

Measuring Knowledge and KM in an organization with an explicit top-down Knowledge Strategy

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Abstract: A cornerstone in the integration of Knowledge Management (KM) in the business is the extension of the business strategy with a knowledge strategy. The Knowledge Strategy Process (KSP) at Siemens follows a top-down approach and helps the management to integrate knowledge strategy effectively in their business strategy. Furthermore, it brings the decision makers of a business unit on one table to draw up an action plan for their respective business unit. In six consequent steps, this action plan is generated to improve the way of working and learning by focusing on knowledge areas with highest impact on the major business ambitions. With a knowledge strategy, the pressure on impact measurements for KM is released, since sense and need for the KM program is understood and it is driven by the management. Only very reasonable cost-benefit checks will be required for larger investment plans by the business owner. An overview on diagnostics and measurements for knowledge and KM as well as a list of open KM research issues is given for the full integration of KM into the business.

1. Introduction

The importance of knowledge continues to grow owing to the spread of global networks, accelerated product cycles and changing market conditions. Since decades, the knowledge intensity in work processes increases compared to manual work. Knowledge serves as a resource as well as product of knowledge-based business. As a result, the significance of (systematic) Knowledge Management (KM) is continuously growing, and due to further improvements in KM the race for competitive edge through knowledge will become even faster. Siemens is meeting these challenges through enterprise-wide and systematic KM to better share existing business and process-related knowledge and to generate new knowledge even faster.

Siemens has initiated and successfully implemented numerous KM projects driven by the corporate KM Team and KM organizations in groups and regions. Important for the speed of progress has always been and still is “KM for KM” provided by the global Community of Practice Knowledge Management (CoP KM), which started in 1997 and currently, has about 300 members across all Siemens units and regions.

Knowledge and KM have so many different aspects that it is recommended for each organization to make definitions for a useful joint understanding and collaboration in that area:

- Knowledge is considered to be the "capability for effective action". Knowledge manifests itself as the expertise, know-how and professionalism of the individual, as the distributed and diffusing ability of organizational entities, teams or communities to act and as codifications of knowledge, e.g. in a document, process or system. Thus our basic model of a knowledge space has the three dimensions proficiency, diffusion and codification¹.
- Knowledge Management covers all systematic activities involved in the creation and sharing of knowledge across the organization and in relations with customers, partners and other knowledge stakeholders, and thus contributes to the achievement of our goals and the creation of value added by Siemens. In the knowledge space, KM can be described as any systematic action adapting proficiency, diffusion and codification according to the organization's objectives. Examples are building the right proficiencies with employees and business partners, care for appropriate knowledge networking and collaboration and keep information about knowledge or other manifestations in a useful and affordable form. Combining such actions often results in the most powerful KM activities.

Knowledge work has always been supported by a kind of intuitive KM. Systematic KM on the other hand means a coordinated business transformation or improvement, which changes the way of working and the way of the learning. The smooth integration of a KM initiative into the business is therefore a key success factor. The major issues are to integrate:

- Knowledge communities, which drive knowledge sharing and creation, with the formal organization,
- Knowledge marketplaces, which serve to offer, find/take knowledge, with the existing infrastructure for information and communication,
- Knowledge processes and KM processes, e.g. diffusion or organizational learning and community facilitation, with the business processes,
- A knowledge-friendly culture, which is supporting open knowledge sharing and creation, with the company principles and its culture of leadership and collaboration,
- Content structures and quality, which support context-driven knowledge combination and extension, with the existing approaches to information and content management,

¹ Adapted from Boisot, M. H., 1999.

- A KM organization, which lets all management functions related to a knowledge issue collaborate jointly and in an orchestrated manner, with the formal organization, especially the organization of staff functions like HR, IT, Organization/Process/Quality and Strategy/Planning, and
- Knowledge Strategy and KM Strategy, which plans and executes for knowledge objectives and KM requirements, with the business strategy and its measurements.

