

# Buckman Laboratories Learn'ing Center

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*At any given time 86% of Buckman Laboratories' 1,300 employees are out of the office working with customers located in 102 countries. This diverse and dispersed workforce presents special problems for the creation and management of the company's intellectual capital. Faced with these challenges and the need to bring new knowledge and skills to its employees in a cost effective manner, Buckman Laboratories has created an online, multi-lingual learning centre. Its goal is to create a learning centre for delivering and facilitating world-class training and educational opportunities, when and where they are needed by the employees.*

### INTRODUCTION

*"If an organization  
isn't constantly  
learning and*

*improving, it's dying, and someone else is taking over its markets and customers. "*

Ken Blanchard

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Corporate universities and learning centres are natural extensions of the Knowledge Management revolution currently **sweeping industry** and academia. Except for early pioneers such as Motorola and Dana Corporation, these business units are relatively recent phenomena in the strategic management of intellectual assets. Corporate universities and learning centres seek to create knowledge as well as facilitate its distribution amongst associates. That knowledge includes explicit or book knowledge, which was the pervue of training departments, as well as experiential or tacit knowledge of associates. Another evolutionary step from traditional training departments is the growing realization and acceptance that learning need not happen in a centralized location in front of an instructor. Time

away from home, increasing travel costs, and more importantly the opportunity costs of withdrawing an

employee **from their** assigned task or customer are all driving forces behind the growth of virtual or technology enabled learning.

Buckman Laboratories is a privately held \$300 million dollar global specialty chemical company based in Memphis, Tennessee, USA. With its approximately 1,300 employees (associates) scattered around the globe, creating, nurturing and sharing the knowledge of the company is a daunting task. Since our founding in 1945, Buckman's associates have been widely dispersed, necessitating creation of strong lines of communication and the

reliance on the skills and capabilities of the individual. As communications technology matured Buckman has been on the early adopter track in an attempt to give associates greater opportunity to leverage the resources of the company.

In the late 1980s Buckman embarked on a journey to tie its associates together in a virtual community via K'netix (the Buckman Knowledge Network). K'netix allows associates to participate in virtual discussion groups around the flow of industry specific and general company information. While K'netix allows for synchronous and asynchronous discussion, directed learning opportunities were limited. Training and education continued to be delivered in the traditional 'bricks and mortar' classroom fashion. With the proliferation of Internet and other computer technologies through the first half of the 1990s, the ability to provide electronic learning events and opportunities grew to the point that it has become feasible.

At any given time 86% of Buckman's associates are out of the office in one of the 102 different countries we do business in, is speaking one of our more than 15 different languages. This diverse and dispersed work force presents special problems for the creation and management of the company's intellectual capital. Knowledge Management and learning events often need to happen over great distances and time.



Faced with these challenges and the need to bring new knowledge and skills to its associates in a cost effective manner, Buckman embraced technology-enabled learning in 1996 and began experimenting with Lotus' novel educational product - LearningSpace™ . This experimentation led to the creation of a multi-lingual, on-line learning centre, The Bulab (truncation of Buckman Laboratories) Learning Center. The mission statement for the Bulab Learning Center was created with much attention paid to the success and development of the associate:

"The Bulab Learning Center will support the company mission by delivering and facilitating world-class training and educational opportunities, when and where it's needed. We will empower associates to manage their personal and career development, create competitive market advantage and engage customers with our products and services."

This author assumes that the case for Knowledge Management has been more than adequately made in previous papers and will instead focus on the steps necessary for creation of a virtual learning and Knowledge Management tool - the learning centre. This paper will look at developing a business case for a virtual learning entity, building a virtual learning centre, virtual pedagogy, human resource development and strategic Knowledge Management issues.

## **BUSINESS CASE**

Competitive markets are demanding cost effective and focused investment in the business, technical skills and problem-solving abilities of associates. These associates require point-of-use and just-in-time training and educational opportunities in order to deliver to value-added services and knowledge to customers. It is not enough to simply provide regularly scheduled learning exercises, they must be timely and relevant. What better time to learn a subject than as that activity looms on the horizon.

