Siemens ShareNet: knowledge management in practice

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Knowledge sharing across organisational and national borders is of increasing importance for large multinational companies. This case study looks at how the German electronics and engineering giant Siemens introduced its pilot ShareNet knowledge-sharing system as part of efforts to evolve into a knowledge-based company. As Siemens found, the behavioural issues involved in developing a knowledge management network are challenging.

Siemens Information and Communication Networks Group (ICN) is a leading, $10bn provider of integrated voice and data networks, including IP-based products for enterprises, carriers and service providers. The group has many years of experience in consulting, planning, installing and operating converged networks. ICN is an integral part of the Information and Communications (I&C) business segment of Siemens, one of the world’s largest electrical engineering and electronics companies, with annual sales of more than $87bn and around 485,000 employees in 190 countries.

Siemens has invested around $1bn in transforming itself into an e-driven company. According to CEO Heinrich v PIERER, the idea is to have all processes run electronically - from procurement to marketing, from development to controlling. One of the key features of the new initiative is e-knowledge management. In 1999, Siemens ICN implemented ShareNet, Siemens’ internal knowledge management system, which enables employees to exploit knowledge within the company from anywhere in the world.

Knowing what you know – and using it

When ICN started thinking about a knowledge management system that could leverage its knowledge assets it started by analysing the existing system and the current and future needs in terms of knowledge.

Before the introduction of ShareNet in 1999, knowledge flows were characterised as being “enabling” and most information was centralised at the company’s Munich headquarters. Individual business units competed for information and resources from headquarters and this led to slow sales processes since many sales reps had to “reinvent the wheel”. The centralised flow of information was slow, redundant and did not allow for knowledge sharing across business units without headquarters’ involvement.

In order to find the right solution, ICN had to understand the need for knowledge – now and in the future in order to design a system capable of meeting it. ICN identified a series of important questions, such as:

- What deals have we won or lost recently?
- How and why did we win them?
- Who in ICN is the expert on a given topic?
Where can I get a solution proposal for a specific project?

What are the key trends in a given market?

What news and knowledge do we have on specific competitors?

It soon became apparent that the collective expertise of the sales force was an untapped asset and the solution would have to be a system designed to centralise sales knowledge and make it available world-wide instantaneously.

ICN drew inspiration from how things had once worked. Traditionally, sales teams were centrally located, sitting in a shared bullpen where urgent questions could be answered by a shout over the wall and where experts from other areas (marketing, R&D, services and so on) were just a walk down the hall. Senior reps would mentor less experienced reps and new reps were given a year of training. In addition, headquarters would regularly fly field reps in for training and sharing of ideas. Building on this but realising that the speed, competitiveness and global reach of today’s market demanded a new answer, ICN concluded that the knowledge management system would need to be driven by information technology. The solution was ShareNet, which sought to transform centralised flows of information into globally networked flows of information.

**Knowledge management within ShareNet**

The backbone of ShareNet is an intranet that facilitates knowledge transfer by allowing for three processes: the capturing; developing; and reusing of knowledge. The system covers two types of knowledge: codified knowledge and personalised knowledge.

Codified knowledge provides the user with structured knowledge about everything needed to create a solution. Examples include sales projects, technical solutions, functional solutions, customer information, market information and competitor information.

Personalised knowledge includes urgent requests, discussion groups and news. The system supports global co-operation and human networks and is designed to provide quick help for employees throughout the organisation.

**Value creation chain**

Creating a customised solution for customers requires several value-creating steps, including business development, implementation and after-sales service. The competitive environment, the market conditions, and individual customer needs and capabilities must be taken into consideration and technical as well as functional knowledge has to be applied to reach a solution.

ShareNet enables sales people at ICN to access the necessary knowledge at the right time. Part of the updating of the knowledge base involves a continuous self-assessment and conscious focus on the process. Hence, sales reps are encouraged to reflect on the sales process ex post and ask “which knowledge would have been useful at the beginning?” and “What source materials would I have needed?” The answers to these questions can be used to ensure re-use of valuable knowledge. However, the system is only as good as the information contained within it and one of the main tasks was to assure the reliability and value of the content in ShareNet. Another task was to motivate people to actively share knowledge. These problems needed to be dealt with to achieve...
the main goals of ShareNet: saving time; reducing costs; increasing quality; increasing sales; and increasing profit.

