

○Klincewicz Krzysztof, Kumiko Miyazaki (Tokyo Institute of Technology)

Marketing innovations in software industry are regarded as “imperfect”, not changing the actual product features. This paper proves that by commitment to product benefits, they can induce technical development and even create new product categories. The research is based on bibliometric techniques and longitudinal case studies of 9 companies, which were positioning their products as knowledge management (KM) software.

Marketing and product innovations

Product strategies in software industry include two distinctive areas: product development (activities of technical nature, inducing changes in product functionality and innovation) and product marketing (particularly positioning, focused on presenting benefits derived from the software use, influencing perceptions of customers (Fill 1999: 511-513)). Product innovations in software industry concern new functionality of systems resulting from the addition of previously unavailable features to existing systems or the release of new modules. These new features usually address end users by offering new functionality or user interfaces, but the innovations can also concern software developers from user organizations, who use the concerned software for their projects and benefit from changes to system architecture or programming interfaces. In all cases, product innovations involve software development, optionally supplemented by acquisition/licensing and integration of third-party technologies.

Positioning is the most important factor influencing the buying decision of high-tech solutions, influencing not only the actual choice but more importantly, narrowing down the considered set of products (Moore 1999: 144). For example, management of company intending to start a KM project is likely to look for software which explicitly refers to the theme,

even while many other products are based on comparable technologies and could equally satisfy the same needs, while not being positioned as “knowledge management systems”.

As positioning is not directly linked to underlying technologies, companies can re-position existing products to promote other uses and address other user needs by the same technical solution, especially when customer preferences change and sales decline (Fill 1999: 519). Change of positioning (and thus modification of marketing strategy) can be classified as a type of organizational innovation according to the original Schumpeterian interpretation. The matrix below can explain the independence of marketing and technical innovations.

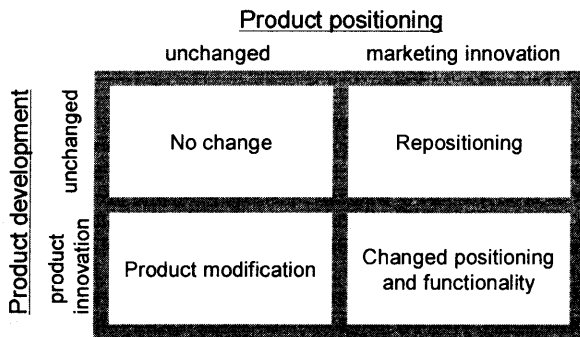


Figure 1: Independent marketing and product innovations, based on: Drummond, Ensor (2001: 219)

The present paper will argue that marketing innovations in software markets may induce product innovations, if companies show long-term commitment to the market and concerned product group, thus stressing the existence of interdependencies between positioning and technology development.

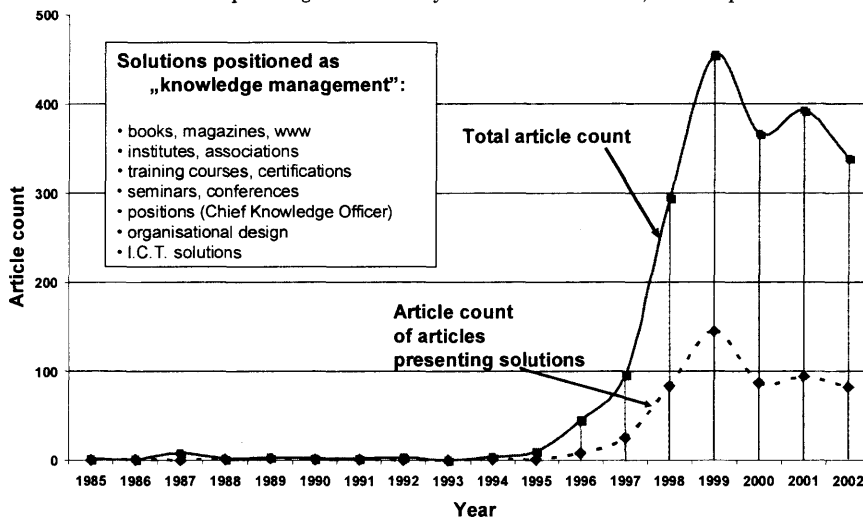
Knowledge management as organizing vision

