KNOWLEDGE MANAGEMENT IN E-BUSINESS STRATEGY

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Summary

E-business has changed the way economy operates. Lack of geographical and time boundaries forces organizations to rethink their organization. End of last century was dominated by optimization process to make enterprise more efficient. Internet, global competition has revealed that BPR is not enough. The main economy factor became information and knowledge. Organizations which were data reach started to look for solution to make them knowledge reach and such a concept became Knowledge Management (KM). Article presents methodical aspects of KM ideas, usage of KM solutions in electronic economy. It points why KM should be a part of organization e-business strategy, or can even be a transactional asset on electronic market.

Keywords: knowledge management, e-business, BPR, e-knowledge, i-knowledge

1. Introduction

Nowadays, more then whenever, organizations must try harder to follow constant changes and growing global competition based on Internet. To succeed in this multi-channel, extremely fast information processing environment, enterprise must optimally use its individual and corporate knowledge. Active participation in electronic economy forces organizations to give up operating due to strict plans towards constant market monitoring and immediate actions in case of any changes. However, to be able for such behavior policy it is necessary to optimize processes and information resources in both areas: internal and external.

First period of e-business was characterized by creation of very attractive Internet image of organization without any care about internal matters. During electronic economy development it was noticed that good quality of “Internet face” required also proper internal process organization – adjusted to very unstable Internet environment. The period of those adjustments was dominated by the attitude based on business process reengineering (BPR). The range of those changes concerned mainly supply chain management, customer relationship management – areas, which were crucial for enterprises.

Parallel to process optimization more attention was focused on information resources, because it usually determines efficiency in present business. There appeared new discipline called knowledge management. The reasons of its development, as information society, information technology expansion or observation of huge data sets (databases) kept in organization, caused dynamic evolution of methods and techniques of knowledge management. Internet environment emphasized advantages of knowledge or experience sharing neutralizing geographical and time boundaries. The best example here is concept of virtual organization.

Of course to fully use potential of “knowledge capital” you must overcome many barriers (technological, sociological) as e.g. heterogeneity of information, which is or should be kept in
electronic form, or just simply human lack of willingness to share his knowledge or experience. However enterprises, which seriously treat Internet as future, began to include knowledge management in their strategy of e-business development.

2. Place of knowledge management in e-business environment

E-business embodies the most pervasive, disruptive, and disconcerting form of change: it leave no aspect of managing organizations untouched, it challenges long-accepted business models, and organization leaders have little to draw on from their past experience to manage its effects. The new technologies as the heart of e-business open up myriad possibilities not just to reconsider the re-engineering of existing processes but also to design, develop, and deploy fundamentally new ways of conceiving and executing business processes.[1] The evolution of the information-processing paradigm over the last four decades to build intelligence and manage change in business functions and processes has generally progressed over three phases:

1. Automation: increased efficiency of operations;
2. Rationalization of procedures: streamlining of procedures and eliminating obvious bottlenecks that are revealed by automation for enhanced efficiency of operations;
3. Re-engineering: radical redesign of business processes that depends upon information technology intensive radical redesign of workflows and work processes.[3]

The last stage resulted within very complex, integrated IT solutions like ERP systems. It provided high level of data sharing across internal functions with simplification of information processing for each of the internal functions. However the disadvantage of the total integration of data related to business processes was the lack of agility and flexibility required for quick adaptation.

![Fig. 1. Relationship of knowledge management and e-business self](http://www.stevedenning.com/index.htm)

The new world of business puts less premium on playing by pre-defined rules and more on understanding and adapting as the rules of the game-as well as the game itself-keep changing. Examples of such changing business rules, conventions, and assumptions are evident in the emergence of virtual corporations and business ecosystems, and are most prominently visible in dot-com enterprises living in ‘Internet time’. [2] (Fig. 1) In electronic economy organization can
not be stable – its architecture, processes of marketing, sale and distribution must be constantly questioned:

- How e-business is affecting or might affect each core operating process?
- Whether and how the organization is or might be able to use e-business to affect change in the core operating processes?
- Why e-business is causing the need for change in core operating processes? [1]

E-business constitutes the ability of a company to electronically connect, in multiple ways, to many organizations, both internal and external, for many different purposes. It allows an organization to execute electronically with any individual entity along the entire process. Increasingly, e-business allows an organization to establish real-time connections simultaneously among numerous entities for some specific purpose. It is dramatically reshaping every transactional business process: from developing new products and managing customer relationships to acquiring human resources. And, by increasing traditionally largely separates processes, e-business in effect creates what might well be described as new business processes.[5]

Steven Kerr has the following description about the state of business strategy for the new world in Planning Review: “The future is moving so quickly that you can’t predict it … We have put a tremendous emphasis on quick response instead of planning. We will continue to be surprised, but we won’t be surprised that we are surprised. We will anticipate the surprise.” In that economy where only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge.[4]

Organizations have come to realize how important it is to “know what they know” and be able to make maximum use of the knowledge. This knowledge resides in many different places such as: databases, knowledge bases, filing cabinets and people’s head and are distributed right across the enterprise.[3] Old attitude based on process reengineering is not enough to extract knowledge. Organization as whole must be constantly reinvented (Fig. 2). Process of knowledge extraction can be hard and requires specific IT support, social support and proper management.

