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Managing corporate e-learning System

Phuldeep Kumar

Scientist, DESIDOC, DRDO, Delhi

ABSTRACT

The e-learning systems are rapidly finding place of prominence among the progressive corporates. Managers are facing challenges in coping with this new training aid. Realizing the benefits of this newer training method, considerable interest in adopting e-learning systems is found across all spectrums of business. This paper proposes a framework to manage e-learning system. This will be of help to practicing managers to guide them through successful implementation of e-learning system.

INTRODUCTION

The modern companies of the present era, are facing tough competition from the peer business concerns. In this era of increasingly fast-paced knowledge driven economy, it is more of a necessity rather than desirability to keep pace with newer technological and other developments. It is of paramount importance for the corporate to provide the right blend of knowledge source at the right time that will keep their manpower resource the most competitive possible. The recent technological advances have strengthened the means and ways for rapid information dissemination. Modern information communication tools and technologies have made the real time communication across continents a reality. All major corporations are harnessing these technologies to supplement their training initiatives.

This new form of learning offers opportunities for the corporate organisations to train their manpower in required field related to the work to be accomplished. Attaining the edge in a knowledge-based economy is a challenge, e-learning offers ways and means to meet this challenge. Many leading corporate organisations with global footprint have implemented corporate e-learning systems with varying degree of sophistication according to their requirements. e-learning is believed to be the fastest growing sub-sector of the 2.3 trillion USD global education market, with the market for online higher education expected to grow to $69 billion USD by 2015 (Hazel Associates, 2005). The corporate organisations are now facing challenges in managing e-learning initiatives. Managing e-learning initiatives and driving them successfully on a continuous basis require a lot of commitment and efforts from the stakeholders. Bersin research shows that in 2009 more than 70 percent of large companies have an learning management system (LMS) already and almost one-third of these companies are considering replacing or upgrading these systems with integrated talent management systems (Levensaler and Laurano, 2009).

Corporate e-learning System

E-learning is dispensation of education or training using modern information communication tools (computer, CD-ROM, DVD, Floppy, hard disk, pen drive, etc.) and networking technologies (intranet, internet, LAN, WAN, MAN, etc.) . This definition addresses: The What: Educational or training matter; The When: On demand basis, 24x7x365; The Where: On networked computers and standalone computers if using memory devices, viz., CD, Floppy, Pen drive, etc.; The How: Content delivered in digital form using appropriate network or other digital delivery methods; The Why: To make available training or study material for flexible learning (Kumar & Gulla, 2011).

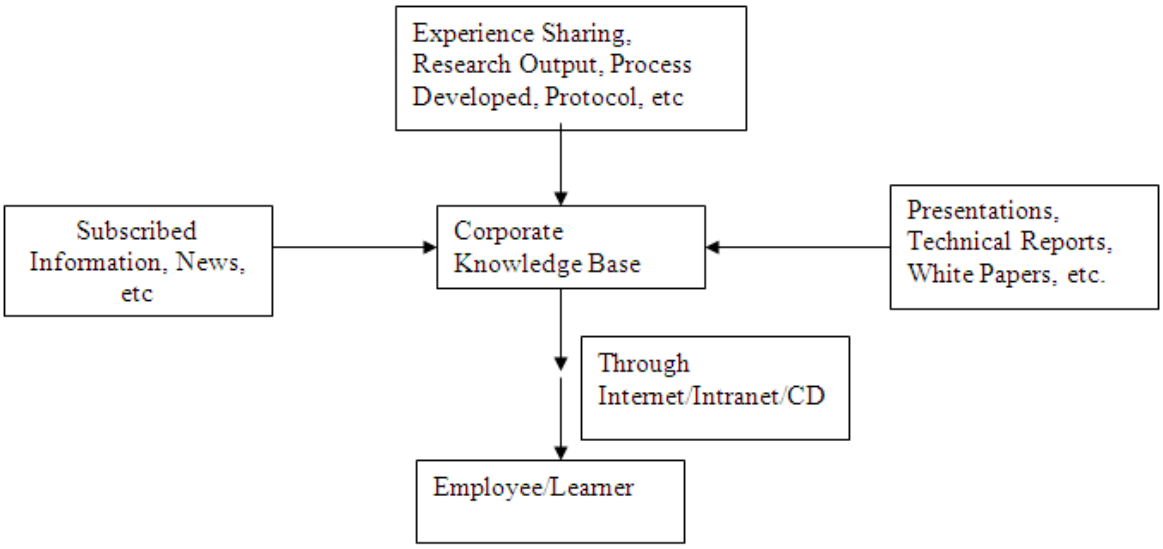

Figure 1: Corporate e-learning concept

The use of modern communication tools and networking technologies to impart training and develop skills of the workforce of a corporate, may be termed as corporate e-learning. This is e-learning as envisaged in the corporates. Corporate e-learning system may be defined as system in place in the corporate in question for corporate e-learning. These systems may vary vastly in form and structure, depending upon requirements, competence, and financial resources available with the corporates. Corporates are using these systems for communicating, training, and enhancing employee value across the organizations and countries. Corporate e-learning concept is depicted in the Fig 1.

