Demystifying the Learning Management System (LMS): Journey from E-Learning to the Strategic Role

Mohammed Ilyas*
PhD student, School of Business Management, College of Business,
Universiti Utara Malaysia, Sintok, Kedah, Malaysia

Kadzrina Abdul Kadir
School of Business Management, College of Business, Universiti Utara Malaysia, Sintok, Kedah, Malaysia

Zurina Adnan
School of Business Management, College of Business, Universiti Utara Malaysia, Sintok, Kedah, Malaysia

Abstract
The usage of the term Learning Management System (LMS) has grown recently in the corporate lexicon and so has increased the ambiguity in understanding its meaning. Being a ubiquitous   term, it is used to mean anything that relates to computerized learning or online education courses or any educational content hosted on an e-learning platform for the purpose of educating users at a distance. A need was therefore felt to demystify the role and meaning of a LMS in a corporate environment. This paper will not delve into its traditional definitions nor discuss it as a platform for online courses as much has been written about its evolution and significance in the domain of e-learning. This paper focuses on the strategic role that LMS has started playing in the corporate, taking the shape of a real time, strategic initiative for the purpose of talent management at the corporate level and has almost become an integral functional unit of the organization. The LMS package adopted in a corporate environment not only customizes learning of individuals and teams and offers relevant content to meet the training needs, but it also acts as a multipurpose strategic tool for the advisory on things like hiring the right talent, leadership development and successions planning, talent management, performance measurement, rewards and compensations, in all a comprehensive package to create a sustainable competitive advantage for the organization.
Keywords: business strategy, corporate learning, training needs, talent management

1.   Introduction
Technology-enabled knowledge sharing or disseminating customized learning with the help of technology has completely transformed the delivery of training in a corporate environment. Such a comprehensive as well as cross functional integration of technology and the learning function of an organization has grown into a multi-dimensional Learning Management System (LMS), a software managed tool that not only identifies training needs of individual and teams but also monitors their learning achievements by contextualizing it with the needs and requirement of the organization. A LMS framework enables organizations an access to the pre-stored training content in the form of lectures, videos, podcasts, e-books and other instructional resources accessible by all registered users from any place and at any time. Today, organizations have a geographically dispersed and diversely skilled work force working 24x7 in different time zones. A LMS is neither an e-learning solution nor a virtual classroom for this workforce, nor it is a computer-based training (CBT) nor computer assisted learning (CAL) leveraging multiple technologies in a distributed environment. In fact, the function of learning and development in a corporate organization has experienced a paradigm shift. No longer just an administrative necessity, training has gradually become a strategic partner in the growth of business. Therefore , it is important to find out how a user organization looks at the LMS, whether a mere tool to automate tasks and indirectly enhance the employee productivity and to bring efficiency in the function of training department or being looked as a holistic business solution closely aligned to the business strategy of the organization. This paper highlights its various aspects with an objective to demystify and understand what actually the LMS means.

1.1. Understanding LMS
It is important to know what makes organizations prioritize a LMS for their strategic purposes. First, it is convenient, user friendly and need oriented. No company wants to waste time on first finding what their employees need and then identify adequate training designs. A LMS is embedded with both needs analysis and training design that supports all learning requirements of a modern organization. Second, LMS supports all kinds of sharable modules and has a centralized resource library, easily accessible by all users from one place only. Third, LMS contains such analytics and reporting tools that are programmed, customized and aligned to company's strategic objectives. Fourth, at the individual level, one can see a shift in the LMS from institutional learning to individualized instruction since it keeps record, monitors and controls every individual's

development.