*Fig. 2. From “Old world” to E-World of Business: Knowledge management for “Paradigm shift”*

Source: Malhotra Y. (2001) Knowledge Management for E-Business Performance...

The answer to reorganization of information is knowledge management as a set of tools, technologies, practices and processes that aid employees in displaying, categorizing, filtering and making inferences from information. This, in turn, helps workers transform information into
usable knowledge that can deliver a solid business benefit. When implemented as an integrated solution, KM technologies can:

- Decrease time-to-output by enabling e-Business employees to make faster, better-informed decisions.
- Reduce errors and increase efficiency by enabling effective decision-making at lower levels of an organization’s hierarchy.
- Minimize the time spent “reinventing the wheel” by capturing best-known methods and other expertise, and making this knowledge available throughout the enterprise.
- Increase productivity through just-in-time learning solutions that turn novices into experts faster.
- Foster innovation and raise customer satisfaction by enabling organizations to exploit the full value of their knowledge assets.[6]

Knowledge management solutions used to support e-business may be placed on the most popular network architecture: client – server. On the client side we can find information retrieval applications in form of intelligent agents, which automates work connected with searching or assuming phase. Other solution can be presented as highly personalized working desktop of the user, with all crucial information displayed in proper form on one screen. It also includes intelligent 3D graphic generation and relationship mapping. All for better and faster understanding huge sets of data in summarized form. Some sophisticated solutions offer natural language processing which really encourages people to share their knowledge and experience, because of effortless of phase of codifying it. On the server side knowledge management applications can support Internet or Intranet content categorization, which offers user proper set of information – this solutions can be a part of EIP technology. Other software can enable organization experts or communities to create and make accessible their knowledge (codify and distribute databases or sets of cases) to any pointed user.

An example of such a platform can be Hyperwave eKnowledge Suite provided by Fujitsu-Siemens. The origins of this software were started in 1999 and its popularity makes it still updated and developed. The platform consist of main modules (K-landscape, ProjectWare and FlexTEAM) which enables communication with external databases, knowledge validation, contribution and reuse.(Fig. 3)

![Fig. 3. Organization of e-Knowledge software](http://solutions.fujitsu-siemens.com/)
e-Knowledge is more than just another technical solution. It offers leverage to any individual’s personal knowledge, through using and sharing knowledge with others and with the organizations itself. This is what we call the "GATA Age", for "Give Away and Take Away", which means that giving information stimulates others to do the same in return. As a result, people will learn from each other. e-Knowledge is your individual knowledge exchange platform, integrated in the company-wide knowledge management network.[7]

As it was with BPR attitude, where the most important matter for organization became a client, the same value was transferred to e-business. First supportive applications where focused on customer relationship management and called e-CRM. In process of gaining information about clients, organization must look at several internal (purchase or marketing databases) but also external (e.g. website logs) sources. The goal is very clear – to optimize relation value between company and its customers.(Fig. 4)

The difference between traditional CRM and e-CRM application is that in Internet environment the customer deals the interaction with company [8]. Of course company can track and partly control customer behavior during visiting company web site. For example, usually to buy something user must register in the on-line shop and leave his data. In case he will come back, company can use those previous information as knowledge about customer preferences and stimulate him by promotion, polls or competitions to desired behavior (usually next purchase). To prepare such a “individual” strategy for one unique customer one of special personalization techniques must be applied:

- Rule-based reasoning – predefined rules assigning to customer based on given information.
- Collaborative filtering – automatic comparison of one customer features to other ones and grouping them
- Inference models – Data Mining techniques to search for customer behavior patterns.

Fig. 4. eCRM Expands on CRM


e-CRM application developed very sophisticated platform to keep and built customer loyalty including Customer Centric Information Store, Analysis and Segmentation Engine,
Personalization Engine, Broadcast Engine and final Transaction Engine. All cooperate in chain and have a feedback loop to enable company to learn from taken actions [9].