The following section will focus on the integration of the knowledge perspective into the business strategy, i.e. the generation and execution of a Knowledge Strategy as an add-on to the business strategy driven top-down by the business owner and the management team. This leads in eliminating a major barrier mainly in way of most of the KM initiatives: the missing understanding, support and backing of the top management which is especially critical in times of economic turbulences. In section 3 an overview is given on diagnostics and measurements in a business with a Knowledge Strategy. Conclusions and an outlook on future research areas are the final part of this paper.

2. The Siemens CIBIT Knowledge Strategy Process³

Business owners and their management team have or should have clear objectives and ambitions on knowledge in their business, e.g. for those knowledge areas with high impact on the business key performance indicators today as well in future. The Knowledge Strategy defines the needs, way and actions to achieve these objectives and ambitions in terms of means and language of business owner and management team.

The management team should have a *knowledge strategy* how to drive knowledge issues, as it has, e.g. a product strategy to drive product decisions. A knowledge strategy is different to a *KM strategy*, which is the strategy or roadmap of the organization(s) responsible for KM and other knowledge relevant issues, to enable for KM, e.g. to drive the rollout of instruments or initiatives for KM. This is accordingly to the fact, that, e.g. product managers drive their plans by a *product management strategy*. Both strategies are necessary and have to be aligned continuously.

Without a business-driven knowledge strategy often various staff functions execute different KM strategies, i.e. drive in many cases different knowledge-related actions and measurements without a joint goal or coordination resulting in more organizational friction than business transformation speed. Thus really powerful interdisciplinary KM solutions are often missed.

³ Hofer-Alfeis, J. and van der Spek, R., March 2001.

The Siemens CIBIT Knowledge Strategy Process (KSP)^{5,6,7} is a strategic instrument for business owners and their management team to generate a Knowledge Strategy for the current ambitions in their business. KSP is jointly developed by Siemens AG and CIBIT, Utrecht, NL⁴.

The KSP has to be integrated in the business strategy process and revisited regularly. A knowledge strategy for any kind of business transformation is defined in six steps as demonstrated in Figure 1.

A business owner starts by focusing on the most relevant business perspective (s) for the next x months or years followed by defining the related knowledge areas. The further specification of the key performance indicators leads in achieving a knowledge portfolio. The resulting action plan leads to improvements for the way of working in a knowledge-intensive business as well as the way of learning in many ways. It is a guideline for an interdisciplinary KM team, which refines the action plan by state-of-the-art KM solutions according to its KM strategy. The execution of the knowledge strategy is strengthened by the buy-in of the management team, since it has defined it based on its profound knowledge about the business itself.

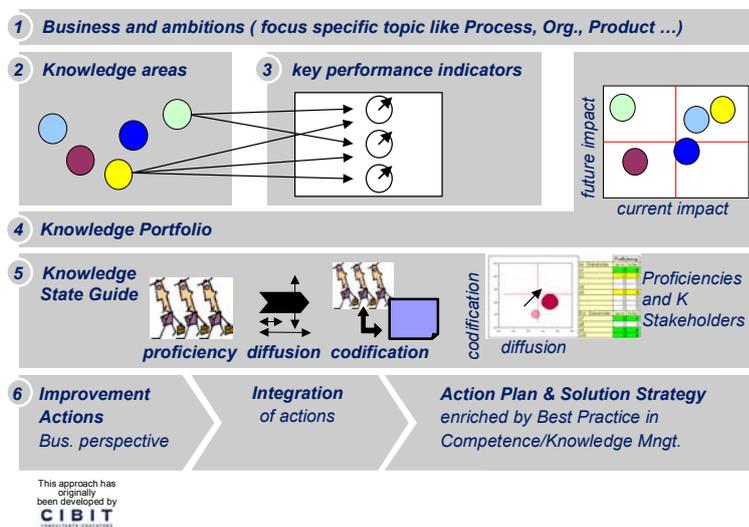


Figure 1: The Siemens – CIBIT Knowledge Strategy Process: The six steps and the results

⁵ more details in Davenport, K. and Probst, G., 2002.

⁶ more details in Bellmann, M. et.al., 2002.

⁷ more details in Holsapple, C.W., 2002.