The ShareNet organisation
ShareNet acts as a kind of portal for access to a multi-community network. In total, Siemens ShareNet has about 30,000 members, of which about 18,000 are members of the “ICN/ICM ShareNet” community. The “SBS ShareNet” (Siemens Business Services) community is the second-largest community with about 6,000 members. Currently ShareNet includes 12 distinct communities. Within each community there are a number of specific topic forums allowing for further categorisation of knowledge.

Originally, ShareNet, conceived by former ICN CEO Roland Koch, was built as a company-wide community for knowledge sharing. However, according to Felix Baumann, a consultant who worked on ShareNet, it soon became evident that people would not share knowledge if “all ears were listening”. Different communities within Siemens had different agendas and sometimes they were even competing against one another. Besides, according to Baumann, trust in people outside one’s own community was low and hence knowledge sharing across the entire organisation seemed impossible.

Furthermore, knowledge is considered a principal part of an employee’s personal market value and sharing too much may make you expendable. A final barrier to knowledge sharing is time. Most people are busy and do not feel they have the time to share knowledge via ShareNet. As noted by Frank Thomsen, a project leader at Siemens Denmark: “If you need specific information ShareNet is not the place to start as it is too big with a rather poor search engine”. Figure 1 shows some of the main barriers to knowledge sharing within ShareNet.

The solution was to create a network of multiple communities within ShareNet and have employees individually register themselves on one or more of them. Some communities are open communities and all that is required is membership of ShareNet. However, many communities, such as ICN/ICM, require separate membership registration. This seemingly restrictive system helps legitimise each community and build trust and a sense of security for members.

Any knowledge-management system is only as good as the knowledge contained within it. Siemens developed an organisation around ShareNet to ensure that the right knowledge was captured, stored and made available for re-use in an efficient and effective way.

Figure 1
Barriers to knowledge sharing

Figure 2 shows the ShareNet organisation. At the core is the Munich ShareNet Team, which includes IT management, a user hotline, consultants and the global editor (Johannes Müller). Müller’s task is to ensure content quality. However, he believes that responsibility for content quality rests with users themselves. He distributes so-called “quality guidelines” for knowledge sharing on the ICN/ICM ShareNet. These are comprehensive “laws” for what knowledge should be shared and how. These add legitimacy and provide the global editor with a tool to reduce misuse by referring to an agreed-on set of company-wide “laws”.

The key to an effective knowledge-management system is co-ordination and systematic knowledge development and storage. The ShareNet managers played a critical role in this process as they were trained to not only assist users in capturing the right knowledge but also to motivate and help move them towards a knowledge culture.

In September 2002 Siemens top management decided to reduce the total ShareNet budget. This decision was a direct consequence of the economic decline in the German economy in general and the IT/telecom industry in particular. As in many other IT firms, Siemens had to restructure its business and focus on short-term cash flow rather than long-term strategic initiatives, such as ShareNet. Because of this decision,
today only 60 ShareNet managers remain to support 84 countries and they are only compensated for five to 10 per cent of their time from ShareNet (previously, they were compensated up to 50 per cent), dramatically reducing their incentive to promote knowledge sharing and ensure quality of content.

Moreover, the consultants initially responsible for training ShareNet managers and developing a knowledge-sharing culture and philosophy throughout the organisation have been reduced from six full-time people to just two part-timers. And due to budget restrictions, they usually can no longer travel outside Germany, making training and local ShareNet development difficult.

As Baumann explains: “When everything was going smoothly for Siemens and we were making lots of money, ShareNet was high priority. However, as business went bad top management had to save money and they cut activities that did not directly contribute to profit. ShareNet took quite a hit and now we are struggling to find ways to keep it running”.