Moving ahead to understand the LMS much better, let us first realize that since a LMS is web-based, it requires different development platforms such as Java/J2EE, Microsoft .NET or PHP. For the storage of backend data, a LMS uses a database like MySQL, Microsoft SQL Server or Oracle. Moreover, since a LMS is commercially developed, it must have a commercial software licenses as well. LMS content is also available in many languages as it is accessed all around the world. This content is generated through a sharable content object reference model (SCORM) model which is a kind of an advanced distributed learning system designed to standardize training management and delivery. The SCORM model is a *de facto* standard for a LMS system that supports the creation of content in an interactive format, which is dynamically generated at the user's end when a request is received. One advantage of installing LMS software in an organizational environment is that when there are more requests and a large amount of content is required to be cached, there is a little necessity to map each request to the original server. The SCORM makes it possible to cache the content data on the local server of the client organization, which retrieves this dynamic and interactive content through route optimization methods which are fast and reliable.

The LMS vendor is responsible to devise such connection techniques that will optimize communication between the receiving servers and the sender's infrastructure. The content data also passes through intelligent platforms protected by the SSL protocol to ensure security. For enhanced security, the corporate LMS has a single sign in (SSI) which enables advanced authentication and firewalls to ensure data security. All LMS vendors possess cloud-based storage systems to optimize costs and ensure the required storage capacity in the client organizations. Last, but not the least, LMS softwares are programmed for geographical replication and compatibility to adapt to any architecture and technology making it possible for employees of an organization to access the data at any time and from anywhere.

In addition to benefits like automation of learning and centralization of functions available in every LMS, there are numerous other benefits: First, it reduces costs and time of training as LMS products allow any organization to access coursework and other training material at their own pace with flexibility and multiple access to the course material. Second, it reduces training redundancy and other related operational errors that many training departments experienced in the conventional system. This results in maximizing efficiency and integration of content with the delivery methods. For instance, the end user can opt for the delivery method of his choice to receive the content such as a webcast or a face to face video interaction with the trainer. The content is delivered in the customized format and to suit the user's requirement. Adding to this, a LMS also offers a multi-lingual support providing the content and training in the user's native language.

Third, LMS boosts such knowledge management practices in the organization that it creates a learning environment and ensures knowledge retention. Being interactive, it is able to store key knowledge and techniques from the current employees to reuse it at a later date. Such stored data serves as a knowledge portal on the organizations' intranet and is accessible to all employees allowing anyone to create additional content, track, manage and distribute the learning material across the organization. Last, but not the least, LMS ensures to create such training content that aligns with the organizational policies and procedures, and prepares individuals to configure their skills and competences according to the goals and objectives of the organization. There is an embedded mechanism such as automatic enrollment of trainees at regular intervals reminding them for mandatory courses and other job related value addition training programs. These courses are also customized and programmed according to the operational procedures and skills requirements of the organizations. Hence, by enrolling in a course, employees can also understand business processes and the day to day operation of their organization..

1.2. LMS: Points of View

Hutchinson (2007) observes a paradigm shift in learning management practices in an organization and finds learning and development no longer a prerogative of HR or training departments but extended to line managers of other functional units across the organization. Other research studies (Noe, 2016; Purcell and Hutchinson 2007; Gibb 2003) in the past too had emphasized upon increasing involvement of line managers in L&D practices. According to these studies, when L&D is integrated with line management or cross functional activities, it promotes automation, learners' autonomy, employees satisfaction, commitment and motivation. These studies were thus predicting adoption of LMS platforms in organizations that understand the importance of integration of line management with learning and development.

A change that was observed in these research studies was that employees learn best in teams and when skills are learned through much wider and bigger platforms rather than through closed training classrooms and monotonous modules. Jennings (2007) therefore recommends more interaction and interface of employees with senior executives and top management officials. This enables aligning learning and development with organizational strategies, a subject that will be taken up later in this study. What Jennings (2007) and other research studies indicated has now become a reality in the form of LMS platforms widely used across the world.