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2.1 Results and Benefits

The implementation of KSP has the following results and advantages for any business:

Results

- joint portfolio of business impact knowledge (Knowledge Portfolio),
- needs/deficits in fundamental knowledge fitness dimensions proficiency, diffusion and codification (Knowledge Status Guide), and
- a focused and guided KM action plan - jointly derived (KM Action Plan).

Benefits

- actions are generated from the management team in their own language as well as perspectives, which are enriched by an interdisciplinary KM team and its bottom-up experience,
- resources and energy on all knowledge issues are focused by their respective business impact,
- initiatives of the various functions acting on the knowledge issues (HR, IT, Process & Org, ...) are coordinated, and eventually execute the resulting program from the action plan jointly, and
- knowledge-related measurements are directly linked to the business strategy.

Overall effects:

- highly increased efficiency of efforts in KM and knowledge-related disciplines,
- reduced risks and friction arising due to unfocused and low coordinated activities,
- faster business transformation based on joint planning instruments, and
- extended strategic thinking leading into the Knowledge Economy.

2.2 Knowledge Strategy and KM Strategy or KM Roadmap

What is sometimes reported as knowledge strategies or KM strategies is not useful for business owners and management teams: it is for staff people or KM enabling teams. Those staff functions drive in some cases different knowledge-related actions and measurements without a joint goal or coordination resulting in more organizational friction than business transformation speed. Thus often really powerful interdisciplinary KM solutions are missed, e.g. building proficiency by connecting the right experts, which diffuse their results in appropriate codification, e.g. an e-learning module, to the right audience in the company, which can direct feedback to the experts about application success.

A KM strategy or roadmap is addressed to the enablers for KM, e.g. the KM Team or equivalent functions, and illustrates the planning, implementation, operation and standardization of KM solutions, thereby, ensuring its smooth integration and efficient operation within the organizations (refer 1. Introduction). The KM strategy gets valuable input from the business' knowledge strategies: it should anticipate and react to the focused needs from the operational perspective of the business owners. For example, the Corporate KM Team of Siemens is providing in co-operation with the Community of Practice KM, a KM roadmap on corporate level, various KM tools, solutions and standards or recommendations as well as various instruments for diagnostics and measurements.

2.3 Business Cases

KSP results and experiences have been drawn from successful business cases from various business units within Siemens, e.g. an R&D organization with about 600 developers, an account management organization for most complex knowledge flows between very large accounts and several Siemens groups and for a central information and operations unit with about 200 project and topic managers. To quote the impressions of a business owner and a participant after the workshop:

Business Owner: "We defined the issues, which should be dealt by the team in this workshop and worked through them in a structured way- this would not be possible without KSP... now we should also implement them straightforward!"

Participant: "I was skeptical – it seemed to be a tiresome, formal process but now in the end I have to admit we landed on the right ground – a very effective process".

3. Diagnostics and Measurements in a business with a Knowledge Strategy

Diagnostics and Measurements are hot topics in KM, especially in times of shrinking economies. The focus today is often on cost-benefit calculation for KM projects to prove for further invest and care. If an explicit Knowledge Strategy is defined, the requirements on measurement are quite different.

3.1 Measuring the impact of a Knowledge Strategy

If a business owner and his management team have a real knowledge strategy, the whole issue of impact measurements for KM is put head-over-feet again, since sense and need for the focused KM program is understood and derived from the business ambitions and only very reasonable cost-benefit checks will be driven by management team for larger investments. The KSP supports that knowledge-related measurements are directly linked to business strategy, i.e. the causal chain from business impact to KM actions is developed and understood by the management team. Thus unreasonable, one-dimensional cost-benefit proofs resulting often in deeper doubts of the management team can be avoided. Using the KSP also means a long-term engagement of the management

for knowledge programs. Various solutions are available to link KSP with the Balanced Score Card (BSC) process; the most advanced one is an additional functional scorecard, the "Knowledge Scorecard"⁸.

3.2 Measuring quality and value of knowledge

Measuring quality and value of knowledge, e.g. for knowledge assets like a knowledge area, a Community of Practice, a Lesson Learnt, a KM system content is still not solved appropriately. But this is basically necessary to enhance KM processes or knowledge businesses with market forces: we are currently working on this issue. There are many approaches to deal comprehensively with the intellectual capital^{9,10} of an enterprise, e.g. a kind of balance sheet comprising all knowledge assets. Such approaches can give directives for KM planning and in fact, the results of the first five steps of the KSP are also an intellectual capital overview, but strongly focused on the major current business ambition of the management team.