To enhance organization success with KM, experts offer the following suggestions:

- Match the tool to the task. Technologies should support corporate goals and values, not exist for their own sake. Start by looking at the tasks a given workgroup performs and choose technologies that are suitable for the tasks at hand.
- Look for compatibility with existing tools and user tasks. Choose solutions that expand on the functionality of familiar tools and employ common techniques and usage styles.
- Put all the pieces in place before introducing the KM technology. As with other new solutions, installing the application is just a start. To make the most of your KM investment, make sure you define robust business processes, train your users, educate them on the expected benefits and provide motivation and incentives for use.

Knowledge management is a key to join bright new ideas (bases of success in e-economy) with proper IT solution (which will strongly support those unique initiatives). Organization must very carefully check what are its knowledge (or experience) resources and never underestimate any of it. The future is global knowledge sharing and to follow that direction KM must become a part of whole e-business strategy. (Fig. 5)

3. Concepts of e-knowledge as type e-business

E-learning initiatives were started in last century. The need for distance learning occurred to be very big so the platforms, courses and companies (including schools and universities) started such a project. However they can be considered as mediators – to prepare a course you need information. If it’s already in electronic form then the extremely expensive phase of on-line course creation is faster and cheaper. Popularity of electronic materials usage made their publishers willing to take part in electronic economy as “good” provider. The concept of e-knowledge has appeared.

E-knowledge is enabling not only the emergence of new best practices but also the reinvention of the fundamental business models and strategies that exist for e-learning and knowledge management. [11] Of course there are almost the same problems as were pointed previously according to traditional knowledge like: effective sharing, exploitation, and creation of knowledge. If we base the solution on network (Internet) environment then the problem can be described as
representing the results to others in a form that is accessible, easily comprehensible, and useful, even if others are separated by time or distance from the source of the knowledge. This representation of content and context is what we call e-knowledge. One important aspect of e-knowledge is being able to unbundle content in ways that facilitate subsequent editing and recombination. Another aspect is being able to identify other contexts, in which content might be relevant, if it can first be generalized from its original form then repurposed to suit the new context.[10]

E-knowledge consists of knowledge objects and knowledge flows that combine content, context, and insights on application. E-knowledge also emerges from interactivity within and among communities of practice and from the troves of tacit knowledge and tradecraft that can be understood only through conversations with knowledgeable practitioners. [11].

e-Knowledge is rendered from digital content where “content” itself can take many forms depending on the user or application—as data, metadata, transactions, performance logs, structured and unstructured information, etc. Following on, one person’s “information” may be another’s “knowledge” due to the intrinsic malleability of things digital. E-knowledge is easily repurposed and recombined with other e-knowledge. The effortless of this process created a chance to treat knowledge as a commercial good. This attitude enabled development of processes and marketplaces for the exchange of digital content that have never before been possible.[10] E-knowledge commerce consists of the transactions based on the sharing of knowledge. These transactions can involve the exchange of digital content/context and/or tacit knowledge through interactivity. Transactable e-knowledge can be exchanged for free or for fee.[11]

The e-Knowledge Industry consists of the individuals and enterprises that create, store, and exchange digital content, add value to it, and/or aggregate content, and serve demand for e-knowledge. We can find there publishers, new media companies, content developer companies, professional societies and associations, companies, colleges and universities, and other knowledge-creating enterprises. In addition, individual professionals, faculty, and practitioners are empowered by the emerging influence of e-knowledge to create their own content, knowledge and insight and offer it for exchange.[10](Fig. 6)

E-knowledge is technologically realized by the fusion of e-learning and knowledge management and through the networking of knowledge workers. Transactable e-knowledge and knowledge networking will become the core of knowledge sharing.
4. Conclusion

To summarize, knowledge management provides an organizational framework which supports understanding and guiding the e-business transformation of operating processes. Time and expertise are the core of every e-Business. Knowledge management technologies help company make the most of both of them. It also improves fuller use of hard-gathered corporate knowledge capital — whether that capital consists of the wealth of CRM data collected from your e-Commerce Web site, or the expertise of your senior executives (in form of case base). In the background, there were developed Data Mining techniques based on Internet environment, called WEB Mining. The goal and usefulness for Knowledge Management is to find patterns, categorize or group web site visitors and present them the most personalized offer (content, goods or services).

There appeared bright new concept of connecting knowledge management and e-learning (considered as a part of e-business). The future of trade via Internet is considered as next step of present situation, when we sale or buy information. Next decades will change the trade good into knowledge offered on horizontal or vertical electronic marketplaces. Of course WEB mining tools should show its potential in e-Knowledge world, where “product” (knowledge) personalization will become a key to success.

As we can notice data transformed into information then into knowledge has become crucial part of present business. BPR is not enough. Quoting after C.K. Prahalad and V. Ramaswamy “Companies spent the 20th century creating and managing efficiencies. They must spend the 21st century creating and managing experiences”. If the company wants to succeed at e-Business, Knowledge Management must be an integral part of your e-Business strategy.
Bibliography


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