



Organisational benefits of e-learning

An epic white paper

WWP

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Introduction

What are the benefits to an organisation of e-learning? Is it just a cut price way of delivering training, or a means of facilitating new types of organisational learning?

Where is the proof that e-learning can make any improvements on the more traditional methods of classroom and workbook? And what role, if any, does it have to play in transforming an organisation to meet the challenges of the twenty-first century?

This paper argues that too great an emphasis on cost cutting in preparing business cases can blind organisations to the real strategic potential of e-learning. Drawing on numerous research studies and case histories, it outlines the way ahead for organisations who wish to reap the real benefits

of e-learning and knowledge management by aligning their organisational learning with strategic goals.

Summary

Most e-learning programmes quite rightly start with a business case. A well-argued, carefully analysed business case is essential to determining whether a major initiative is going to justify its cost.

However, in the case of e-learning, it has often been difficult to quantify the positive benefits to the organisation. Therefore, its 'negative' benefits - its ability to take cost out of training delivery - have tended to dominate the argument. Cost savings have been easier to prove, and thus many organisations have tended to build the business case for e-learning around how much the organisation would save by using web-based delivery.

This focus is perhaps the result of training's traditional place within the business landscape.

Historically, it's been seen as a cost centre; a less than vital expense which in hard times would be the first budget to be shaved.

What often gets lost is the fact that classroom training (the major constituent of traditional organisational learning) has never been an entirely satisfactory medium for the job at hand. Also, with the developing shape of the global enterprise, it has arguably become increasingly outmoded.

There's a danger that in focusing on 'doing what we do already, but at lower cost', a whole set of extended potential benefits that, crudely put, can be grouped under the heading of 'doing things we couldn't do before' get overlooked. This paper seeks to flesh out the extended benefits that arise from harnessing learning to strategic organisational objectives.

Extended benefits of e-learning

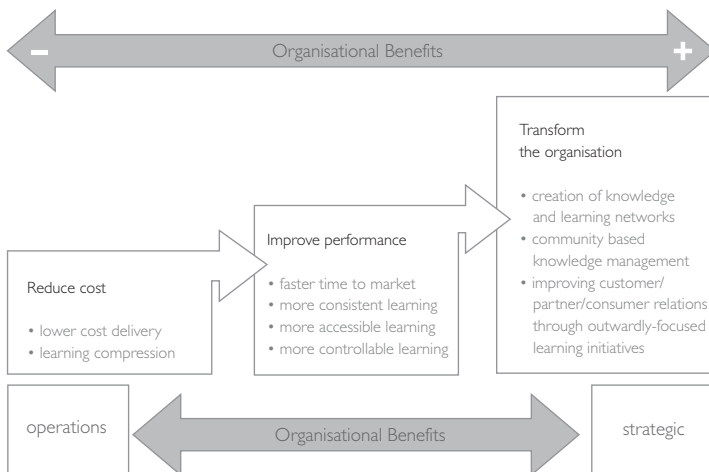
Of course, taking cost out of training delivery is in itself a powerful thing which allows the rollout of programmes previously too expensive to contemplate (particularly on a global scale). Lower cost can also have a time implication, helping to enable faster time to market.

However, cost cutting as an objective is far from being the whole story. Rather, it represents a first level group of benefits, which sits within a process of an ever more integrated and strategic appreciation of the role of learning within the

organisation (see diagram).

Another aspect to consider is the changing perception of learning. This has been driven in recent years by the growing belief that 'intellectual capital' is the major value creator within today's organisation – and a completely new set of challenges that this belief provides to those wishing to increase the value of knowledge-driven enterprises.