The corporate knowledge base contains all the possible tacit and explicit knowledge the corporate possess. This is very important in present context, when there seems to be agreement by and large that "Knowledge is Power". This database could be hosted on a centralized server. If, the corporate is scattered across the globe, it makes sense to use local servers at individual locations. These local servers could further feed the individual terminals the real-time data via local area network over the intranet. The employees could tap the learning potential through their computers.

LITERATURE REVIEW

In this growing knowledge-based economy the learning capacity of the employees of the organization determines its competitiveness (Nevis, et al, 1995; Stata, 1989; Zander and Kogut, 1995; Ulrich, et al, 1993). The integrated individuals' knowledge is regarded as most critical asset beyond any other resources (DeLong, 2004; Senge, 1990). Organizations are adopting advanced learning processes to gain competitive advantage and fast becoming learning organizations (Senge, 1990). Slater and Narver (1994) defined learning organization as one that continuously acquires, processes, and disseminates knowledge about market, products, technologies, and business processes. This knowledge is often based on experience, experimentation, and information provided by customers, suppliers, competitors, and other sources (Ellinger et al, 2000). Open dialogue and opportunities to share knowledge are prerequisites for organizational learning (Senge, 1990; Nonaka and Takeuchi, 1995). Organisational climate, interpersonal relationships and the communication atmosphere are important elements for a learning organisation. A culture and climate which encourage responsible experimentation and shared learning both from successes and failures are typical of learning organisations (Pedler, et al., 1991; Slotte and Tynjala , 2003).

Corporate organisations could look forward to benefits such as, reduced overall training cost, more productivity, consistent content delivery, quality content delivery, expert knowledge communication, scalability, lesser course completion time, increased subject matter retention, and better visibility among customers. Employees may accrue benefits such as, on-demand availability, self-pacing, portability of learning material, better comprehension, innovative built-in interactions, and confidence of availability of material for reference. Corporate organisations however, have to face some bottlenecks too, such as, huge up-front investments, integration of new technology with business processes, and integration within organizational culture (Kruse, K., 2002; Brandon, H., 1997; Fletcher, J.D. 1991; ASTD, 2000; Isodyanamic, 2001; Moe, M. T. & Blodget, H., 2000; Benninck, R. 2004; Kumar & Gulla, 2011).

Rosenberg (2001) points out four important aspects for implementing an e-learning strategy which includes culture, champions, communication, and change. According to Chen & Hsiang (2007) clear planning and organization, ranging across elements such as strategy, technology, procedure, and personnel, are fundamental to corporate e-learning success. Andreu & Jáuregui (2005) identified fourteen factors influencing the use and success of a new technology-based training programme. They grouped these fourteen factors into four groups: content, participant, tutor and technology. Kumar & Gulla (2011) propose Structure and processes, Pedagogical issues, Technological infrastructure, User training and support, Top level management, and Legal issues as important aspects for corporate e-learning success. Helmi (2002) concluded that the three driving forces to e-learning are information technology, market demands, and education brokers such as universities. Cross and Dublin (2002), Rosenberg (2001) and Netteland et al (2007) suggest that focus on credible communicators, timely and truthful information and consistency between messages, actions and company initiatives are important in the implementation of large-scale e-learning at the workplace.

Diez and Mcintosh (2008) reported user participation, behavioural intention, computer experience, external pressure, information sources, perceived usefulness, professionalism, subjective norms, system quality, top management support, user support, user training, and user satisfaction as best predictors of successful implementation of e-learning. Ozdemir and Abrevaya (2007) propose important aspects : organizational characteristics, organization and technology fit, and technology and external environmental fit. Rogers (1995) has shown a positive relationship between organization size and innovativeness. The reasons for this are: economies of scale (Kimberly and Evanisko, 1981), slack resources (Eveland and Tornatzky, 1990), access to outside resources (Attewell, 1992), and ability to bear adoption risks (Hannan and McDowell, 1984). A corporation having capability to innovate may still lag in adoption if the innovation does not fit its requirements, strategies, resources, and objectives. Technology characteristics, the external environment, and the fit between the two may also impact adoption decisions. Organizations in different locations faced heterogeneous markets for labor, third-party services, and complementary technological inputs (Ozdemir and Abrevaya, 2007).

According to Habermann & Kraemer (2001) implementation of e-learning requires integration with the learning strategy, business organization, process and IT structure. Rebensburg, et al (2002) suggest e-learning value cycle comprises process, content, culture, and infrastructure. Senge (1990) and Watkins and Marsick (1993) – generally espouses the importance of creativity, conversation, teamwork and empowerment for knowledge workers to exercise their full collective potential for learning and innovation. Masie (2001) farther reinforces this message, highlighting that "learner acceptance" is not guaranteed and will require firms to address issues of marketing (to encourage participation), support (to aid retention), incentives (to provide validation of the training completed), and technology (to support collaboration and provide blended solutions).

