



Learning Management and Knowledge Management

**Is the Holy Grail
of Integration
Close at Hand?**

By the staff of brandon-hall.com

 brandon-hall.com

Web site: www.brandon-hall.com
E-mail: brandon@brandon-hall.com
690 W. Fremont Ave., Suite 10
Sunnyvale, CA 94087
Tel.: 408.736.2335

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Abstract

It's been said that every organization is perfectly aligned to get the results it is getting. The merging of knowledge management (KM) and learning management (LM) is a natural step towards better results. We've been watching the confluence of these two fields for a number of years now, and we're finally seeing evidence that they are beginning to merge. In this report, we try to give some form to the larger vision that is now emerging, which is combining LM and KM into one integrated program, process, philosophy and approach.

Introduction

In our recent report on *Building the Business Case for E-Learning*, we cautioned that, "The rapid growth of e-Learning brings with it dangers which are typical of movements or technologies blessed with wide acceptance in the business world. Foremost among these dangers is the tendency of some organizations and their leaders to rush to implement e-Learning without thinking clearly about how it links to strategic business goals. While most e-Learning implementations will generate at least short-term benefits, maximizing impact across the enterprise and over the long haul requires strategic alignment of e-Learning with an organization's mission, vision, values and objectives."

In this white paper, we address the following important questions about an area with great potential for greater strategic alignment:

1. Is the merging of learning management and knowledge management desirable and inevitable? Could the result be the more potent domain of intellectual capital management?
2. Can we arrive at commonly accepted definitions of the key concepts and processes, such as: intellectual capital, knowledge and knowledge work, content, learning management, content management, knowledge management?
3. Can we provide direction to vendors of systems and software as to what sorts of architectures, functions and tools would support the integration of learning management and knowledge management?
4. Where are we at with the coming integration, and what's next?

Intellectual Capital Management

Given everything that has been said during the last decade or so about the "skill shortage" and the direct linkage between an organization's financial performance and how well it communicates and uses its knowledge, it appears intuitively obvious that knowledge management and learning management should be more closely aligned. Specific reasons for such integration include:

- Both learning management and knowledge management share a similar focus: how to enhance human knowledge and its use within organizations. Professionals in both fields are increasingly looking for ways to categorize and store knowledge, using a database architecture as a foundation, but success is not yet at hand. Collaboration on this critical problem would certainly be beneficial.
- There is growing realization that knowledge in an organization is distributed among its people's minds and a variety of "knowledge artifacts" (human capital and structural capital). These are the currency for both knowledge management and learning/training work. For the biggest ROI, organizations must manage both simultaneously, as there is constant interchange between these two types of

“knowledge.” Specifically, e-Learning professionals are discovering that “you can’t do it all on the Net,” that to be really effective, much online learning must be blended with high-quality social interactions.

- Knowledge management initiatives are not as easy or as successful as anticipated. Robert Sutton, a professor of organizational behavior at Stanford University School of Engineering, says companies have wasted hundreds of millions on worthless knowledge management systems (*Computerworld*, Jan. 3, 2000). Learning management methods and tools appear well-suited to help. On the other hand, many training and e-Learning initiatives are criticized as being over-hyped and under-performing, in terms of actual transfer and application of knowledge to the job. Knowledge management perspectives appear, once again, to be a key part of the remedy.

This tendency towards more alignment is certainly going to extend to other knowledge and people-intensive disciplines such as human resources management, business intelligence, communications, document management and so on.

Broader, More Systemic Perspectives

Just as e-Learning has helped training people broaden their focus—from one of delivering classroom-days to one of delivering results to senior management—this further evolution towards intellectual capital management will help e-Learning people to expand their focus from one of managing learning content to one of managing the creation and flow of intellectual capital to maximize customer value. This will require in part greater awareness of the limits of knowledge capture and structuring, and of the benefits arising from communities of practice. Indeed, some organizations have in suitable contexts achieved huge returns from creating and supporting collaborative work, with relatively little investment in explicit training.

For their part, knowledge management people will need to acknowledge the contributions which their training and development colleagues can make to KM efforts. Because knowledge management is usually applied to high-level competency areas (strategy, planning, research, engineering, law, design, and so on), there is an assumption that people can only learn by doing. In fact, while it is vivid and engaging, learning on the job is neither foolproof nor efficient. Experts claim that to learn from experience, one needs to reflect on it; instructional design is required here. It is also human nature to over-generalize from too few examples, so even for tough competencies it is useful to provide learners with as many examples as possible from previous experience. Story-based content and activities are often useful here, but these require design effort as well. At their best, training people are great at structuring and activating information so that it is learned optimally—and at creating experiences which lead to development of new knowledge for the organization.