Global networking versus local relevance

Siemens business units have knowledge initiatives that cut across countries and continents as well as other programmes that work only within a particular country or technical subculture. Many participants in ShareNet appreciate the value of global knowledge sharing but may be more comfortable with the language/jargon and business/social embeddedness of the country or technical subculture they belong to.

Balance between global and local knowledge management needs to be maintained on a daily basis and this creates potential tensions in as large and diverse an organisation as Siemens. Company-wide initiatives help to exploit the scale of Siemens’ business and promise the “knowledge synergies” arising from knowledge sharing across multiple units, functional areas and cultural settings. However, this synergy often remains an illusion because more specialised, focused initiatives are easier to measure and thus tend to be better supported by managers who are responsible for a unit’s financial performance.

In addition, several units within Siemens may at times be in direct or indirect competition with each other regarding a large project, which tends to add to the tension between the potential long-term value of company-wide knowledge sharing versus easier to measure, short-term value-added at the business unit level. Moreover, in times of business restructuring and resulting job reductions, people tend to protect their intellectual capital (knowledge) and knowledge-sharing hostility arises as a consequence of uncertainty.

From a top management perspective, global, company-wide knowledge sharing is desirable in order to create economies of knowledge as well as synergies of knowledge. However, this may collide with local

Figure 2
The ShareNet Organisation

Source: Siemens AG
units’ objectives of performance nurtured by local technical and business embeddedness.

**The incentive and reward system**

In order to motivate users to share knowledge, Siemens measures and rewards individuals for participation in ShareNet. Contributors earn ShareNet “shares”, relative to the quality and reusability of the contribution – assessed through a peer rating. The ShareNet Incentive System can be adjusted according to the current need for motivation and guidance in the community. It works like a “frequent flyer” system, where users earn “shares” for contributions (knowledge/experiences logged) and feedbacks (feedback about reuse of knowledge/experiences).

These shares can be collected, accumulated and turned into tangible rewards like cell phones, portable computers, training or international trips. A variety of different incentives can be selected from a catalogue allowing for cultural diversity in the reward system.

According to several users, additional, immaterial incentives include: giving knowledge in turn for reusing other knowledge; being part of a global community; pride in excellence; demonstrating expert status around the world; reducing the time known experts spend answering standard questions; knowledge targets become part of the individualised incentive system through the “quality assurance and reward system”; the possibility to learn new technologies and practices; it transforms your local office into a global virtual desk.

When ShareNet was in its infancy, the reward system was designed to create a critical mass of content by making users aware of the system and encouraging contributions. This was accomplished through a
Once critical mass was reached, the focus of the reward system shifted toward a non-competitive structure with a focus on enhancing the quality of the content in order to foster reuse of existing knowledge and new knowledge development. At the operational level the focus shifted from simply logging data to closely reviewing the data for quality and reusability. Quality assurance included a rating by the re-user of specific knowledge based on the perceived value (0-5) the reuse of a contribution created.

Depending on this response, the knowledge contributor might receive up to 25 ShareNet shares. In return, the re-user might receive up to five shares for providing feedback. Hence, the contributor no longer get shares based on number of contributions alone but on the value attributed by the re-user.

Another quality assurance introduced was careful screening by ShareNet managers and the global editor for reliability and redundancy of knowledge as well as the introduction of the quality guidelines described earlier. The main objective, according to Müller, is to create a self-monitoring system where users are encouraged only to share valuable knowledge that leads to rewards and positive feedback from colleagues. Hence, entries are not anonymous and anyone uploading an entry of poor quality will receive bad ratings and, consequently, their reputation will suffer.

With the top management decision to reduce ShareNet expenditures described earlier, the reward system was discontinued. This decision is quite problematic for Müller and his team as it reduces their means of motivation dramatically. For now, all they can use as motivation is a status programme, which was implemented as a way of recognising users who contribute to ShareNet. If you earn a certain number of shares within a certain time period you gain “expert status”. Essentially, this system works like Lufthansa’s status programme for frequent flyers but without the possibility of redeeming your miles.