Figure 1: Integration of e-learning with strategic organisational objectives



Growing intellectual capital through e-learning

"We believe that intellectual capital will be a defining characteristic of successful companies." Credit Suisse First Boston

The performance of an organisation is seen as increasingly dependent upon its intellectual capital, i.e. the skills, knowledge and experience of its staff. This creates a major challenge for organisations as the value of intellectual capital declines over time. This obsolescence is caused by:

- Rapid technological change
- Legislative and social change
- An increasingly complex environment
- Vast amounts of new information and knowledge
- Staff turnover

It is therefore essential that organisations develop learning and knowledge strategies to ensure staff skills, knowledge and experience remain relevant and valuable. There is growing

evidence that e-learning can play a significant role in organisational learning strategies and have a major impact on organisational performance. In fact, recent studies as part of a 2009 meta-analysis conducted on behalf of the US Department of Education, suggest e-learning provides better learning experiences than more traditional models. In other words, people learn more, faster.

E-learning is also much more than a mechanism for delivering content. It supports collaborative learning and knowledge sharing by connecting people together and building learning networks. These communities of practice promote community-based knowledge management. Fundamentally, learning has become an integral part of business activity and an important means of creating competitive advantage.

First level benefits

Reducing costs in learning

Lower delivery costs

'There is very strong evidence that e-learning reduces the total cost of training when compared to instructor led training.' Brandon Hall, 1995. In practical terms, Ernst & Young experienced a 35% cut in costs by introducing e-learning (Hall 2000). Similar savings were highlighted by Max Zornada in 2005 in his studies of Cisco and Motorola.

E-learning's ability to significantly reduce costs by providing more efficient delivery of learning is well documented. This stems from:

- Delivery of learning to the desktop: This results in less downtime to travel and attend learning events, and lower travel and subsistence costs
- Delivery of learning material online: Online

delivery rather than in printed form results in less printing and distribution costs and lower maintenance/updating costs

- Delivery of learning online with less tutor support. This results in lower tutor and classroom costs. For example, the conversion of a two day course to a one day course plus e-learning for 30,000 staff, results in 3,000 fewer tutor days and fewer classroom facilities being required

While e-learning can be more expensive to develop, these costs are normally outweighed by lower delivery costs. Generally, the larger the target audience the greater the benefits as the development costs can be spread over a larger number.

Reductions in travel and subsistence costs

Delivery to the desktop or local PC means that there are significantly reduced travel and accommodation costs associated with training.

Reductions in printing and distribution costs

In our recent work for a large finance organisation, the printing costs alone for training materials were in excess of £2m per annum. This is now drastically reduced.

Easier, cheaper and faster to update

E-learning can be updated more quickly and easily than classroom or paper based training. New regulations, for example, can be incorporated quickly into an e-learning programme and made available instantly to staff. Faster learning through e-learning also means staff are more productive more quickly.

The objective of reducing costs through the use of e-learning

is gathering more and more importance, particularly as spend on training per employee fell from £300 to £220 in 2009 (CIPD).

Case studies of delivery cost savings through implementing e-learning

There are many case studies of cost savings being achieved through the use of e-learning. We've summarised some examples below.

- In 2010, British Airways announced that their award winning 'Aviation Medicine' e-learning programme, developed by Epic, would reduce training costs by £1.1m over 3 years
- 'Protecting Information', another e-learning programme developed by Epic, on behalf of the Cabinet Office, had generated an estimated £20m cost savings across government in 2010
- In 2009, McDonald's UK stated that the use of e-learning had generated

over £1m of cost savings in the first year. McDonalds indicated that they had reduced training costs by nearly 50% by switching to e-learning

- In 2009, SA Brains and Co made savings of over £70,000 by ending reliance upon classroom-based training and workbooks and embracing e-learning
- In 2008, BT announced the Dare2Share e-learning project would, at a conservative estimate, deliver total efficiency savings of more than £8m a year in employee time as well as travel costs. (Towards Maturity 2009.)
- In 2008, Towards Maturity published a case study on Cable and Wireless showing how they had achieved savings of nearly £1m per year through the use of e-learning
- In a 2010 study, Towards Maturity indicated that on average, organisations were reporting cost savings of 11% through the use of e-learning whilst increasing the volume of learning delivered by up to 47%
- Nortel has successfully transitioned from classroom-only training to a blended approach that embraces electronic delivery mechanisms, such as self-paced e-learning and virtual instructor-led training. Today, approximately 34% of Nortel's employee and customer training is delivered via e-learning. Both Nortel and its customers have achieved quantifiable cost-savings from these new learning programmes. The company estimates that North American customers alone saved \$7.7 million between 2005 and 2006 (Bersin 2007)
- By removing the cost of equivalent instructor and classroom-based courses, BT has saved in the region of £12m on its annual training budget (Computing.co.uk 2005)