In a recent study Mihai (2016) calls the organization an "ecosystem" comprising functional units such as HR, IT, Sales, Finance, Design, R&D and Operations. The success of L&D depends upon the coordination between these functional units which LMS executes by providing the best tools and by hosting all L&D content at one centralized place. O Connor and Wulf ((2014) talk of providing such tools to cross-functional teams that could assist them to implement solutions to complex business problems since such teams work towards achieving business objectives and implementing strategies. A drug manufacturing company, for instance, in order to commercialize a product, must engage all its functional units. The function of drug discovery or drug manufacturing is not the only function that it has; it requires cooperation across all functional units. Such functional amalgamation results in value creation and that is what a LMS aims at.

It is necessary to note at this point that migration from a traditional and a legacy system to a modern, technology enabled LMS implementation process is usually risky, time consuming and costly. It is not correct to assume that all LMSs are developed with the approach of "one size fits all" (Black et al, 2007) Hence, in order to implement a most compatible LMS, it is important to focus on users' expectations, their needs and requirements, and not just on a technology that is required or what results are expected from its implementation. The implementation therefore must commence with the integration of all the functional units in the organization, involving all stakeholders, internal as well as external, followed by migration of content from the legacy system to the new LMS. During the changeover, the customization of the LMS must take place to accommodate every single item required for its implementation, including the training of the employees on the application of the LMS. Often due to lack of migration tools in the new LMS, some of the old and redundant content cannot be migrated; however, LMS has a provision to keep all such content in archives and retrieve it when needed by the user.

Prior to starting the implementation process, Foreman (2013)   insists on formulating a core team comprising of a team leader to provide leadership; a project manager to keep a track of tasks and resource assignment; an e-learning specialist who is well aware of technology, e-learning tools, instructional models and who can facilitate migration or transfer of the training content from the native system to the LMS system; a training administrator to configure LMS according to the training requirement of the organization and finally an IT architect to install the LMS system and take the responsibility for data security, user account management, system integration with HR and other functional units. Being vendor hosted solutions, LMS practices are also commonly called 'cloud' or 'software as a service '(SaaS) solution. The size of the 'cloud' depends upon the organizational requirements and how much the LMS needs to be configured to these requirements.

Foreman (2013) also suggests six steps for a successful implementation of LMS in an organization. (Table 1) These six steps are: Planning, Configuration, Integration, Migration, Testing and Go live. The first step, planning requires preparing a template comprising tasks like data cleanup, data migration, changeover schedule, uploading user profiles, end user support mechanism etc. A well planned proposal nullifies the possibility of any failures and assures a smooth flow of its various phases. The second step is configuration of the LMS according to the organizational requirements. The LMS must be configured to suit the organizational demographics, data operations, job functions in the organizations and communication patters to be adopted for the application of LMS across the organization. The third step is Systems Integration of LMS with the organization system containing users' accounts and their profile information. For instance, an organization may have its human resource management system (HRMS) containing employees' information. The IT department must retrieve the data from the old user accounts and format it according to the required method of the LMS software. Moreover, the LMS integration is also important for single sign-on solution(SSO) to avoid the user to sign in to different systems with different login passwords. If properly integrated, a user is required to undergo through a single authentication process by login into the LMS network only once and secure access to multiple login sessions.

Steps	Tasks
Planning	Preparation of a template for tasks like data cleanup, data migration, changeover schedule, uploading user profiles, end user support mechanism
Configuration	Configuration of LMS according to organizational demographics, data operations processes, job functions and communication patterns.
Integration	Systems Integration of LMS with each functional unit of the organization, connecting user accounts and their profiles; Single login to gain multiple access
Migration,	Data migration from the native system and retention of data to ensure uninterrupted access to the content.
Testing	Testing to make sure that the new system is bug-free, fully compatible and configured and contains all the required data for its smooth functioning
Go live	Operationalization of new LMS; training and orientation of the employees for thenew LMS if required

Table 1: LMS Implementation framework based on Foreman (2013)

The fourth step is data migration which requires moving the data from the old system to the new LMS.