Obstacles to the Merging of Learning Management and Knowledge Management

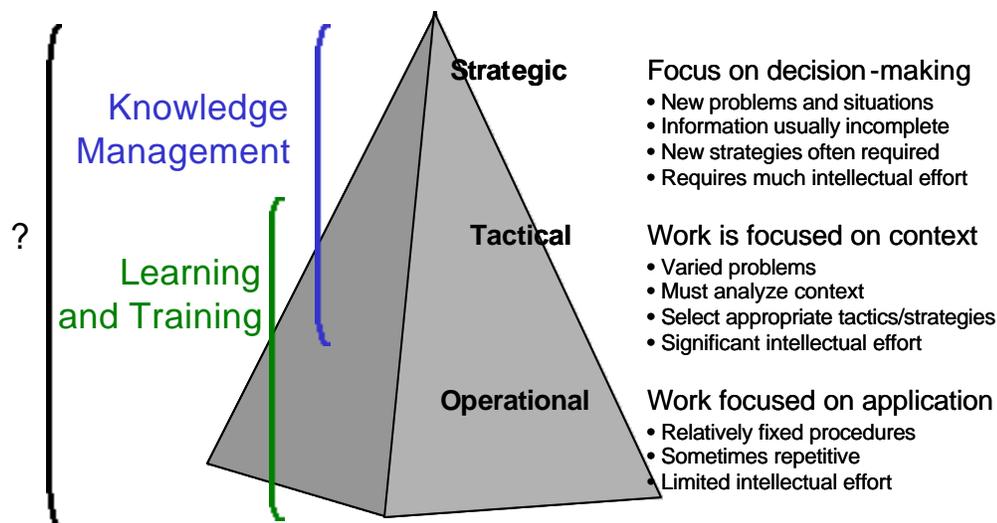
- **Organizational and functional barriers.** LM and KM professionals are far removed from each other in most organizations, so there are too few opportunities to talk. Structurally, learning management almost always resides within the training department, as part of HR. Even in those cases when there is a Chief Learning Officer, the LMS application resides in the training department even if the CLO doesn't.

For its part, Knowledge Management almost never resides within the training department, and in fact, there is almost never a typical place for the knowledge management function, people, and programs to reside. Knowledge management, like quality efforts, often have a special and unique place in an organization, and the people, department, etc., often resides very high in the organization, directly below the executive level. And, it is often unique to each organization.

- Complex and ambiguous concepts. Knowledge management concepts are among the most ambiguous and misunderstood. There is only partial agreement on the definitions of knowledge, content, intellectual capital and other basic concepts, leading to confusion and missed opportunities for collaboration.
- Divergent communities of practice. While this has begun to change, knowledge management and e-Learning/training people rarely attend or speak at the same conferences.
- Divergent technologies. Knowledge management and e-Learning have spawned totally different software sub-industries, with very few firms trying to serve both markets. Possible exceptions include LeadingWay and Generation21. Content and document management systems include virtually no learning or competency management functions, and learning management systems offer little support for content which is not structured training.

A Common Foundation of Concepts?

What content, activities and communities (knowledge, training and interactions) do the people working in our organizations actually need in order to provide the highest value to customers? It certainly depends largely on the nature of the work being done. It is useful to consider the following categories of work, proposed some years ago by Winslow and Bramer in *Futurework*.



A good part of the reason why knowledge management and learning/training workers haven't interacted very much is due to their differing clienteles. Learning and training applications for strategic work are relatively rare, as are knowledge management initiatives targeting operational workers. However, common applications are becoming more frequent, particularly in tactical work such as sales, customer technical support, entry-level consulting work, and so on. At IBM, where the key vehicle for enterprise-wide diffusion of strategic competencies is its global population of 30,000 managers, the firm has focused on leveraging e-Learning for core, critical and common (tactical) skills in the top priority area of management development (not just a strategic work area). In sum, executives are increasingly aware that it's all about bringing knowledge to bear on real work for demanding customers, whatever its type.