Enterprise software can be regarded as packaged knowledge, with important aspects, which are not strictly technical, but related to business-related practices, while companies selling it act as translators of management concepts, helping managers apply them in organizational setting. Technology becomes in this way a “vehicle for mobilizing change”

(Scarborough, Swan 2001: 8). Compelling reasons to implement software are provided by new management techniques, dubbed “organizing visions” in Information Systems research (Swanson, Ramiller 1997): visions of how to manage organizations with IT support, usually establishing new types of information systems. Swings in popularity of these techniques, initially enjoying high popularity, but then losing their appeal, encouraged researchers to compare them with fashions (Abrahamson 1991).

The trigger for KM popularity was Nonaka’s article (1991) on knowledge creation, but Western views of KM departed from the perspective and focused on knowledge as a resource, stock which should be captured, preserved and distributed (Tuomi 1999: 294-296), blurring distinctions between knowledge and information management. In the meantime, companies were encouraged to launch various solutions, promoted as answering the KM-related needs, ranging from books and magazines, through training and consulting services to complex IT solutions.

Observers started explaining that “KM systems” did not exist, while specific technologies certainly could support



projects, involving changes to social subsystem and business processes. The promise of knowledge-related benefits by information management tools was one of mistakes, inhibiting KM projects (Fahey, Prusak 1998). Figure 2 summarizes results of bibliometric analysis of annual counts of articles referring to the term KM, which were decreasing since 1999, being slowly substituted by other concepts, in parallel to the declining popularity of KM solutions.

Figure 2: Annual counts of articles on knowledge management in ProQuest ABI/Inform

“Interpretative flexibility” of KM offered software vendors opportunities to interpret the concept differently by using it as a label for new products, or by applying it to already existing products to increase their sales. Changes affecting software solutions in such cases may only mean rebranding and repackaging previously offered systems, adjusting marketing messages to new popular concepts (marketing innovations), while the technology may remain unchanged (lack of product innovations).

Research methods

The selection of analyzed cases was based on lists of “100 companies that matter in Knowledge Management”, published annually by the magazine KMWorld (www.kmworld.com). Over the years, the lists contents were changing: for example, 53% of companies considered to play an important role in KM market in 2000, were no longer conducting any activities in this field by 2003. For companies from the list of 2003, corporate positioning statements and product literature were analyzed, and using iterative qualitative coding, we identified the following categories of software referred to as KM systems: (1) *Business Intelligence*, (2) *Business Process Management/Workflow*, (3) *Collaboration/Groupware*, (4) *Customer Relationship Management*, (5) *Document Management/Enterprise Content Management*, (6) *Enterprise Information Portal*, (7) *Search and Retrieval*. Additional investigation into the origins of these categories revealed that they emerged and developed independently from the concept of KM, offering many benefits not related to the KM theories.

From the various KM categories, 9 companies representing three groups were selected through theoretical sampling for detailed analysis of product development and marketing strategies in years 1996-2003. Their longitudinal strategies were tracked using qualitative methods, including *microstoria* approach, through computer-supported content analysis. We were emphasizing the need for a rigorous collection and examination of available evidence, and were constantly comparing various accounts of the same events. The documentary sources included: official corporate documents (press releases, marketing collateral), personal accounts of the events by employees (interviews, e-mail correspondence), as well as third-party documents, representing opinions of journalists, IT market analysts, partners and competitors (collected from databases ProQuest ABI Inform, M2 NewsWire, SEC, Gartner Reports and leading US computer magazines). The cited opinions enriched descriptions of actual developments and helped identify causal relationships based on temporal relations and explicit corporate statements (for example, product roadmap commitments included in marketing documents). The present text focuses on an element of the research program, concerning changes in positioning and product functionality, while other examined problems included also competitive cycles of innovation and imitation.