From available literature it can be inferred that e-learning system characteristics are: e-learning system is a type of information system; e-learning implementation is an innovation process, therefore, diffusion of innovation principles can be applied (Lewis and Orton, 2000; De Vries, 2005); e-learning systems are used for imparting training; e-learning is business performance improvement tool (Bershin, 2002); e-learning supports knowledge management initiatives (Chen and Hsiang, 2007); e-learning is a human resource development activity (Tynjala and Hakkinen, 2005); e-learning is a productivity enhancement activity (Faherty, 2003); e-learning reflects the organizational learning culture (Romm et al, 1993); and e-learning implementation requires cross disciplinary efforts, involving educationists, technologists, designers, and managers (Kumar & Gulla, 2011).

Framework for managing corporate e-learning System

All progressive large corporate organisations are recruiting information technology literate and computer savvy workforce. Managers are trying to integrate business and technology to keep with changing dynamics of economy. Earlier business decisions were made first and then technical issues were addressed, but now, this luxury is no more available. Managers must consider how technology affects business and how their decisions affect the technology usage. Managers must be aware of opportunities made available by the technology and adopt it according to the organisational needs. Managers should realize that technology is not permanent, it is constantly evolving, and every now and then calls for overhaul of established technological processes. Adaptability and flexibility is the key to avoid dead end.

Corporate e-learning system is dynamic in nature, it has to be nourished at regular intervals. Managing corporate e-learning system could be challenging task. The implemented corporate e-learning system will certainly be the reflection of efforts of the management in its realisation. Figure 2 depicts formal framework for managing the corporate e-learning system. Top-level management should take the initiative in implementation of the system. This system being of use to everyone, there should be conscious attempts at soliciting the view, opinions and needs of all the levels of employees. The top-level management must prepare a clear plan of action. They should allocate manpower and financial resources adequate to the

task. Here, clear division of labor needed to be done and delegation of assignments should be logical. The management must also evaluate technical infrastructure available and accordingly enhance it, if there is any need. The top management should also beforehand be clear about the applications required for e-learning platform. A suitable learning management system should be acquired from the market fulfilling the requirements or if in-house expertise is available it could be developed in house. According to the responsibilities all the levels of corporate should contribute to the knowledge repository/ comprehensive database, so that, most of the available knowledge and information gets tapped for further use. This coupled with learning management system and technological infrastructure would be operationalised for general use. The management should continuously review the return on investment so that more efficient ways could be explored.