Knowledge

A very troublesome concept indeed, knowledge has a broad array of definitions. We find most useful the distinction between two main types of knowledge:

- Explicit knowledge:** The Big Dog site, a Web site created by Donald Clark that is devoted to training and e-Learning (<http://www.nwlink.com/~donclark/hrd.html>), says explicit knowledge is the kind of knowledge which "can be expressed in words and numbers and shared in the form of data, scientific formulae, product specifications, manuals, universal principles, etc. This kind of knowledge can be readily transmitted across individuals formally and systematically. Also, it can easily be processed by a computer, transmitted electronically, or stored in databases."
- Tacit knowledge,** again according to Big Dog, is "highly personal and hard to formalize...is deeply rooted in each individual's actions and experiences, as well as in

the ideals, values and emotions that they embrace. The subjective and intuitive nature of tacit knowledge makes it difficult to process or transmit the acquired knowledge in any systematic or logical manner.” Tacit knowledge is extremely difficult to capture; yet for complex work, it is likely more critical to task performance than explicit knowledge.

This simple classification highlights a key dimension of knowledge—its degree of “processing” or “packaging” or “structuring.” One of the keys of intellectual capital management will be to blend structured and unstructured knowledge in effective ways for different groups of workers. Perhaps at last, CEOs will have to follow a prescribed “basic skills” curriculum before being allowed to preside over whole organizations.

Here’s a great example of the difference between explicit and tacit knowledge, taken from Brown and Duguid’s excellent book, *The Social Life of Information*. A large manufacturer of complex equipment learned that putting knowledgeable people in closer proximity to those needing the knowledge was much more effective, timely and economical than trying to structure the knowledge into expensive training courses or case-based expert systems. Those with the knowledge were the technicians going out on calls and learning to fix a variety of problems—and also coming across a number of trivial calls that should have been resolved on the phone. Those needing the knowledge were the phone operators who set up calls, dispatched them to technicians, etc. When new communications technology removed the need for technicians to visit the call center to pick up their call list, these two groups stopped interacting, and the phone operators became progressively less competent in resolving issues on the phone. The solution consisted in assigning technicians periodically to handle customer calls, and in reorganizing the work space so that the technicians and the most experienced operators were near as many less experienced peers as possible. Tactical work at its best!

Intellectual Capital

Intellectual capital has been defined as “the sum and synergy of a company’s knowledge, experience, relationships, processes, discoveries, innovations, market presence and community influence” (W. Miller, cited in Madsen’s article). A distinction is often made between human capital—an organization’s people and the knowledge assets in their heads which they take home with them every night—and structural capital, the knowledge assets contained in processes, documents, courses, databases, etc.

In the last few years, much work has been done on the measurement of intellectual capital and on developing usable models to plan and monitor IC investments and returns.

Knowledge Management

Karl Wiig, considered by many to be the founder of knowledge management, defined KM as “the systematic, explicit and deliberate building, renewal and application of knowledge to maximize an organization’s knowledge-related effectiveness and returns from its knowledge assets.” In terms of output, knowledge management is about getting the right knowledge to the right people, in the right form and in a timely fashion, so they can do their best work.

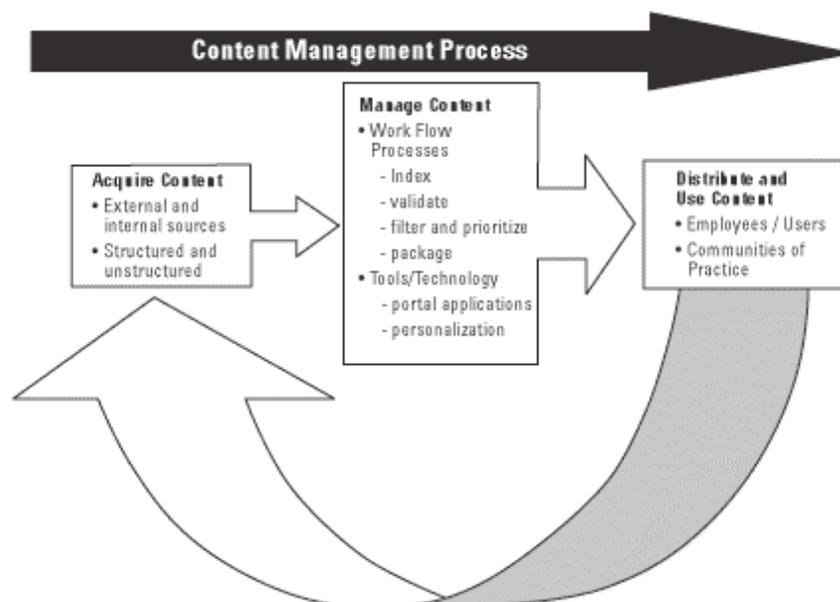
Managing knowledge is tough! Key realities are emerging from the trenches:

- Knowledge sharing is not a natural instinct.
- Knowledge is intertwined with organizational culture. Implementing KM in hierarchical, bureaucratic cultures is extremely hard.