- With live e-learning in place, T-Mobile achieved a remarkable 1,000 percent ROI in the first 18 months (ZDNet News 2004)
- In comparison to traditional instructor-led training, the use of e-learning is helping to achieve a 67% cost reduction per training intervention. And with the integration of all its learning resources, BAE Systems is saving over £1.5 million per year (NCC 2008)
- Cisco's cohesive e-learning program saves \$142m per year (Cisco press, 2004)
- ING estimates that the total cost savings in the initial 3 years of using the Learning Centre has been well in excess of \$20 million (Bersin 2005)

Reduced costs through learning compression

The most significant business benefit from e-learning is a financial benefit achieved through a reduction in training time – 'learning compression'. This is because the single largest

cost of training is the cost of staff attending the course, rather than the direct delivery costs in terms of trainers, course materials, travel and accommodation. E-learning can deliver significant benefits by reducing the time it takes to train people.

In this section, we examine the evidence that e-learning can deliver a reduction in training time (learning compression) and specifically how this is achieved.

Why e-learning compresses learning time

There are a great many documented case studies which show that people learn faster through interactive learning than classroom learning. These suggest that learning compression can be achieved because:

- Learners can go at their own pace, not at the pace of the slowest member of a group
- Time in classrooms may be spent on questions or topics introduced by

other delegates that are irrelevant to the needs of the individual learner

- There is less social interaction time
- It takes less time to start and wind up a learning session
- There is less travel time to and from a training event
- Learners learn what they need to learn - they can skip elements of a programme they don't need; this can be combined with diagnostic tools to fast track a user through a programme
- Some concepts can be explained more easily and quicker using computer based instruction than would traditionally be done in a classroom
- The presentation of content in online material tends to be more concise than classroom delivery as each word is edited and honed down to the minimum necessary, whereas face to face delivery is inevitably more verbose

According to Brandon Hall, most reports show that these factors can add up to an average compression (saving of learning time) of 35-45% when a course is taken out of the classroom and delivered as e-learning.

A study of a number of European companies showed they had been able to condense 30,000 hours of stand-up training into just under 700 hours of e-learning - a 76% reduction! (Ezine 2009)

Some types of knowledge-based learning, such as IT training and procedural or technical training are more suited to e-learning than, say, some forms of communication skills management training. Thus it is not possible simply to say that e-learning will achieve a certain learning compression rate. The type of training has to be taken into account each time.

Experience also suggests that in many cases a classroom based event is best replaced by a blended solution, with part in the classroom and part e-learning. The learning

time is compressed for the elements that are converted to e-learning. Thus when a two day (12 hour) classroom course is converted to a one day classroom and e-learning event, the learning time is reduced by over two hours. Of course, that time is saved in the office, which allows the learner to do more productive work.

	Compression	Study time
Day 1 e-learning	40%	3.6 hrs
Day 2 classroom	nil	6.0 hrs
	20%	9.6 hrs

For the reasons outlined above, it is important to recognise that even if e-learning case studies do show a learning compression rate of, for example, 35%, it is not possible

to achieve this level of learning compression across a whole course prospectus, but only on those elements where e-learning is adopted.

Case studies of cost savings through learning compression

We have set out brief notes on a wide range of published case studies which have examined learning compression rates for e-learning compared to face to face delivery.