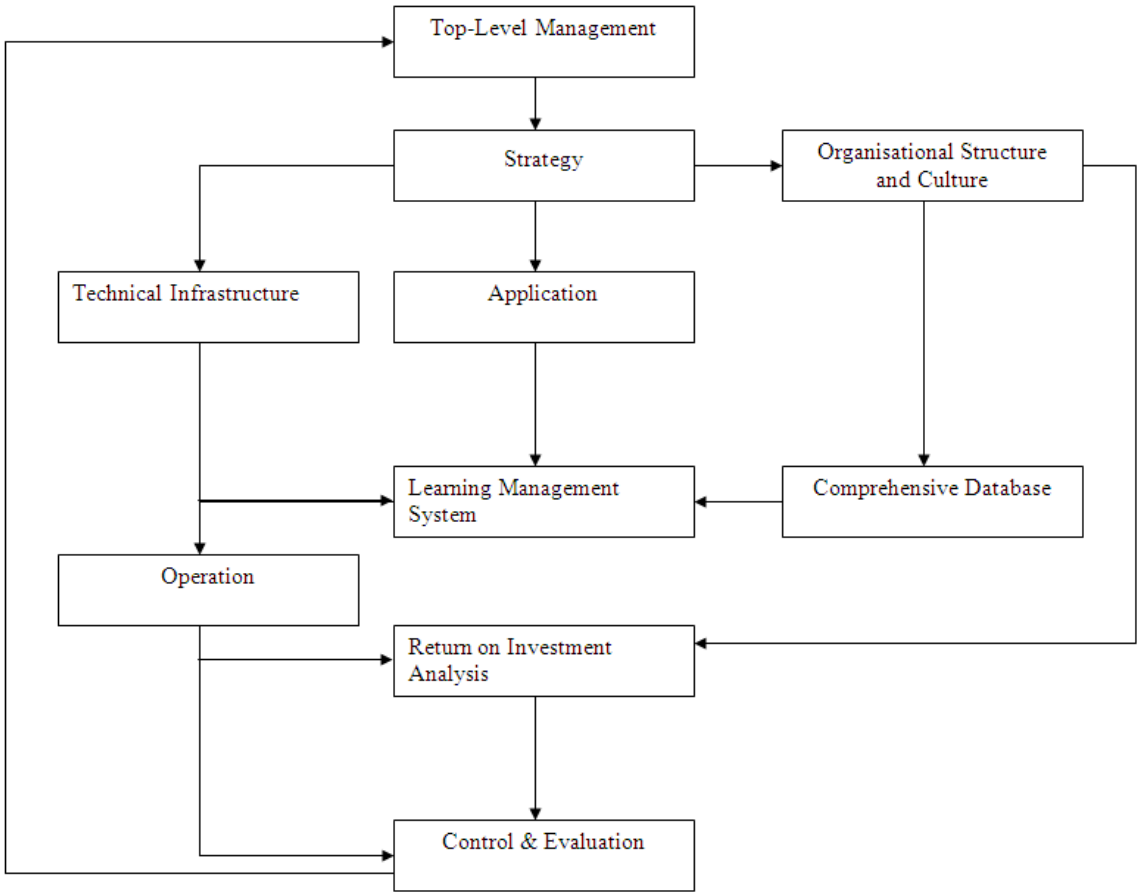

Figure 2: Framework for managing corporate e-learning

Top Level Management

Organisation wide implementation of e-learning system involves a number of aspects, which includes managing the change process and managing technology. This requires managing a multiple stakeholders involving, for example, senior managers, suppliers, and potential learners. Thus, implementing e-learning requires a comprehensive and effective approach to change management, as advocated in much of the organisational change literature (e.g. Beer et al., 1990; Kotter, 1995). It must be a strategically led and supported initiative that integrates with the overall business strategy and not just a cost-saving and efficiency measure (Macpherson et al, 2005). Change processes have to address multiple points of inertia and resistance and have to be systemic rather than piecemeal. They call for clearly articulated and commonly accepted learner-centered teaching goals and values, and a matching of these to policies, procedures and resources. (Latchem & Hanna, 2001, p. 41). According to Tetiwat and Igbaria (2000), it is very important to obtain the support of top management when implementing online learning. The implementation of online learning requires considerable resources and thus board approval should be sought (Johnson, 2002). Teo and Ang (1999) based on survey of 169 firms in different sectors reported top management's commitment to strategic use of information systems, as the most crucial for success of such endeavours.

In the study by Mathieu, Tannenbaum, and Salas (1992), trainees showed positive responses towards training when their motivation levels were high. This was found to improve the work performance after the training. Trainability is determined by the trainees' level of ability and motivation for learning (DeSimone & Harris, 1998). The importance of learning motivation is expected to be the same in online education situations as well (Lim, et al, 2007). Baldwin and Ford (1988) insisted that senior management support and organization atmosphere have a direct impact on training effectiveness and application rate. According to their argument, training effectiveness affects application rate, and senior management support and working atmosphere are directly linked with application rate. Top level management should design a challenging work responsibility schedule to develop employees' potential, fully compensate for self-developing effort, and emphasize the improvement and renovation of the working environment to create a continuous learning culture (Tracey, et al. 1995; Lee, 1995).

Rosenberg (2001) advocates champions are needed to market and implement e-learning systems in the organization. E-learning implementations must be viewed in the same way that one would view any other mission critical, organisation-wide initiative. It will require senior management commitment, change management initiatives, understanding of cultural and technological obstacles, internal marketing and clear ROI metrics (Henry, P. 2001).

Strategy

E-learning involves different stakeholders, different expertise and different cycles of development, therefore, it is a complex innovation activity (De Vries, 2005). Investment of time, effort, and resources is required to devise and sustain e-learning. Information-based enterprises must be planned in an integrated way whereby all stages of the life cycle are engaged to bring about agility, quality, and productivity (Somendra & Cheng, 1995). Organizational e-learning initiatives should be informed not only by cost and technology considerations but also by their potential consequences for learners and organizational culture (Servage, 2005).

Smith et al. (2002) found that links between strategy and training positively affected a number of training-related variables. These variables included the number of employees receiving training, the level of its external provision, the use of training plans, a focus on behavioural skills training, a greater level of workplace delivery of training, and a greater use of workplace trainers. They concluded in the context of their study of enterprises undergoing organisational change that the link between training and strategy was the most important driver of training.

Mcrea, Gay & Bacon (2000) related that today, corporate learning and the corporate learning organization have ascended to a position of strategic prominence in the context of managing and growing the enterprise. Nurmi (1999) emphasized that knowledge-intensive firms do not work properly as a structured, departmentalized, hierarchical organization. Knowledge-intensive firms work best as process, network, culture, and marketplace for mutual learning and knowledge. Managers, content experts, adult educators, business analysts, technicians and workers must bring multiple perspectives and interests to the strategic process if a common vision for workplace learning is to be realized (Servage, 2005).