Training and educational investments must add value to sales, marketing and business processes. In other words, they must, in a measurable way, increase customer satisfaction, sales and profitability. To realize the true value proposition of globally co-ordinated training and global knowledge standards, investments and returns on those investments should be measured, tracked, periodically benchmarked and evaluated. The only way to sustain this competitive advantage is proactive stewardship of the knowledge base residing with the company's associates.

Training expenses continue to outpace the inflation rate, and are becoming an increasing burden on a

firm's overheads. At Buckman the average costs per associate per day in a Buckman facility is now in excess of \$1,000. This includes transportation, lodgings, meals, the instructor, the room, equipment and other supplies required for the training event. International associate expenses are even greater. The greatest costs in the process, however, do not appear on the ledger. Opportunity costs and time away from home (tied to employee satisfaction) are far larger drains on the cash flow of the company. This is not to say that training is a poor investment, but rather that it must be scrutinized to provide value to the company.

In many cases the virtual university can provide cost effective alternatives to traditional training events. Virtual learning centres can increase the value of face-to-face learning events by shifting the more rudimentary learning or knowledge to a self-paced module that the learner completes before attending class. Technology can also shift the synchronous classroom to the virtual world. Learning activities can be delivered synchronously through video-conferencing or via the computer desktop. Other content may lend itself to delivery as self-paced modules (web or computer based training) or asynchronous instructor facilitated learning events using tools such as Lotus' LearningSpace™.

## **Problem Definition**

As with any new business endeavor, the first step is to create a business case or justification for the project. At Buckman, Juran's problem-solving model is used as the basis for problem definition and resolution. The gap between the current state and a desired future state is essential for proper problem definition. Our challenge proved to be the need for Buckman to deliver a greater breadth and quantity of quality learning experiences to our associates cost effectively.

This challenge is becoming increasingly common at companies as they strive to unleash the potential of their collective intellectual assets and develop a sustainable competitive market advantage. Feedback and buy-in by senior management at this stage are crucial to the success of the programme. Any effort will require significant redirection of human resources and capital. The average US learning centre or learning programme has an annual budget of \$10.7 million or 2% of payroll.

## **Goals and Objectives**

This phase of the process involves feedback and participation of a large representative population of the company. A global as well as business unit needs assessment measured against strategic plans

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and recent performance will determine the target audiences and the content or learning to be delivered to them. This needs assessment should allow for segmentation of **the population by job activity, business unit, education level and years employed (total and current job activity).**

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**Considering this needs assessment and further** input from

management; goals and objectives then can be determined and set for the project. Then as with other projects, a strategic planning exercise is conducted to create a project plan, scope and time table. The significant points at this stage are the buy-in of senior management and the development of a good project plan.

### Implementation Planning

The implementation plan for the Bulab Learning Center leverages the company's existing communications and intranet infrastructure, subject matter experts from the business units, and the wealth of talent found in our global associates. There were four stages of this plan: design, implementation, marketing and continuous feedback mechanisms.

### SITE DESIGN

The ideal virtual university will be designed and built to facilitate the transfer of knowledge and to impart the explicit and tacit knowledge of the company to associates in need of that knowledge. Learning structures should minimize the time needed and the number of transmissions between the knowledge repository (with whom or where the knowledge or learning exists) and the associate that requires the knowledge.

Access to the virtual learning centre should be unrestricted by the learner's physical location, unencumbered by technology, language restrictions, time and space. Learning should take place in the same type of

environment in which the associate will work and allow for the input of both the subject

matter expert and the learner. Associates should be able to actively participate and drive their own career development.

### Technology and Infrastructure

This is not a paper on technology, but some discussion of the subject is warranted. Sufficient infrastructure is critical to the success of a virtual learning centre. Ideally the learning centre will be able to leverage the resources of the company's information services (IS) departments to provide a carrier for its content. At Buckman an existing intranet was used to house the learning centre and reduce the time and resources necessary to deliver content. The CompuServe network provides the international gateway (local telephone access) into Buckman's K'netix system. Figure 1 shows Buckman's intranet infrastructure.