- Knowledge is of little use unless it is turned into products, services, innovations or process improvements.
- Organizations must strive to balance the collection and organization of available knowledge with learning, innovation and the creation of new knowledge.
- Knowledge “pushing” and “pulling” strategies work best together. Personal responsibility for individual development is key, though.
- For some types of knowledge and some types of work, it is best to focus on supporting group interactions rather than structuring knowledge into databases and documents. Sometimes, formalized knowledge sharing can be stifling.
- Too much measurement can demoralize people and keep them from effectively using and sharing their tacit knowledge.
- The people generating and using the knowledge should be the ones to capture and structure it.
- Information technology is a key part of knowledge management, but it’s more important to understand how people actually use knowledge on the job.
- Once you accept that much of your organization’s intellectual capital is contained in people’s heads and is difficult to collect, you must quickly implement best practices in selection and retention.
- Knowledge management never ends.

Content (and Learning Content) Management

Content management is a large component of knowledge management. The APOC defines content management as “a system to provide meaningful and timely information to end users by creating processes that identify, collect, categorize and refresh content using a common taxonomy across the organization. A content management system includes people, processes, technology, and most importantly, the content itself.” The process is illustrated as follows:



On the e-Learning side, the recently formed consortium of learning content management system (LCMS) vendors claim that there is “increasing demand for technologies that will

compress the time to develop e-Learning content. In addition, there has been an increased demand at the managerial and end-user levels for more targeted or personalized learning to shorten an individual's time to performance through the use and repurposing of standards-based learning objects."

Intellectual Capital Management

The above ideas about foundational concepts and processes lead us to think that the key goal of intellectual capital management is optimizing the continuous development of the entirety of an organization's knowledge assets and their application to the creation of value for customers. Key processes would then include:

- Setting *priorities* for intellectual capital investments based on the organization's mission, value proposition and key competencies—and monitoring/managing these investments over time.
- Developing and managing individuals, competencies and communities (functional or cross-functional groups, project teams, customer or partner groups, etc.).
- Creating, refining and managing object-oriented structured content, for use by various user communities for diverse purposes, including sales, on-the-job use, training, further content structuring, etc.
- Describing, classifying and managing unstructured content (project documents, archived communications/interactions, etc.) so that it is available to those who should use it.
- Creating and managing activities (individual and group learning exercises, competency assessments, online conversations, individual and collaborative project work, mentoring, peer assistance, etc.) aimed at transferring knowledge to individuals, sharing knowledge among community members and/or putting knowledge to work for customers.

What Kind of Software?

Databases, information management applications and groupware are the warehouses, refineries and machines of intellectual capital management. Well-designed, powerful and robust software tools are critical to success.

Currently, the knowledge management and learning management software markets are for the most part evolving separately. The two markets are of comparable size.

The Learning Management Software Market

Analysts estimate that the entire e-Learning market will grow to \$11.5 billion by 2003, and that the LMS sector will represent about 10% of it. There are now almost 200 providers, but the market is expected to consolidate. By 2003, 60% of all companies might have an LMS platform in place.

The new crop of Learning Content Management Systems (LCMS), designed to store knowledge/course components at the object level, are likely the closest application yet to bridging knowledge management and learning management. The "content repository" has made its grand entrance in the world of e-Learning, opening doors to the single-sourcing of content throughout the enterprise and the rapid deployment and dynamic delivery of user-specific content and training. This evolution of LMSs, combined with related developments in learning content packaging and tracking standards (AICC, IMS and SCORM), has brought the learning/training field kicking and screaming into the world of robust relational databases, bringing it closer in line with how all enterprise data and information are managed, and closer in line as well with content management systems, a key component of many knowledge management implementations.

The Knowledge Management Software Market

In his introduction to an online learning activity about KM, J. Miguez says, "IDC estimates that the 1999 revenues associated with KM software licenses was just shy of one billion dollars, and while 2000 numbers are not yet known, the industry has already attracted significant interest from Wall Street and boardrooms across the globe. 2001 promises the introduction of peer-to-peer-based systems, greater experimentation with wireless applications, and combinations of e-Learning platforms, intelligent search engines, and growing corporate database systems yet unimagined."

Both the learning management and knowledge management software markets remain immature, with widely varying feature sets among products and diverging views about what systems should do and where the markets should be headed in the future.