Implementing corporate e-learning requires a comprehensive and effective approach to change management. It must be a strategically led and supported initiative that integrates with the overall business strategy and not just a cost saving and efficiency measure (Macpherson, et al 2005). The corporate need to arrive at a clear corporate e-learning strategy (Fig. 3) before embarking upon implementation of corporate e-learning system. The e-learning strategy should be articulated in terms of external domain (how the firm is placed in the marketplace) and an internal domain (how the IT infrastructure should be configured and managed). To make an effective strategy the prevailing environment (Social / Political Environment; Govt. Policies & Regulations; Competition; Service Providers) analysis, internal (Financial Resources, Manpower Resources, Knowledge Base, Infrastructure Requirements) analysis and technology (Network Technologies; Interoperatability Issues; Hardware Requirement; Software Requirement; Applications required) analysis should be done.

Based upon prevailing environment analysis available opportunities and possible threats should be identified, based upon internal analysis strengths and weaknesses of the organization should be identified, and based upon technology analysis suitable available technologies should be identified. This will give directions in which efforts are to be channelised, knowledge of acceptable financial and manpower investment capabilities, and choice of available state of art technologies suitable for proposed e-learning system. A strategy then should be arrived at which is a right mix of these objectives. Doing this exercise beforehand will certainly lead to many cost and time benefits to the corporate. This will also increase the probability of success of the endeavor. Success begins with choosing the content and delivery system that best fit the organizational needs.

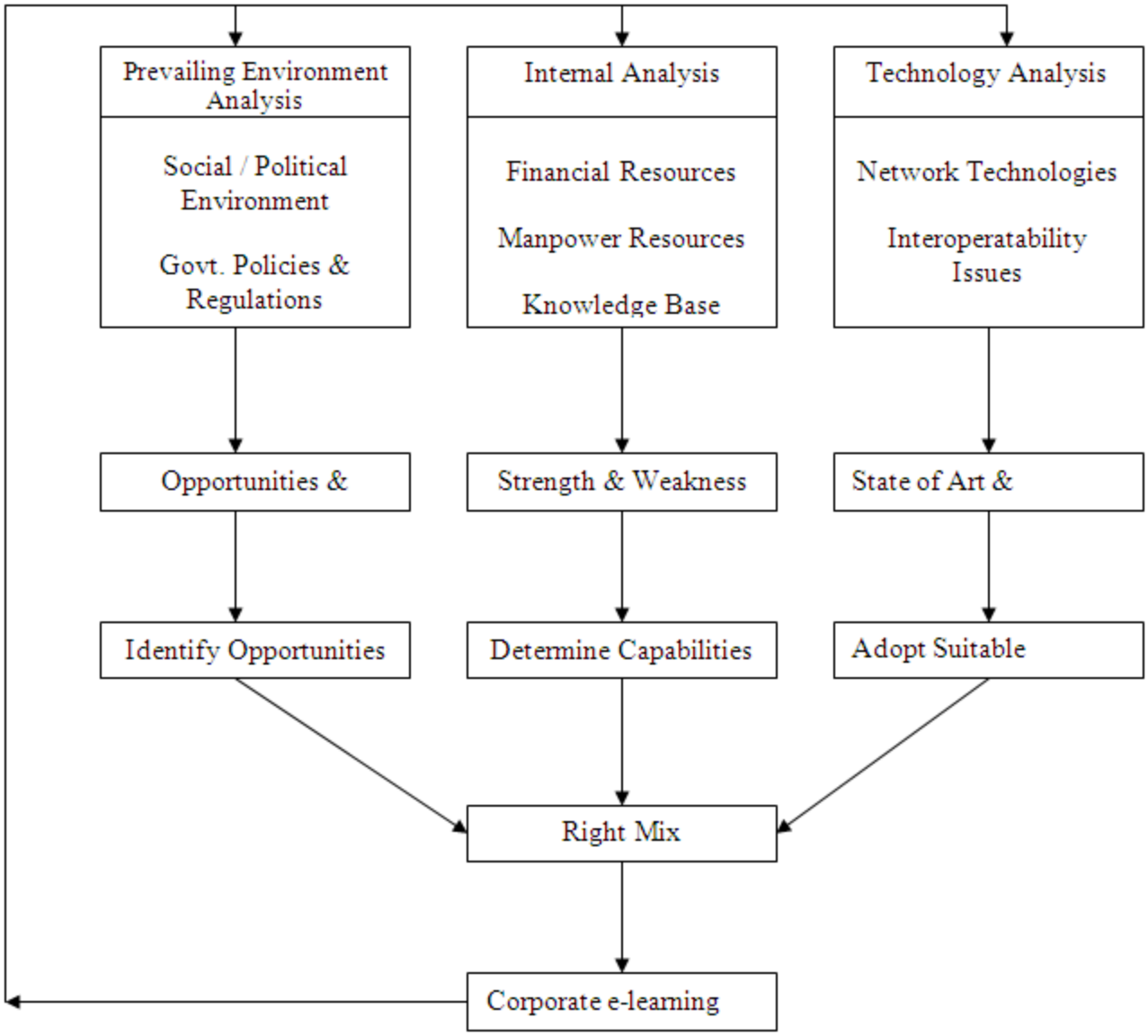

Figure 3: Devising Corporate e-Learning Strategy.