- In his landmark publication on e-learning, Rosenberg (2001), notes, "E-learning is more efficient... it can take anywhere from 25 to 60% less time to convey the same amount of instruction or information as in a classroom." Rosenberg gives four main reasons. "First, no time is needed for housekeeping, class introductions, breaks, lunch, etc. Second, learners can move at their own pace, often skipping material they already know. Third, learners are not held up when slower students

need more time. Fourth, an e-learning solution has probably gone through a more rigorous design process; it is likely to be inherently more efficient.”

- British Telecom delivered e-business training to 23,000 employees in three months, at a cost of £5.9m, compared to £17.8 million and a five-year time span for classroom training (Taylor, 2002)
- BUPA estimates the use of e-learning has reduced training time by 40%
- The 2010 Impact Indicator from Towards Maturity estimates average time savings of 28% when using e-learning (36% if travel time is included)
- Hunt and Clarke found that US studies of e-learning indicate that learners need 6-37% less instruction time, with an average reduction of 26% less time. The NCC survey of companies found that training time was reduced by 30%
- Brandon Hall quotes a range of examples in their recent report on Building the business case for e-learning: “Results from hundreds of studies and applications show that instruction delivered via computers and/or computer networks requires approximately 35-45% less learner time”
- In ‘Return on Investment and Multimedia Training Newsletter’ The Brandon Hall group identified very strong evidence that e-learning requires less time for training compared to instructor led training. The amount of reduction ranges from 20-80%, with 40-60% being the most common. Time reduction for multimedia training is usually attributed to a tighter instructional design, the option for participants to bypass content they don’t need, and the opportunity for participants to focus on those sections of the course not yet mastered
- The Hudson Institute of Indianapolis has reviewed 20 years of research on e-learning and found an average of 40% time reduction

Second level benefits

Improved performance through learning

Improved learning

E-learning has been seen by many organisations as a cost effective way of delivering learning content to learners. However, whilst it may be cost effective, is e-learning as effective in terms of knowledge retention and embedding real learning as other forms of learning, primarily classroom based instruction? A significant amount of academic research into the effectiveness of e-learning says it is.

In 2009 the US Department of Education released a meta-analysis and review of online learning studies. The report is based on 12 years of analysis and its lead author, Barbara Means, summed up the mood of the study by saying,

“The study’s significance lies in demonstrating that online learning today is not just better than nothing – it actually tends to be better than conventional instruction.”

Post test measures of learning

“An organisation’s ability to learn, and translate that learning into action, is the ultimate competitive advantage.” Andy Groves (Intel)

- One of the more significant studies published is the nine year survey of the research literature in training published by Fletcher and Tobias in ‘Training and Retraining’, commissioned by the American Psychological Society. They conclude that: *“Learners learn more using computer based instruction than they do with conventional ways of teaching, as measured by higher post treatment test scores.”*

- Studies by Towards Maturity (2010) indicated that 69% of report participants indicated improved effectiveness of learning using online solutions
- Research cited by Welsh et al, (2003), a meta-analysis of literature on learning effectiveness, found that that learners learn more using computer based instruction than they do through traditional classroom methods. In military training, learning outcomes were either better or equal for those from e-learning courses, compared with their classroom counterparts
- Studies from the field of education show that e-learning users tend to do better than 'traditional' learners (Bonk and Wisner, 2000)

Retention of learning

One reason for the improved effectiveness seems to be the increased level of participation through the interactivity of well designed e-learning

programmes. This leads to higher levels of cognitive engagement and therefore higher levels of retention:

Hairsten (2007) noted in a study that e-learning retention rates were at least 12% higher than traditional methods. This was further supported in studies from Lowry (2007) and O'Dwyer, Carey and Kleimon (2007).

The self-paced nature of the learning experience also leads to higher retention as the learning content is digested at the pace which suits the learner, and not the pace at which it happens to be delivered by the trainer. The learner can stop, reflect, repeat and integrate the learning into existing structures in a way that is difficult in the classroom.