Without existing intranet or Internet capability the perspective learning centre will need to explore the creation of that infrastructure or out-sourcing to an independent hosting service. The former option will often be cost prohibitive if additional business units can not leverage the infrastructure. External hosting offers a more cost effective solution to the learning centre. When exploring external hosts issues such as redundancy, telecommunications, 24 x 7 support (24 hours a day, seven days a week), and accessibility should be discussed and aligned with the goals of the learning centre.

Because the charge of the learning centre is to deliver learning opportunities, the infrastructure should be built using tools that minimize required

Figure 1 : Possible model for a corporate intranet

Table 1 : Virtual delivery options for learning content

**interaction**

Method	Comments		Instructor	interaction
	Synchronous	Asynchronous		
Video-conferencing		x		
			x	
CBT				Development costs are more on-line with traditional training expenses. High infrastructure costs and bandwidth requirements. Best option for real-time instructor interaction. Delivery limited to regularly scheduled events. Easily modified to meet changing business goals.
WBT			x	
				x
			x	
				Rich multimedia is expensive to produce. Just-in-time delivery is not possible in a widely dispersed company. Limited instructor interaction. Rapid modification is difficult, content tends to be more static.
				Content and learning experience relies on available bandwidth and smart instructional design strategies. True just-in-time delivery via remote web access. Modifications are deliverable as soon as completed.
				Traditional correspondence school strategy. Learner directed. No student

instructor interaction. Technology-enabled delivery can create just-in-time. Modifications to existing materials are difficult and rely on the actions of the learner.

x

x

Print material

systems training and time spent on design and technical issues. Ideally non IS professionals should be able to change content and modify much of the virtual learning centre, without the need to become programmers. Tools such as Lotus' Domino™ and Microsoft's FrontPage™ facilitate design and content modification by most associates. The lure of technologies latest 'bells and whistles' are often strong, but must be kept in perspective with the goals of the learning centre. Content and learning objectives should drive the technology employed, not the reverse.

#### Delivery Options

The project plan should define the human and capital resources necessary to create the learning centre, what existing resources can be leveraged, and an internal marketing plan. There are several delivery alternatives that should be explored when creating a virtual learning centre. The virtual

learning centre can deliver content in a variety of ways. Table I lists some of the delivery options for virtual learning. The market for delivery tools is growing as fast as technology and bandwidth on the Internet allow.

Selection of delivery tools should be driven by the type of content that is slated for delivery. Learning should take place when possible in the same environment in which associates must work and compete. At Buckman, given the dispersed nature of our work force, our bias has been the choice of asynchronous delivery tools over our corporate intranet. Buckman consists of many virtual communities of purpose that form around issues and then disband when they are resolved or the associates are assigned to new responsibilities.

Asynchronous collaboration is facilitated through the use of tools such as Lotus Notes and LearningSpace. Learning in this environment of virtual collaboration

enables associates to develop communication and collaboration skills not taught in traditional academics, but that are necessary to prosper under our system. Collaborative tools allow subject matter experts and associates to interact and exchange information without the need for direct communications. Knowledge is also captured electronically in this process and can be used to enrich future learning events.

**People best learn when the materials they are learning are presented to them in their native language, in a cultural setting that is**

An effective translation function will minimize the cost time translators spend doing things other than

translations. The general rule of thumb is that a good translator can contextually translate 2,000 words per day. The goal of technology-enabled translation software should be to optimize the number of unique words and phrases a translator handles. Traditional methodology employed a

**Multi-cultural and Multi-lingual**



familiar to them. This presents significant challenges for centralized production of learning content that is distributed globally. An ideal system will remove the language and virtual burdens from both the learner and the subject matter expert. The user should seamlessly receive content in a cultural acceptable format in their default language, The subject matter expert should also be able to work within the virtual university in the language of his choice. Learning content ideally will be generated in the language of the subject matter experts and then translated into the languages of the learners, keeping the context sensitive to the culture of the learner as well.

translator who began with the original

document and translated the document word for word. Technology-enabled translation can optimize the translation's process, by pre-editing the documents, automated routing of work flow, sentence and lexicon memory and dictionaries. Under the technology-enabled translation's concept, the translator is routed a machine translated document (that has made lexicon and sentence recommendations) that can be post edited and then routed on to the next process step in the learning centre.