Cross-case and cross-category comparisons helped identify tendencies and generate model of strategic behavior, related to marketing and product innovations. The analyzed companies included:

- Open Text, Lotus (IBM), Microsoft – for “*Collaboration/Groupware*” category,
- Excalibur (later: Convera), Fulcrum (later: Hummingbird) – for “*Search and Retrieval*” category
- ServiceWare, Primus – for “*Customer Relationship Management*” category
- BackWeb, anonymous IT company – representing unique types of solutions, not classified in the iteratively constructed framework described above (these two companies were not included in KMWorld lists)

Research findings

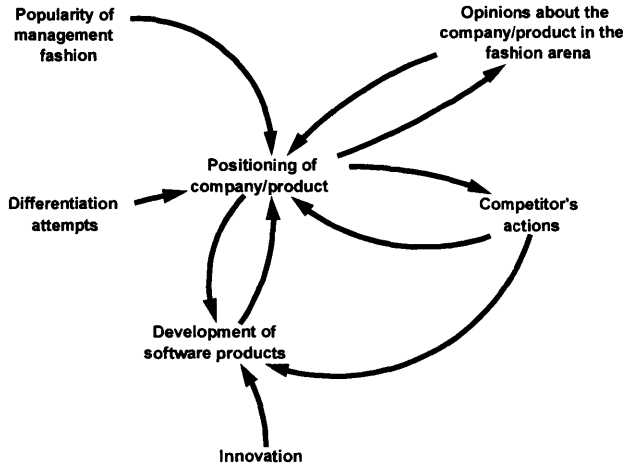
All of the analyzed companies introduced KM positioning when the concept was popular and later abandoned it. In most cases, changes in software positioning were responses to the activities of direct competitors – either as imitation (e.g. Lotus, offering product comparable with Open Text’s Livelink, adopted KM positioning in 1998, when it noticed the success of this competitor; Microsoft started promoting its solutions as KM later the same year, even though it did not yet have relevant products until 1999), or differentiation (when the first-mover advantages eroded). As summarized in Table 1, companies were promoting their own interpretations of KM, emphasizing the uniqueness of approaches, and apparent incomparability with other products. Companies abandoned the KM positioning in years 2000-2001 and found new differentiators – interestingly, firms that adopted this positioning first, were also the first ones to abandon it (although some companies, such as Open Text and ServiceWare, returned to it when the hype for KM was over).

	Company	KM positioning	Unique interpretation	Examples of product development induced by KM positioning
Collaboration/Groupware	Open Text	1997-2000	“ <i>collaborative KM</i> ”	1997 – Livelink 7.2: cross-departmental collaboration and knowledge sharing 1999 – myLivelink: collaborative portal aggregating internal and external sources of knowledge
	Lotus	1998-2001	“ <i>KM & learning gap</i> ”, “ <i>knowledge discovery</i> ”	1998 – architectural framework for KM solution partners 1998 – search engine for easy access to knowledge 1999-2001 – components of Raven/Knowledge Discovery suite 2000 – distance learning platform 2000 – K-Station – personal portal; real-time messaging – for sharing tacit knowledge
	Microsoft	1998-2001	“ <i>vision for knowledge workers</i> ”	1998 – architectural framework for KM solution partners 1999 – Digital Dashboard – personal portal; Grizzly – workflow 2000 – Tahoe/SharePoint Portal Server
Search & Retrieval	Excalibur / Convera	1996-2000	“ <i>knowledge retrieval</i> ”	1997 – multimedia indexing – access to all types of knowledge
	Fulcrum / Hummingbird	1997-2001	“ <i>enterprise knowledge portal</i> ”	1997 – Knowledge Network – search engine 1998 – integration of document management and search 1999 – Enterprise Knowledge Portal – integration of document management, search, portal and business intelligence
CRM	ServiceWare	1997-2001	“ <i>support KM</i> ”	1997 – Knowledge Pack Architect – self-support solution 1998 – integrating and bundling KPA with products of partners-KM specialists
	Primus Knowledge Systems	1997-2001	“ <i>knowledge-enabled CRM</i> ”	1999 – Associative Search Engine – searching e-mails as knowledge sources 2000 – advanced search and retrieval; real-time messaging