Recently, however, vendors in the KM software market have begun to stake wider ground via the concept of an Enterprise Information Portal. In a 1998 Merrill Lynch report, an enterprise information portal is defined as "...applications that enable companies to unlock internally and externally stored information and provide users a single gateway to personalized information needed to make informed business decisions."

A recent article in an online InterDoc newsletter claims: "According to a study undertaken by the Delphi Group, the introduction of [enterprise information] portals will accelerate over the next two years. The leading applications will support knowledge and

learning support, business process support and support for customer facing activities. This set will be closely followed by collaboration and project support applications and access to data in corporate and legacy applications....This [is] a shift away from isolated applications to address discrete disciplines to an all-encompassing fundamental environment in any business." Such implementations would require key players in the corporate portal, LMS/e-Learning and knowledge management markets to join forces and more closely align their products.

What Should an Intellectual Capital Management System Do?

First, given the complexity and scope of the task, it is probably unwise to expect one system from a single vendor to support enterprise-wide ICM. Vendors who focus on open, standards-compliant, scalable and component-oriented architectures are likely to be the most successful in the long term. An overall ICM system should probably include the following capabilities:

User platform:

- Portal-based access to a variety of content, activities, communities and tools, based on user profile. (Tools and functionalities can be turned on or off, based on user or community profiles.)
- Powerful search capabilities across structure, content and metadata.
- Dynamic delivery/access to specific content, activities and communities based on profiles, assessment or other data, or queries.
- User-configurable proactive agents which monitor sources and repositories to automatically alert users to relevant new information.
- Wireless and other alternative access.

Creation and assembly of content and activities:

- Object-oriented content and activity creation and/or integration with leading XML and other authoring tools.
- Easy importing of external or existing content.
- Templating for content creation by general contributors.
- Powerful search capabilities across structure, content and metadata.
- Easy content reuse.
- Publishing to any number of devices, including Web.

Content and activity management:

- A relational or object-oriented repository (support for multiple repositories also desirable) of content and activities, which allows granular storage of XML content and all other formats, with descriptive and category metadata to facilitate retrieval.
- Integration of external content, portals, etc.
- Workflow, lifecycle, process automation and security functions applied to the validation and publishing of content.
- Automatic indexing of unstructured content, automatic categorization to a taxonomy and automatic creation of taxonomies to provide content in context.
- Link management capabilities for maintaining relationships among elements.

Development and management of individuals and communities:

- Integration of tools for virtual meetings, virtual workspaces, virtual classrooms, discussions, group scheduling, etc.
- Management of individuals, competencies, expertise, temporary and permanent groups/communities.
- Peer-to-peer information sharing.
- Features to allow users to rate content, provide alternatives and comments.

Manager and administrator platform

- Monitoring and reporting for “people managers,” training coordinators, knowledge or content managers, etc.
- Management of resources and facilities for training, meetings, etc.

Connectivity and integration

- Integration with ERPs and other corporate applications.

Are We There Yet?

While the merging of learning management and knowledge management is in its early stages, there are numerous signs of the coming integration. Here are examples of what some smart organizations are already doing, as well as interesting developments to watch:

- In our recent *E-Learning Across the Enterprise* report, two European organizations we studied had both gone a long way towards integrating e-Learning and knowledge management practices, with encouraging results. Shell Exploration & Production, for instance, has largely succeeded in integrating HR, recruitment, retention, knowledge management and learning strategies. Notably, it has understood the complementary relationship that exists between e-Learning and knowledge management. Shell's e-Learning is integrated with—and is complemented by—several KM components, including a Web-based expertise directory, numerous knowledge-sharing forums, and eight centers of excellence.
- Most e-Learning success stories are those where the social, collaborative side of learning is well blended into online, packaged learning activities. Knowledge management professionals already focus on this aspect, because their clientele often perform strategic work in a team environment.
- Increasingly, e-Learning/training conferences include knowledge management presentations, and vice versa. There is much common discussion about learning and knowledge objects, classification and taxonomies, XML, portability, ROI on money invested, etc.
- Centra, a leader in supporting the “people” side of e-Learning and group work, acquires MindLever, a leader in learning content management. One of the reported reasons for the purchase is that over 60% of Centra's clients want to purchase the archived contents of those conversations, rather than the live product. If that isn't a blurring of the line between training and knowledge management—as well as between explicit and tacit knowledge—we don't know what is!

We look forward to continuing exploration and discussion of these important issues. Let us know what you think!

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