To accomplish these goals requires an effective language and cultural translation function. The traditional translations function paradigm is shown in Figure 2. This paradigm shows that to move in to any one of the three points (quality, time and cost) on the triangle would require sacrificing one or both of the issues in the triad. For example, a move towards increasing quality would require additional time and or cost more money.

The translation function may reside within the company or be outsourced to contractors. This decision depends on several variables, including: the volume, timeliness and strategic importance of translated materials to the company. The more emphasis placed on any of these variables strengthens the case to house at least part of the function in-house. Typically the cost structures of contract translation services are approximately double (\$0.20 to \$0.40) when compared to a fulltime (assuming enough work to fill available work time) translator using machine translation software. Contract services are much more attractive when the need for translations is variable and not time sensitive. Translation services can also be used to complement staff translations' services in times of unexpectedly high volume.

Technology, as with many traditional paradigms, is remolding what is feasible. Technology-enabled translations are optimizing translation functions to levels considered unachievable just a decade ago. Unfortunately, technology has yet to replace the intuitive sense of intent and spirit that human translators are capable of discerning. Although that 'perfect' machine translation is still some time off, technology can perform many of the repetitive tasks that translators must complete to translate a document.

**Figure 2: Traditional translation function paradigm**

## Design for Language and Culture

An effective international learning centre will deliver learning events and information to the learner in the language of their choice and relevant to their geographical sphere of responsibility. The virtual learning centre should be built upon a series of templates. When the user enters the site or requests information the system should populate the templates with the correct language and with geographical relevant content.

For example, an Australian user seeking financial training receives material in English with an Australian context (regional business laws and currency information). A South African associate **seeking similar content should** be given the choice of English or Afrikaans, but with the Rand and financial or customer information targeted to South Africa. This requires the use of object store databases and modularized content. However, with some foresight on the front-end this removes the requirement of maintaining separate sites for each language supported.

## FOCUS GROUPS AND FEEDBACK

Focus groups and feedback are the bread and butter of a learning centre. Input on usability and learning goals and objectives are critical to the success of a learning centre. At Buckman we regularly hold focus group sessions where we place associates from various parts of the company in front of a computer and ask them to accomplish a task. Application developers and instructional designers are encouraged to watch, but not participate in the focus group sessions. Following the sessions analysis of the focus group's feedback sets the agenda for application and content evaluation. Associate feedback drives the modification, technology and direction of many learning activities. One of our first lessons was that early audience intervention in the design process tended to reduce the modifications to the application during its pilot programme.

Learning centre's should let the business units drive their content creation priorities and agenda. Participation and buy-in by the business units is critical to the success of any new application. Without the active participation and feedback of the business units and target audiences new learning events and activities are doomed to a series of corrective action steps and limited management support. When business units participate in content development and system design, relevancy of the content, commitment to the process, and ownership of the content are much more likely than development in a vacuum. A learning

centre should facilitate the company's ability to transfer knowledge to associates of the company.

Ownership should reside with the business **units that are held responsible** to business goals.

## AUTHORING PROCESSES

The authoring process in a virtual learning centre provides the instructional designer and trainer with special challenges not found in traditional training initiatives. Stand-up trainers are able to gauge the reaction of their audience during delivery of the learning activity. The virtual designer does not have this luxury, instead he or she must look to focus groups, the target audience and various electronic feedback mechanisms. The virtual designer must understand how adults learn in a world where the instructor is not watching every move of the student and where the student is directing the learning experience.