Müller also appeals to the willingness of people to share best practices in order to improve efficiency throughout Siemens – something that was highlighted by Thomsen at Siemens Denmark, who stated that “nobody really cared about the free cell phone anyway – I have four cell phones at home. I share my best practices because it makes sense to help others solve their problems. If I have encountered and solved a similar problem then why not share this knowledge? However, in certain countries they may have liked the incentives more”.

Thomsen also suggested that he is more likely to share knowledge with people he knows personally and that sometimes sharing knowledge via ShareNet is too difficult as you have to document best practices so that non-experts can use them.

Müller expects short-term negative effects from the lack of an incentive system in terms of the number of entries in ShareNet. He would like knowledge sharing to be directly related to career development. That is, having career advancement be based, in part, on the ability to share useful knowledge via ShareNet.

“ Perhaps cell phones and other monetary rewards work well for certain people. However, if knowledge sharing is tied directly to your career opportunities, the chances are that it would motivate everyone at a fundamental level,” he says. “In a perfect world, one could even imagine this as part of your capabilities that you would list on your CV when applying for a job outside Siemens as an indication of your knowledge sharing skills.”

**Results of ShareNet**

Siemens ICN uses a combination of measures to assess the value-added of ShareNet: sales related; ShareNet process related; user related; content related; and website related.

As for any organisation, the impact on revenues is important to Siemens. In terms of revenue generation, Siemens assesses the effects of ShareNet by tracking the impact of joint business development, international knowledge sharing, international knowledge reuse for profit and international co-operation. Due to the high expenditures associated with the roll-out of ShareNet, it was not profitable in its first year. During its third year, however, this was changing.

The majority of revenue generation via knowledge exchange takes place in emerging economies such as China, Hungary, Poland and Thailand. This is consistent with Baumann’s and Thomsen’s assertion that most knowledge sharing via ShareNet takes place...
outside the industrialised world. The reason for this is to a large degree cultural, according to Baumann. He finds that Westerners in general and Germans in particular are accustomed to share knowledge informally via other channels, particularly their large social networks. As Baumann says: “If I need information about a certain topic I simply call up someone I know. In other countries they lack this network and thus utilise the global knowledge sharing network more often to gain access to specific knowledge”.

**Future directions**
ICN at Siemens aimed at introducing a flexible global knowledge management system. The basic idea was that knowledge created anywhere in the world should be made available for global re-use. ShareNet was chosen as the technical platform to accomplish this by networking all local sales efforts to facilitate co-operative global learning, local re-use of global best practices and the creation of global competencies.

ICN/ICM ShareNet has already realised considerable and measurable business impact through time and cost savings and through the creation of new business opportunities. It was quickly recognised that the system’s success is dependent on the human aspects related to the quality of content and motivation for knowledge sharing. These factors have been translated into managerial challenges since it was realised that knowledge only adds value when it is successfully (re)used and hence that it is the human interaction with knowledge that is a key driver to success of knowledge management.

Siemens has adopted ICN/ICM ShareNet as its knowledge management solution, with plans to roll-out ShareNet to other divisions and local companies until eventually every employee has access to information that is relevant for his or her job. The knowledge oriented business transformation drives the integration of formal and informal communication structures and transforms the company into a network of knowledge in which expressions like “internal” and “external” are no longer relevant. This fits well with Siemens’ strategy of continuous improvement and its vision of becoming a true e-company. Future plans along these lines include:

- Further improvement in community support features that ShareNet offers, such as project group
support, (international) account team support, support of global product/solution oriented specialist teams, global market specialist teams, division-crossing industry specialist groups

- Further extension of knowledge responsibilities and personal knowledge targets on all organisational levels
- Rollout of mobile access to ShareNet (making knowledge worldwide available to employees on the road)
- Transform Siemens into an Internet company, linking all Siemens employees globally. Siemens currently has three centres of e-excellence, located in Munich, Atlanta and Singapore, which coordinate all Siemens’ e-business activities. Siemens wants to handle the entire value chain electronically, including e-learning, e-procurement, e-recruitment, e-logistics and online sales.

References