3.3 Cost-Benefit Calculation for KM Projects

There are many approaches to measure and prove the benefits of KM. In case of operating socio-technical KM systems successful measures are e.g. the time/cost saving effects of urgent request processes in knowledge communities or the growth value in additional business by sharing customer solutions. These numbers are generally only aspects of the comprehensive effect of a KM initiative and they are not very useful in promoting new KM projects. In most cases, KM success stories are too specific or too complex to be easily reused for cost-benefit argumentation. Therefore, the corporate KM team has started to jointly build a catalog of proven cost and benefit argumentation modules based on a standardized content form and a related guideline for business cases of basic cost-benefit calculation for KM projects.

KM means in its essence a business transformation. KM systems are socio-technical, holistic or multi-dimensional systems (people, organisation, business environment, processes, infrastructure and knowledge/content). Therefore, only equivalent comprehensive metrics (hardly practically afforded) can comprise cost and benefit effects. Additionally, since generally several business transformation initiatives compete in a corporation, the calculation of ROI is often just a game with artificially restricted perspectives. In the end anyway the conviction of the business owner is needed, who has to invest the resources for the KM projects. Therefore, its better to help him and his team to fully link knowledge issues to his business ambitions (refer 2. The Siemens CIBIT Knowledge Strategy Process) and to take the lead in major knowledge issues.

⁸ more details in Deking, I., 2003.

⁹ more details in Deking, I., 2003.

¹⁰ more details in Skyrme, D.J., 2003.

3.4 Measuring the status of KM in an organization

Performance measurements are useful to check the status of each element of a socio-technical KM system. Sets of measurements are available to assess, e.g. activities and acceptance in knowledge communities¹¹ or knowledge marketplaces. For larger KM systems or landscapes of KM systems a KM Maturity assessment¹² can provide a comprehensive overview on status and deficiencies. For engaging the business owner and his team to take the lead in knowledge issues, such assessments can be appropriate in combination with the Knowledge Strategy Process. They are a profound and comprehensive approach to give directions in all major KM aspects to the KM team. Thus the team is able to make the KM strategy accordingly and be better prepared for requirements from the business owners' knowledge strategies.

3.5 Framework for Diagnostics and Measurements for knowledge and KM

The Framework for Diagnostics and Measurements for Knowledge and KM helps knowledge managers to

- get an overview of the various types of measurements and instruments,
- apply the right measures and identify good practices, and
- position and share approaches and instruments as well as needs for further development.

The framework deals with four types of measurements: value and state of knowledge and value and state of KM respectively. It is an extension of the "Siemens KM Implementation Guide" (only for internal use) which has been jointly written by over 20 Siemens KM experts from KM initiatives and KM Consulting. Thus, for the first time the corporation has a joint set of basic concepts, processes, system models, KM solutions elements and proven cases to integrate the various KM activities in Siemens.