Virtual courses and website design live and die on the ability of the user to navigate and learn. Focus groups can prove design concepts, by measuring outcomes versus expected results. On-line feedback mechanisms can point to the amount of time spent in a given area of the course, the direction and areas learners were generally attracted to and comment sections allow the learner input throughout the learning event. Assessments and behavior monitoring can be accomplished using several models. At Buckman we have been working with Kirkpatrick's four levels of evaluation to determine the effectiveness of learning activities.

Level I - the effectiveness as perceived by the trainee. Did the learner enjoy the learning activity and perceive it to be useful?

Level II - measured evaluation of learning. Objective measurement of learning objectives using assessments.

Level III - observed performance. Was the intended change of individual behaviour accomplished?

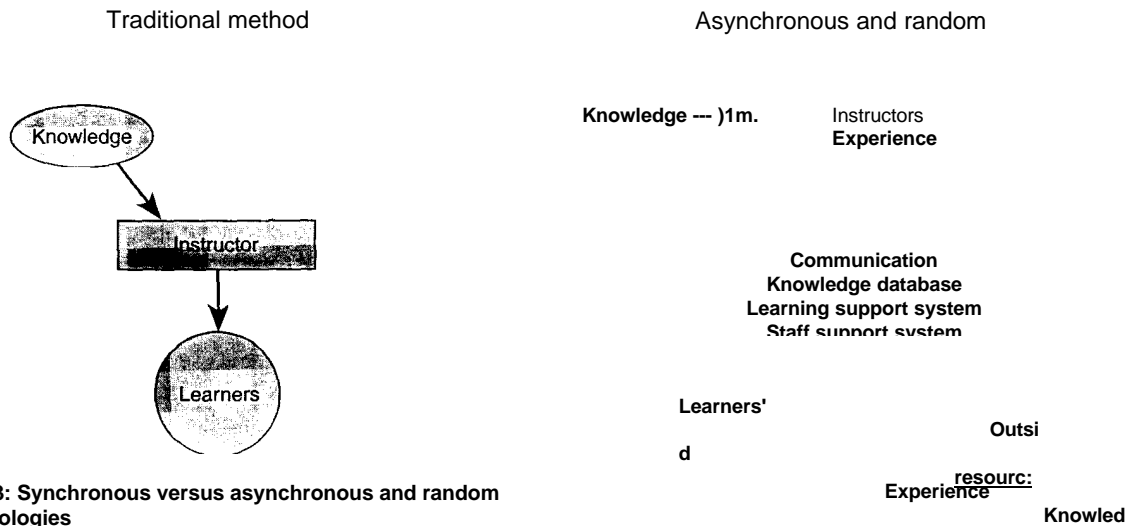
Level IV - business impact. Was there a positive impact on the business functions of the company that the training was designed to impact?

## Involvement of the Audience

One side effect of both the standup and virtual justin-time training movement is the participation of managers in the process. Because of the greater quantity and breadth of content, the virtual learning centre or training function cannot provide enough 'trainers' to train all the subject

areas the company requires. Instead, many traditional trainer roles are being pushed to the supervisor or manager, with facilitation and resources provided by the learning centre.

[194].-- Journal of Knowledge Management Volume 1 Number 3 'March 1998



**Figure 3: Synchronous versus asynchronous and random methodologies**

The company realizes several benefits of this new reality. By involving line managers in the delivery of **training, designed** to help them meet their business goals, commitment to the process and follow-up is much more likely. Secondly, the manager also learns the content by first learning the material then teaching it to his or her direct reports. Finally, by involving subject matter experts and managers the ability of the learning centre to reach out into the organization is increased exponentially.

Traditional training activities were designed to transfer knowledge from the instructor to the student. Figure 3 depicts the traditional model as well as a new model that we are working with at Buckman. The asynchronous and random model allows for multi-dimensional learning opportunities and knowledge sharing for the learner, the trainer and the company. This model leverages in-house subject matter experts (SMEs), student experiences, and outside resources that can be incorporated into the virtual learning centre. Electronic collaboration collects and tracks the flow of information and provides the instructional designer new information to continually improve the learning activity.