E-learning's high-tech service providers may provide the illusory sense that knowledge can be produced, packaged, consumed and exchanged online, but an abundance of literature in constructivism and adult learning makes a strong case that it is in fluid, dynamic and highly social contexts that meaningful learning and creative problem solving are most likely to occur (Servage, 2005; Hardaker and Smith, 2002; Marsick et al. 2000; Trentin, 2002; Wenger, 1998).

Technical Infrastructure

Gold et al. (2001) argued one should measure infrastructure in three key areas: technological capabilities, structural capabilities, and cultural capabilities. "Technological capabilities" capture the organization's ability to link its information communication systems. The "organizational structure" provides a framework for responsibilities, reporting relationships and employee groups. "Cultural capabilities" captures the organization's ability to learn more effectively. Shortcomings in one or more areas can lead to significant barriers to success in e-learning, with a resulting negative effect on return.

The corporate may have a centralized hosting system, or can acquire content management system (CMS), learning management system(LMS), learning content management system(LCMS), etc. to add sophistication in process of creating, delivering, maintaining, and monitoring. CMS is a centralized software application that facilitates creation, and posting of e-learning content. LMS is software that automates the administration of training. LCMS combines features of both CMS and LMS.

E-learning solutions can clearly only progress at the rate of the base technology of the organisation, and this can slow down development, reduce the level of sophistication of the materials used, and create frustration in users and trainers alike. the learning experience and technological robustness are clearly linked (Macpherson, et al 2005). It is wise to include technology in the implementation strategy to consider the various options early on in the development process (Garrison and Anderson, 2003; Meister, 1998; Rosenberg, 2001; De Vries, 2005). A lot of attention should be given to basic issues like hardware and software configuration, the connection speeds, plug-ins to be used, intranet or Internet, hosting issues, security concerns, sound cards, video cards, operating systems and the myriad of hardware and software available on the work floor, in the office, and at home (McGrath, 1999; Rosenberg, 2001; De Vries, 2005). Decisive though is not just plain technology, but the operational environment in which e-learning is taking place. So part of this technology strategy involves important questions like (Meister, 1998, p. 76): (a) Does the technology fit the learner's needs? (b) Is it available and justifiable? (c) Does it simulate real working conditions?

Organisational Structure and Culture

Palloff and Pratt (2001) suggest that a committees which includes managers from all business units, should initiate online learning. The employees usually support what they contributed to creating thus, online learning should not be confined to managers only; instead every employee, unit and structure within the organization should share the ownership of the online learning initiative (St.Clair, 2002). The corporate must have a clear division of labor. The roles and responsibilities of all stakeholders should be defined clearly and explicitly. The communication should be frequent among all stakeholders. All employees should understand the e-learning development goals and work to support new objectives or procedural changes. Harmony must be achieved among them, viz., content providers, content evaluators, instructional designers, web page developers, programmers, networking service providers, system trouble shooters, feedback evaluators, managers, users, and others (Kumar & Gulla, 2011).

The factors facilitating organizational learning are: the clarity, acceptability and accessibility of the vision and mission of the organization, the existence of an organizational culture based on cooperative professional relationships and the establishment of a working environment and opportunities, which favour learning and in which the staff participates in decision-making processes (Leithwood and Louis, 2000). Every organization consists of a specific, thus, it is emphasized that every organization has to socialize its members in a common culture in order to reach an organizational integrity (Agaoglu, 2000). The managers should emphasize on the value of communication, learning, trust, cooperation, and innovation to create the culture appropriate for e-learning.

LMS

A **learning management system** (LMS) is a software application for the administration, documentation, tracking, and reporting of e-learning programs, and training content.(Ellis 2009). The key requirements of e-learning system are capturing, converting, and delivering useful, current, and dynamic content, in the face of constantly changing learner requirements. The choice of e-learning systems needs to match the learning objective. When learning objectives are ambiguous and complicated, systems delivering rich information could be superior to those delivering lean information. On the other hand, when learning objectives are clear-cut, systems delivering lean information could be superior to those delivering rich information (Trevino et al., 1990; Chen, et al, 2006).

E-learning can be superior to the traditional face to face learning in terms of quantity and quality of interaction by providing learner centered activity and system interactivity with a proper course design (Horn, 1994; Hirumi and Bermudez, 1996; Zhang, 2004). Four kinds of interactions are important in order to create a successful cooperative learning experience in the e-learning environment: student-content interaction, learner-instructor interaction, learner-learner interaction (Moore, 1989), and learner-interface interaction (Hillman et al., 1994). E-learning systems can be used to facilitate these interactions, thereby influencing the participation rate of learners (McHenry and Bozik, 1997).