Table 1: KM positioning and product development for analyzed companies

Apart from marketing messages, all companies in 3 product categories introduced technical innovations to support their KM-related positioning and better address the needs of customers. Imitators, who repositioned their products as KM software in response to the success of competitors, were usually catching up by offering comparable features, or innovating by extending the functionality, so that they could claim that only they offer “genuine” KM solutions. Examples of such modifications included: Lotus adding search capabilities to its platform to justify marketing messages concerning easy access to knowledge, Microsoft developing Digital Dashboard as a cornerstone of its vision for knowledge workers, and ServiceWare releasing Knowledge Pack Architect as a platform for creating self-service knowledge applications. As it turned out, many of the sophisticated features developed in this way were actually not as much demanded by customers as the companies expected, and concerned technologies were later embedded in other products (for example Lotus Raven/Discovery Server, expected by analysts to set new standards for IT-supported KM, involving intuitive knowledge discovery and expertise location, was released in 2001, and due to disappointing sales results later the same year bundled with IBM e-business platform WebSphere, diverging from its KM roots).

In 1998-2001, the industry went through various cycles of imitations and innovations (which could be interpreted as



implicit negotiations over standards), establishing dominant product categories (in terms of positioning, presented benefits and terminology), as well as dominant technical designs. The emerging software categories were characterized by shared product functionality (technology level) and benefit statements (marketing level). Importantly, time lags between changes in positioning and product roadmap announcements, as well as explicit statements of vendors, imply that technology development was initiated and driven by commitments from marketing messages, which were promising even more benefits to customers interested in KM, thus forcing development departments to come up with new technical concepts, unrelated to existing technologies, but needed to support these claims. The process – confirmed for all all analyzed established knowledge management vendors from KMWorld rankings – is summarized by Figure 3.

Figure 3: Relations between product positioning and development

Two other analyzed companies, BackWeb and anonymous IT company, were neither listed by KMWorld as “matter in KM”, nor offering products in any of the previously identified core categories of KM systems. They turned out to represent a distinctive pattern of behavior: KM-related positioning was short-lasting (1-2 years), they did not propose own interpretations of the concept, and had no related product development activities. Interviews confirmed lack of management’s commitment to the market, with marketing specialists regarding KM as one of many buzzwords. The companies did not have any spectacular sales successes related to KM, and their approach clearly diverged from the previously presented category leaders, who maintained a balance between marketing and product innovations to create value for customers.

Discussion

While generalization of the findings is restricted, as they represent only one specific group of software solutions, this explorative study proves the possibility of interdependencies between marketing and product innovations. The conclusion about marketing innovations adding value to technology strategies counters the common interpretations suggesting that marketing communication and changes in positioning bring only confusion to the market and are misused by software vendors to manipulate customers and increase sales of existing products. As it was demonstrated by the case of “knowledge management” software, commitments from marketing messages and product positioning of established and respected IT companies induce new ideas and technology development. The research indicated also possible shortcomings of this approach, as sales of some products developed in this way were disappointing, as they seemed to be developed to guarantee consistency in marketing messages, not to address new customer needs.

The findings should encourage closer co-operation between R&D and marketing departments, where the latter’s role would not be limited to user research and market introduction of new products, but also encompass active stimulation of product development activities. This is particularly important in the case of software products, marketing innovations can help invent new uses and define new applications for existing technologies.

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