#### MEASURES OF SUCCESS

How does senior management know that their investment in a learning centre will bear fruit? What type of return on investment can they expect? These are questions that any learning centre manager can expect to be asked in the first year of development. They are difficult questions that are often impossible to answer to the satisfaction of management. Learning Centres are often launched as part of the vision of a senior manager. Visions are particularly

difficult to measure. Often hindsight is the only or the best tool available to assess the return on a vision.

To realize the true value proposition of globally coordinated training and global knowledge standards, investments and returns on those at investments should be measured, tracked, routinely benchmarked and evaluated. Very early in the process internal benchmarking needs to happen to determine the current state of affairs. How much is the company spending on training today? Often this information is scattered among many business units and accounts. Training expenses can include items ranging from projector rental to sales meetings or the bar tab after the training session. A baseline metric provides the learning centre with some starting point to measure its progress. There are several metrics that can be used to provide input on the effectiveness of the learning centre.

e Associate retention and turnover numbers.

Time and expense needed to move a new hire to productivity.

Associate market profitability contribution.

Product sales from products less than five years old. This time frame will vary according to the industry in which the company participates.

Money saved from more effective allocation of training resources and learning events. For example, can a five day training programme be trimmed to two days on site with three days of self-paced learning prior to the learning event.

Consolidation of previously duplicated efforts.

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There are many more measures of success that can be measured and tracked to prove the learning centre concept. The salient point here is to create a base line benchmark and then measure against it. Benchmarking the competition is another proof of success against industry standards. A successful learning centre manager, however, will know his or her costs (actual and hidden) and be able to point to the value-added to the business units within the company.

## KNOWLEDGE MANAGEMENT ISSUES

The information revolution is credited with changing the business landscape created by the **industrial revolution**. The traditional command and control structures based on military hierarchies are crumbling in the face of leaner, more associate empowered organizations. These effective organizations compete on multiple levels, from corporate to the individual associate. In those companies where the associates have rapid access to the knowledge of the company and industry best practices, innovation, speed of response and effective business processes create competitive market advantage. Lester Thurow in *The Future of Capitalism* states that "Knowledge has become the only source of long-run, sustainable competitive advantage." It is this Knowledge Management premise that should be at the foundation of all learning centre efforts.

To effectively nurture this competitive advantage, Buckman is transferring the responsibility for personal development to the individual associate. Mission critical learning is still sponsored by the company, but the access to complementary education, both academic and skills based, is given to associates. The keys to success are given to each associate when they begin their career, the extent to which they avail themselves of this opportunity is their choice. Associate driven learning gives associates the ability to access learning when and where they need it to succeed in their job. Associates can hold no one but themselves accountable for their continuous learning and development.

Tools to measure the associates' development need to be put into place. Associates need to have a clear understanding of what skills and results the company deems necessary for success. Virtual learning centers can give associates access to their training history, and provide information on expected job skills by position. Both the associates and their manager should have remote access to gap analysis tools that help shape development programmes. Embedded within the gap

analysis tools should be the learning activities that will transfer the learning and skills to the associate.

The journey towards becoming a learning organization is a long and arduous one that never ends. There are many pitfalls and shortcuts along the way that can distract and redirect the company away from this goal. The focus of any learning centre should be to provide associates with the ability to drive their own career development and to give business units the Knowledge Management tools to sustain competitive market advantage. Learning centre's can play an important role in organizations that recognize and hold continuous learning efforts in high esteem.

Learning needs to be integrated into the everyday life of the company. Horst Schulze, President of the Ritz-Carlton Hotel Company, advocates daily learning. Once a month training is not effective; people need to learn something new every day. Ritz-Carlton employees have short on-the-job daily training exercises, and most of those sessions are interactive dialogue involving the entire work force. The virtual learning centre can provide that continuous learning to a centralized work force or widely dispersed groups. By providing almost unlimited access to learning, the company is like a train leaving the station. It is up to the associate to get on board or be left obsolete and standing alone at the station.

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## CONCLUSION

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