Designing e-learning courses that include characteristics of the major learning theories ensures that instructional events are sequenced in such a way that learners do not experience cognitive overload, that they have options for engaging in content (i.e. start, stop, rejoin when needed), that the content is personally and professional relevant, and that motivational elements exist (i.e. humor, stories, examples) to focus learner attention. Using multi-media to create simulations, interactive examples and feedback opportunities, and including streaming video and audio supplements can also provide learners with a multi-modal learning experience that is both motivational and instructional (Hutchins and Hutchison, 2008).

Majority of empirical research linking learning principles to the design of training could be summarized into four basic principles (Baldwin and Ford 1988; McGhee and Thayer, 1961; Dhaka, 2008): (1) the use of identical elements (making the training settings similar to work settings); (2) the teaching of general principles (outlining a principle that can be applied across a range of problems or situations); (3) the provision of stimulus variability (using variety of examples to illustrate a principle); (4) the conditions of practice (how often trainee practice the tasks, what kind of feedback is provided, and how complex tasks are simplified). IS-related studies have pointed out that the user interface is an area where a high level of interaction takes place (Dam, 2001; Kumar, Smith, & Bannerjee, 2004), a well-designed, user-friendly learner interface therefore becomes one of the critical factors in determining whether learners will enjoy using the e-learning system. The user-friendly design of the e-learning course system has positive association with the system's educational effectiveness (Anjaneyulu et al., 1998; Ikegulu, 1998; Jannasch-Pennell, 1996; Nielsen, 1993; Park and Wentling, 2007). Laurillard's Conversational Model (2002) offers five ways in which learning resources may be used: narrative, interactive, adaptive, communicative and productive.

Gagne (1992) proposed nine events of interactions while preparing course material: gain attention, inform learner of objectives, stimulate recall of prior learning, provide learner guidance, elicit performance, provide feedback, assess performance, and enhance retention and transfer. The general psychological principle which may be helpful while devising course content are: proceed from simple to complex, concrete to abstract, general to particular, known to unknown, induction to deduction, and arrangement for frequent reinforcement. The content of any training program is intuitively important as a factor in effective vocational learning and in transferring that learning to job performance. Alliger, et al (1997) argued that when trainees recognized that the contents were practical, they applied knowledge and skills from the training to their real work.

The modes of representation and expression used in e-learning environments have often been restricted, mostly text-based. The theory of multiple intelligencies (Gardner, 1993) as well as the view of multiple representations (van Someren, 1998) suggest that more diverse modes of expression and representation would benefit learners. Hutchins and Hutchison (2008) explaining aspects of e-learning design had stresses on Learnability (The extent to which an interface reveals itself to the user); Efficiency (The result of an interface design that economizes mouse movement, eye movement, and cognitive load resulting in higher levels of productivity and effectiveness); Memorability (Refers to how easy it is to remember how to use the system in terms of commonly used commands or processes); Liberal (allows the user multiple attempts to accomplish a task or provides hints or feedback); and Satisfaction (how pleasant the interface is to use). Aragon (2003) suggest as e-learning members are separated by social, spatial, and psychological distance, strategies that support interaction and connectedness are important features in the course design.

Comprehensive Database

The database should be as comprehensive as possible. It may contain presentations, technical reports, white papers, reports, subscribed information, course modules, e-books, blogs, audio and video recordings of lectures, online assessments and tests, simulations, etc. as discussed earlier personalizability attribute learning material is important, therefore, there is need for transforming content from static creation, collection, and web posting to object creation, tagging, and data-base management for re-use. A re-usable information object affects how content is captured, organized, shared, re-used, blended, presented to the user, and kept current. Authoring tools designed to support and create reusable learning objects; metadata tagging tools and tag lists; browser based content upload, distribution, and management, all work together to enable a dynamic content (Kelly and Bauer, 2009). The end result is the ability to capture, create, re-purpose, archive and ultimately share more content across the enterprise, in personalized manner. Such databases should fulfill three main requirements: (1) the content must be divided into little "portions" called Learning Objects (LOs), which can be joined together in order to create a new online course; (2) the same content should be stored in various forms (e.g. text, audio or video recording and graphic representation (table and flowchart)); and (3) the way of combining different LOs must be defined (Zajac, 2009).

Littlejohn, et al, (2008) have identified 12 key characteristics shown by effective learning resources: Easily sourced, Durable, maintained; Quality assurance; Free from legal restrictions; Available at appropriate cost; Accessible, ubiquitous format; Intelligible representations in terms of language etc; Easily repurposed; Meaningful contextualisation; Sufficiently small to be reusable; Engage the learner (e.g. with activities); Reusable in different educational models. These 12 characteristics can be mapped against Sharpe's (2004) five guiding principles essential to good e-learning practice: usability, working within communities, contextualisation, promoting professional learning, and promoting good learning design.