This is reflected in a recent study by JISC into the use and validity of e-learning in higher education, *Exploring tangible benefits of e-Learning* (2008) concluded that:

- The ability for students to use a range of material in their own time and in

their own environment has created more and deeper learning

- The use of e-learning has produced significant improvements in student learning
- Results have been transformed... the proportion of students who finished with an A grade overall leapt from 1% to 15%

A study by KPMG Consulting in 2004 concluded that knowledge retention from e-learning was 25% to 60% higher than with classroom based training. In 2008, W.R. Hambrecht reported, *"Whereas the average content retention rate for an instructor led class is only 58%, e-learning can enhance retention by a further 25%. IBM found participants learned 5 times more material without increasing time spent training."*

Of course, this all depends on the quality of the designed content. However, the studies conclude that the quality of text, audio, graphics, animation and video is likely to be

instructionally superior to the low quality media normally available in traditional training environments.

Transfer of learning

Brandon Hall notes that the learning most suited to e-learning conversion includes information, knowledge, processes and procedures. This report noted that learning gains have been found in:

- Learners' attitudes toward the e-learning format and training in general
- Learners' scores on tests, certifications or other evaluations
- The number of learners who achieve 'mastery' level and/or 'pass' exams
- Learners' ability to apply new knowledge or processes on the job
- Long term retention of information

Hall (1995a, 1995b) reviewed six in-depth case studies (Intel, American Airlines, Pacific Gas & Electric, etc.) and ten additional articles (covering

efforts at IBM, Bethlehem Steel, Bell South, Steelcase, Pizza Hut, etc.) that discussed significant improvements in motivation of learners, their ability to retain what they learn longer and more accurately, and actual performance improvements on the job attributable to the training. He concludes that 'there is very strong evidence that computer based training results in an equal or higher quality of learning over traditional instruction.'

This is further supported by the US Department of Education report (2009) "Evaluation of Evidence-Based Practices in Online Learning – A Meta Analysis and Review of Online Learning Studies" which concluded that both online and blended solutions produce better learning results than traditional methods of instruction. "Students who took all or part of their class online performed better, on average, than those taking the same course through traditional face-to-face instruction. Learning outcomes for students who engaged in online learning exceeded those of

students receiving face-to-face instruction."

The study's lead author, Barbara Means, summed up the report as follows: "*The study's major significance lies in demonstrating that online learning today is not just better than nothing – it actually tends to be better than conventional instruction*".

Consistency of learning

One of the major benefits e-learning can offer large and dispersed organisations is consistency of learning. With e-learning everyone gets the same content, presented in the same way. Adams (1992) reviewed six studies that carefully compared e-learning with classroom instruction and found that 'consistency of learning' (variance in learning across students) was 50-60% better, and 'content retention' was 25-50% higher.

Adams' view is supported by a study by Training Magazine (2006) which reported that e-learning has proven to have a 50–60% better consistency of learning than traditional classroom learning.

Faster rollout of learning

E-learning has faster delivery cycle times than traditional classroom based instruction. In essence, there is a physical restriction upon how fast learning can be rolled out with classroom based instruction, as the capacity to deliver learning is limited by the number of classrooms and trainers. E-learning is very scalable and can be undertaken when staff are available, rather than having to make sure staff are available when the training is planned.

If we take the example of 5,000 learners who need to be trained using traditional classroom learning (with say ten people per class), this would require 500 classroom sessions and 500 trainer days. To train 10,000 staff would take double the number of classroom and trainer days. This lack of scalability can severely restrict the speed with which organisations roll out learning.

- Sun Microsystems used e-learning to bring sales people up to speed in 6 months rather than 15. That's 9 more months of on-target earnings
- KPMG Consulting in the US estimated they would have taken three years to train their 22,000 employees on a new e-business programme purely through classroom training. Using a mix of classroom and e-learning around a custom curriculum, KPMG Consulting invested about \$3 million to train 8,000 employees in e-business fundamentals, which was delivered in 12 weeks. Soon after, the entire workforce completed the programme
- BT delivered e-business training to 23,000 employees in three months, at a cost of £5.9m, compared to £17.8 million and a five year time span for classroom training

E-learning content can be updated rapidly. For example, a change in legislation can be reflected in a course module and, once updated on a central server, it is instantly available to staff. The material for a classroom based course can be updated relatively quickly, but it is not available to staff quickly

and requires the course to be rolled out across all staff.