¹¹ Schoen, S., 2000

¹² Langen, M. and Ehms, K., 2003

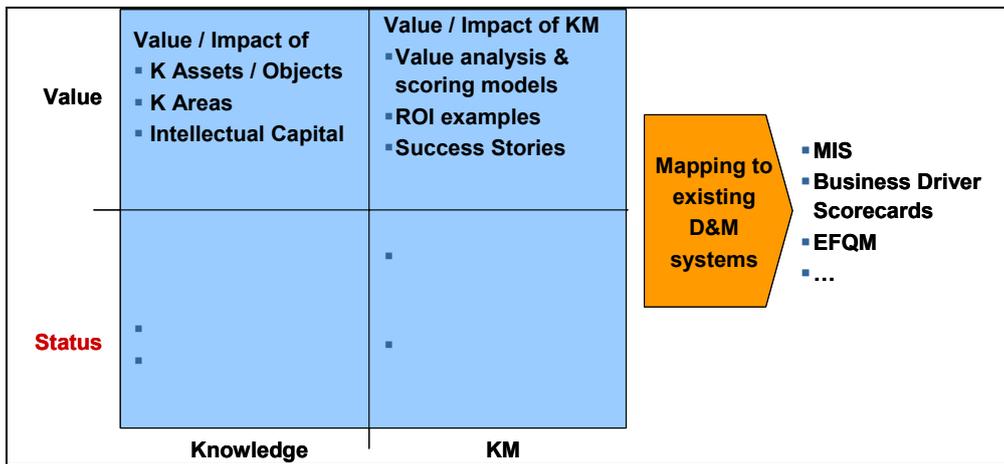


Figure 2: Framework for Diagnostics and Measurements for Knowledge and KM

The procedure of measuring by a business owner with a Knowledge Strategy and by a KM responsible manager planning and operating KM systems (KMS) can be projected into the framework as shown in Figure 3.

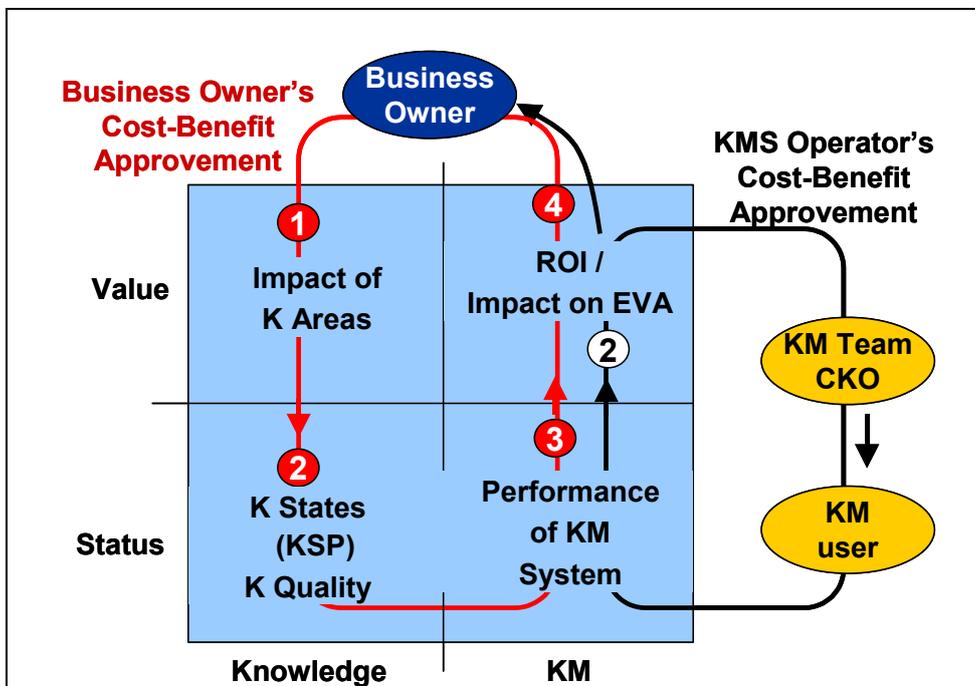


Figure 3: The two KM measuring cycles from business and staff perspective

4. Conclusions and Outlook

A cornerstone in the integration of KM into the business is the extension of the business strategy by a knowledge strategy, which drives the major knowledge-related management actions from the KM team and various other staff functions, e.g. HR, IT and Organization/Process/Quality. It means that business owner and his management team take the lead in major knowledge issues (and not just a commitment to let KM happen).

If a business owner and his management team have a knowledge strategy as derived with the Siemens CIBIT Knowledge Strategy Process, the whole pressure on impact measurements for KM is released, since sense and need for the KM program is better understood and it is focused and measured according to the business ambitions. Only very reasonable cost-benefit checks then will be required for larger investment plans by the business owner. Knowledge Strategy measures can be linked into the business measurement systems, e.g. the Balanced Scorecard to investigate the execution of the strategy. Cost-benefit calculations for KM projects are essential but still not appropriately solved according to the fact, that KM means a business transformation in its essence. A framework for diagnostics and measurement is helpful to apply the appropriate metrics and measurements.

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