Return on Investment (ROI)

Return on Investment (ROI) is a common mechanism for evaluating a potential business investment. Knowledge about ROI forces e-learning teams to financially account for their development and design time, which sometimes can drive the urge to develop quicker, cheaper yet learner centered approaches for designing and developing courses (Waight and Stewart, 2005). Morrison et al. (2004) identified design and development time, materials and supplies, equipment, staff benefits, administrative and trainer salaries as possible factors when calculating program cost. Wentling and Park (2002) surmised that three major factors are usually the focus of e-learning program evaluation: cost efficiency, learner satisfaction, and learning resources.

The DeLone and McLean (1992) model is one of the most widely cited IS success models (Gable, et al, 2003; Myers, et al, 1997; Heo and Han, 2003). It consists of six IS success categories or dimensions, which are: (1) system quality, (2) information quality, (3) use, (4) user satisfaction, (5) individual impact, and (6) organizational impact. These six dimensions of success are interrelated rather than independent. System quality and information quality separately and jointly affect both use and user satisfaction. Additionally, the amount of use can affect the degree of user satisfaction – positively or negatively – and vice versa. Use and user satisfaction are direct antecedents of individual impact; and lastly, this impact on individual performance should eventually have some organizational impact (Wang, et al 2003). DeLone and McLean (2003) proposed an updated IS success model this updated model consists of six dimensions: (1) information quality, (2) system quality, (3) service quality, (4) use/intention to use, (5) user satisfaction and (6) net benefits. Ford and Wroten (1984) suggested evaluating the work relatedness of a training program by reviewing the contents of the program.

Based on Giese and Gote's (2000) findings, e-learner satisfaction can be defined as a summary affective response of varying intensity that follows asynchronous e-learning activities, and is stimulated by several focal aspects, such as content, user interface, learning community, customization, and learning performance. Wang (2003) developed general E-learning Satisfaction assessment instrument which contains questions in categories of learner interface, learning community, content, and personalization using this e-learning planners can better judge the satisfaction levels of the users.

According to Dublin (2004) e-learning is about: people – learners, managers and executives – not technology; motivating learners and energizing organizations; enabling learning and driving performance; and providing a "return on expectation", not just a return on investment. Successful training can produce long-term results with strategic consequences. These results may emerge at different rates throughout the organization, making it impossible to measure success or return at a single point. If workers do not complete the course, their organizations do not get any return on the training investment (Shilwant and Haggarty, 2005).

Control and Evaluation

e-learning implementation have to address multiple points of inertia and resistance, and have to be systematic rather than piecemeal. This calls for clearly articulated and commonly accepted learner-centered teaching goals and values, and matching of these to policies, procedures, and resources (Latchem & Hanna, 2001). Control and evaluation basically involves finding answers to three questions (Diez & Mcintosh, 2009): What are the outcomes of the major processes involved in the e-learning life-cycle? ; What factors influence the achievement of these outcomes, and how? ; Which factor are controllable, by whom, how and with what effect? The term life cycle here means the set of processes involved in the development, adoption, use and disposal of e-learning system. Evaluation of e-learning system on these lines will certainly throw light on the areas where better control is to be exercised. The characteristics of successful e-learning are: It satisfies certain quality criteria (cost effectiveness, ease of use, adequate speed, accessibility, etc.) (Druary & Farhoomand, 1998); It reduces learning time; It improves performance (Delone & Mclean, 2003; Sojda, 2007); It is in harmony with organizational culture (Raz & Goldberg, 2006); It improves organizational effectiveness and efficiency (Olugbode, et al 2007). Any deviation from these characteristics should also serve as an indicator to areas where improvement is desired.

CONCLUSION

e-learning systems for their realization needs myriads of specialists. This involves technologists, educationists, designers, and all levels of employees. Managing e-learning systems involves change management. Organizations differ in culture and size, they operate in different business strategies. These different contingencies have direct impact on the organizational structure and processes, and as such have direct implications for the e-learning system. Striving for better e-learning system is a continuous process. As the company, the marketplace, and the people are constantly changing, it is important to closely monitor the e-learning system structure, processes and mechanisms, and to adapt and fine-tune them to new situations. Putting established learning norms and theories in practice in electronic ways is a credible challenge. The goals of e-

learning system should be clear and in sync with business concerns. Involvement of top echelon of the organisation's management is vital for direction and resource mobilization. Selection of most appropriate IT processes must be done and assignment of process owners must be logical. Involvement of all levels must be ensured in a federal way. Constant communication between all stakeholders should be maintained and user feedback should be valued. Suitable ROI metrics should be developed involving financial parameters and non-financial parameters such as, strategic value and end user satisfaction. Practicing managers need to imbibe best academic and corporate norms for successful realization and fruitful continuance of e-learning system. More research is required in the electronic pedagogies, instructional design, technology standards, database management, learning management systems, e-learning strategy, development of metrics of ROI, learning behaviour of e-learners, and testing methodologies. The e-learning framework proposed in this paper calls upon researchers to look for better insights into management of e-learning systems.

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