E-learning provides organisations with a greater ability and capacity to manage major changes more quickly.

More accessible, less disruptive learning

Delivery of learning to the desktop or mobile devices means there will be less disruption in the workplace and a substantial reduction in backfill costs. Less time spent traveling and attending face to face courses will mean work activities are not interrupted and delayed through absence from the workplace.

Delivery of 'E' and 'M' learning provides the ability to improve staff access to learning. To some organisations this is a major part of supporting their diversity programmes, as it allows staff to undertake training at a time and place convenient to themselves and it also allows staff to access training in their own time, should they wish to develop other personal skills.

E-learning gives users greater control over how and where they learn.

E-Learning as performance support

E-learning can make a marked impact on business performance by being used as a performance support tool, giving staff the ability to dip into performance support programmes when the learning is needed and is tailored to the learner's availability. In fact, there's a narrowing divide between e-learning and performance support. Lagos, Setchi, and Dimov (2005) refer to studies showing the trend towards combining electronic performance support systems (EPSSs) and e-learning by either transforming an EPSS into an e-learning system by adding learning features or vice versa.

This view is further supported by Jay Cross and Tony Karrer (2008) who saw the emergence of Web 2.0 tools as another example of EPSS that can be combined with e-learning to aid just in time learning.

Such convergence is outside the remit of this White Paper, but is backed up by numerous examples of e-learning support tutorials being embedded in live customer databases, IT products and so on. That way, the user can switch between use of the system/product itself and e-learning tutorials to explain key features, functionality etc. Such approaches are very common with leading technology providers like Cisco.

Facilitating performance support tools requires the use of learning objects. The concept is very simple - a learning object is a unit of learning which has a learning objective. Any training course can be broken down into modules, topics and ultimately learning objects. Thus an e-learning programme will contain a series of learning objects assembled as appropriate for an individual learner:

The benefits of constructing e-learning this way are that:

- Learning objects can be reused in different training programmes, thus a learning object on open or closed questions can be used in an interviewing course and also in an appraisal course. This creates the potential for more cost-effective e-learning through the reuse of learning objects within an e-learning library
- Trainers can quickly construct e-learning courses, for individuals or groups, by selecting learning objects from an existing library and reusing appropriately
- E-learning programmes can contain diagnostic tools to question a learner on their knowledge and experience and then automatically compile a personalised version of the programme
- Learning objects can be used to create time specific learning programmes. For example, if a learner wants a twenty or thirty minute refresher, the programme can automatically assemble the key points for the time specified. In this way, e-learning can ensure that

learning is both available on a just in time basis, and tailored to the time the individual has available

- Learning objects can be displayed in their entirety for an individual learner to select any learning object they wish to access

Monitoring and evaluation of learning

E-learning, particularly when combined with the use of a Learning Management System, can be used to track and evaluate learning by providing:

- Closer monitoring of what learning is provided
- Confirmation that appropriate pre-course work is undertaken
- Easier student assessment
- Monitoring of course materials and effectiveness
- More efficient administration and control of learning

Tracking and reporting of progress is becoming more and more important due to increased legislation. Most organisations have large amounts of mandatory compliance training – health and safety, data protection, security, equal opportunities etc. – and must track and report on usage due to regulatory requirements. With e-learning it's a 'no brainer' – many organisations have existing Learning Management Systems that will track and report data automatically. And if they don't, any e-learning supplier worth their salt can provide a simple database tracking system which will meet compliance requirements. Compared to traditional training delivery, tracking and reporting e-learning usage is simple.

Third level benefits

Organisational transformation through learning

Community based knowledge management and communities of practice

“The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.” Alvin Toffler

Knowledge management is often viewed as connecting people to information, but it is important not to overlook the need to connect people to people. It is through connecting people to people that organisations create community based knowledge management. One way of doing this effectively is through communities of practice.

