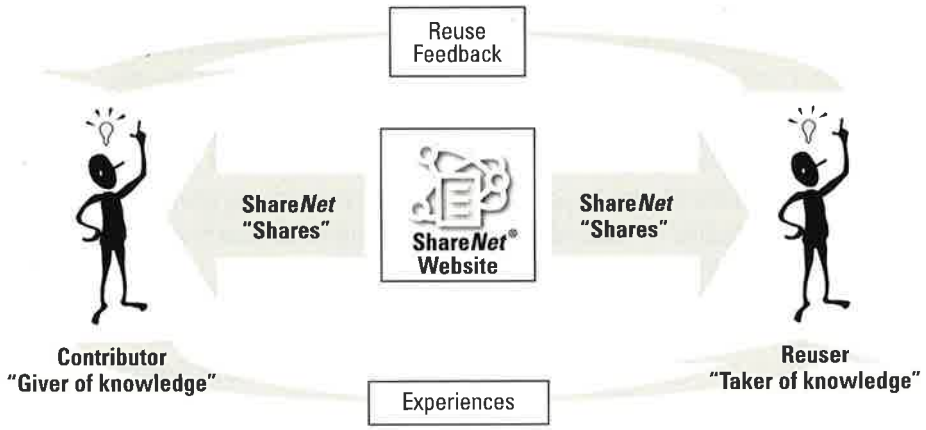

Figure 9 Reward system

quality can be removed from ICN ShareNet, whereas high-quality knowledge can be identified and developed further. This leads to a constant improvement of the quality of the available knowledge.

Organizational culture

Organizational culture as a set of beliefs, attitudes, and assumptions is mainly concerned with the unwritten, less visible part of the organization. Symbols, ceremonies, office settings, and dress code are examples of organizational culture. Additionally, it determines the way in which people interact and work together, and also prescribes rules and regulations about what is considered acceptable.

Organizational culture has vast implications for the implementation of knowledge management at Siemens ICN. To a large extent, knowledge sharing depends on the quality of the relationship between employees, as well as their relationship with management. A culture of openness, mutual respect and the absence of ambiguity is fundamental for fostering knowledge sharing.

A strong hierarchy often counteracts such an atmosphere since it promotes individual performance at the expense of team performance. Promoters of ShareNet, like Joachim Doering, worked hard to spread the ShareNet message that "unlike in school, copying is not only allowed – it is required". Another barrier was that the strong hierarchy naturally directed responsibility towards the top, whereas a culture conducive to knowledge sharing is built on empowerment.

A viable business case

A viable business case was a key factor for a successful knowledge-sharing project. The IT system, the motivation and reward system, the change of organizational structure and culture all contributed to making ICN ShareNet expensive. ShareNet, therefore, had to illustrate its benefits with a realistic business case.

Of course a knowledge-sharing system is expensive – but so is the continual labour of rediscovering solutions. The costs of sharing knowledge are quite obvious, the benefits are less so. There are three types of somewhat quantifiable ShareNet benefits:

- The saving of costs, e.g. by re-using tenders or re-using knowledge on how to simplify processes.
- Increased revenues, e.g. by increasing the quality of tenders by re-using knowledge of the success factors of tenders, or by simply being faster than the competition by re-using documents.
- The alignment with customer needs, by recognizing important trends and developments worldwide.

Perspectives

Since the beginning of this millennium, ICN ShareNet has become an integral part of the strategy of Siemens ICN. Dr. Koch, CEO of Siemens ICN, remarked:

"This [ShareNet] network will be of key importance to the success of ICN's solutions business because the company that can make use of existing experiences and competencies quickest has a distinct competitive edge over other players. We need to be among the first to realize this strategic competitive advantage through efficient knowledge management".

ShareNet can be improved further. With the community of 7,000 sales, marketing, and business-development people at Siemens ICN worldwide who actually comprise ShareNet, the use of ShareNet has reached a critical mass. Within its first year of existence, it has developed into a tool of practical knowledge management, enabling improved sales and marketing processes, faster action in the marketplace, and knowledge-based competition. The ambitious target of earning 250 million Euro in additional revenue in the first year of ShareNet's implementation has still to be met.

Joachim Doering, vice president of Siemens ICN, believes that ShareNet has an even greater potential to realize a measurable business impact through the creation of new business opportunities. As a next step, new communities, such as the worldwide service units and R&D, have to "come on board" to develop ShareNet into a knowledge portal that integrates the expertise of the whole enterprise in virtual workspaces.

Broadening the focus of ShareNet internally to include other functions is not the only task ahead. Joachim has a clear vision of what the next steps should be. He envisages expanding ShareNet across organizational boundaries to integrate customer knowledge into the system. In this context, new questions arise, such as, How can customers be motivated to participate in the ShareNet initiative? What exactly is the critical knowledge ICN expects to gain from its customers? And last, but not least, the broadening of ShareNet across ICN boundaries gives rise to a whole range of completely new issues, such as security and confidentiality concerns.

Finding the answers to these questions is the key to leveraging the potential of ShareNet in particular, and Siemens ICN's future, in general.

Kuala Lumpur, Two weeks later. Martin Wong moves his chair back with a sigh of satisfaction. It has been an extremely long two weeks. ShareNet has not left him twiddling his thumbs, but it has made his job so much easier. After receiving input from around the globe, he is certain that the proposal which he has just completed will sweep the opposition aside. This weekend he needs to reward himself! Now, what would he like to do....?

Conclusive remark

Because of the high interest the ShareNet concept affectuated at the Siemens divisions and outside Siemens, a startup company called The Agilience Group headed by the former Siemens manager Dr Christian Kurtzke was chosen to leverage the key success factors of ShareNet to the world outside Siemens ICN.

Key propositions

1. The ShareNet case demonstrates the importance of finding the right balance between IT solutions for capturing explicit codified knowledge and leaving enough room to allow direct personal exchange of more implicit forms of knowledge.
2. Knowledge-management initiatives have to be embedded within appropriate incentive systems, structural arrangements that facilitate knowledge sharing and an organizational culture that supports such an initiative.
3. To ensure the global reach of the knowledge-management initiative, knowledge sharing has to take place on three levels: within one country, between peer countries and between market stages.
4. The two components, "economic development of a country" and "degree of deregulation of the telecommunication market," determine the kinds of solutions that can be leveraged across countries.

Discussion questions

1. What were the driving forces that lead Siemens ICN to envision their becoming a solution provider and what role did knowledge play in this process?
2. What are the additional variables that have to be considered for global knowledge-management initiatives when compared with local initiatives?
3. What are the organizational factors that should be considered when designing and implementing a knowledge management initiative?
4. How should Siemens ICN tackle the future challenges ahead?
5. How can you motivate employees to share their knowledge?