Defining a community of practice

The idea of communities of practice grew from work on a social theory of learning, in particular by the educational theorist Etienne Wenger. Wenger (1998) broadly defines communities of practice as groups of people who regularly interact to share a concern or passion for a joint enterprise. In engaging in such interactions, these people develop mutual understandings and find ways to address issues, streamline processes, and refine their practice, moving it forward. In short, they learn how to carry out their enterprise better. They also develop their own socio-cultural customs – language and behaviours, which become the norms for existing members, and an essential part of being accepted for any newcomers.

Harnessing existing communities of practice

Communities of practice existed way before they were ever defined. In organisations, they developed informally without support and encouragement. For example, colleagues would gather around the coffee machine and swap tips and share stories about good training they received, or they would meet for regular lunches and talk about pressing concerns regarding customer needs. This sharing of know-how and experience not only raises competencies, but also provides added value to training interventions (e-learning or otherwise) that have happened and thus improves productivity.

The bad news is that if such communities of practice are operating outside of the organisation chart, then the transfer of knowledge may not be captured and as people move on, then their knowledge may be lost. Technology can offer a solution here too. Virtual meeting spaces where there are many-way conversations using Web 2.0 tools such as wikis,

discussion forums, and blogs, offer ways of communication and new ways for a community to operate.

However, in recommending Web 2.0 tools, it is vital that the organisation does not engage in scrutiny of the imparted knowledge that builds up with their use (even when that scrutiny is offered with the very best of intentions). Having set up potential tools, the organisation must step back and relinquish control. They must remember that the self-direction, honesty and spontaneity of operating within a community is what members of a community of practice value most, and the temptation for the organisation to offer some focus or to set rules around it will inevitably stifle its very essence.

Developing communities of practice

Creating the right environment for the development of new sustainable communities of practice can prove difficult. If you try to force it, then it will become artificial and will

not last. What is needed is to create the circumstances in which a community is likely to grow organically. For example, when considering an e-learning solution, do not only offer self-study content, but also wrap around it lots of opportunities to share experiences, ideas and questions in relation to the e-learning subject. These kinds of opportunities will not just connect people with people, but also lead to the collection of a wealth of valuable knowledge.

E-learning for customers, partners, consumers

A number of organisations now make e-learning directly available to their customers.

Online retailers are creating learning portals offering free classes to their customers, or two-way communications on ideas for ways that they can improve. This attracts customers to their site and keeps them there. Companies like Barnes & Noble, Dell and Starbucks are finding that 'educommerce', as it has been dubbed, helps create brand

loyalty and drive revenues.

Charles Schwab, a company that pioneered discount brokerage fees, developed a strategy of educating its customers when it saw it was losing thought leadership and market share to new competitors.

The company established a series of classroom courses on web investing, called WebShops. These classes helped the company understand what investors didn't know about investing. It then developed online courses and created a web-based learning centre. The courseware is free and offers new investors an informative and entertaining way to learn about and participate in investing.

"We needed to take some of the fear out of investing and make people feel capable," said Janet Lecuyer, vice president of interactive learning in Schwab's electronic brokerage division. "People are embarrassed about what they don't know, so they were hesitant to go to classes. Here, by themselves, they can learn at their own pace."

Companies are increasingly turning to customer focused e-learning for a variety of reasons: To fill a necessary support role; to provide a service that competitors don't have; to 'incentivise' potential customers and to add new revenue streams. Some companies aim to make customers more competent users of a company's products, leading to increased satisfaction and reduced support costs. In every case, the business model behind such customer focused e-learning identifies training as a value added service, rather than an internal cost.

E-learning also applies to partners as well as customers. A good example is Cisco's Partner E-Learning Connection portal. This is a one stop portal solution that provides certification, hands-on labs, new product training, sales training and reference materials for Cisco's distributors, value added resellers and system integrators.

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