The organization must decide how much data to migrate on the new LMS. It is often suggested to start with small data migration to avoid errors and delay in implementation. The retention of data is often a necessity; for instance, there is no need to migrate old and redundant training data and must remain archived in the legacy system. All user accounts from the old HR deed must also be migrated to the new LMS to ensure uninterrupted access to the training data. The fifth step is user testing to ensure that the vendor has delivered a bug-free, fully compatible LMS and to make sure that it is adequately configured and all the required courses and other data are available. The organization may conduct some tests over the LMS to check its performance and identify a few bugs that may interfere in the smooth functioning of the LMS software. Prior to giving the acceptance, the organization needs to ensure that those bugs are fixed. The sixth and final step is to go live with the new LMS. The organization starts operationalizing the new LMS; it may set up a helpdesk to advise and guide employees about the new LMS and orient them with user interface regulations and login requirements. If required a live training can also be carried out on its application.

An example can be cited of LMS implementation: Aventis Pharmaceuticals, (Aventis, 2002) for instance, created a global implementation of a learning management system based on Saba software, necessitating a regulatory compliance to use a common platform to design, manage, and deliver training globally across all its functional units within the organization. Aventis works in a network centric environment having sales, marketing, medical, clinical, and legal functions with a dual reporting procedure across all functions, wherein all functional managers are responsible for controlling the work of individual employees who performed several roles. It was important for these managers to coordinate and set priorities to achieve organizational goals. Prior to implementation, the SABA software was prebuilt with these business priorities and other related training requirements of all functional units (Martin, Quigley &Rogers , 2005)

The implementation of a LMS had several advantages to Aventis. First and foremost, a LMS became embedded globally into its training culture encompassing all its functional units. There was clear evidence that LMS had integrated with the learning trends of the pharmaceutical industry providing Aventis the ability to respond to the change Employees could now manage their own training gaps by personalizing their learning according to their professional needs and organizational requirements. The SABA LMS allowed employees to maintain their learning records as they moved upward in their professional career thus providing employees to keep a track of their training achievements. Moreover, the LMS also shifted the focus of learning from individuals to teams as the pharmaceutical industry experienced constant changes requiring mergers and spin offs. In such an ever-evolving, dynamic environment, a LMS offers a good support to teams by bringing new perspectives in the changed circumstances, and aligning employees with changing organizational priorities, strategies and structure.(Aventis, 2002) The LMS thus not only facilitated change but also provided flexibility and agility in delivering training to its employees in new operational processes and procedures.

A LMS is thus a web-based, enterprise level, software system that employs a web browser to monitors learning across the organization. Besides equipped with courseware, a LMS is also programmed to plan and monitor employees' current levels of learning, particularly keeping a track of their on-the-job performance and identifying need-based training for them. A learner registers for a particular course and gets evaluated for his performance ending up with certifications. With the implementation of a LMS in an organization, there also develops a learning culture; learning is seen embedded in employees' work performance. The employees realize that their learning would enhance the performance of the organization.

The success of LMS has proved wrong several myths that were attached to e-learning and computerized learning management system. For instance, it was thought earlier that online training solutions are expensive and only big organizations can afford its budget. But it is now known to all that e-learning based training is much more cost effective compared to traditional classroom based training. Moreover, it causes much less disruption to employees' work which is again a cost saving element. Another myth was that an organization, in order to introduce e-learning courses, ought to have an IT department and other technical installations and gadgets. But with the advent of Cloud computing and Software as a Service (SaaS) e-Learning solutions, what an organization needs to do is to register for an account and get started with e-learning courses.

1.3. Strategic alignment

Practically speaking, an LMS has changed the whole function of a Training Department which is now evolved and known as Learning and Development (L&D) system, more focused to achieve organization's strategic goals through training events. These training events are in close alignment with the business strategies (Sum,2010); the LMS installed in these organizations control and monitor training activities through a centralized monitoring system (Watson &Watson,2007); the LMS is completely aligned and configured according to the business policies and strategies of the organization and integrated with all its functional units (Oakes,2002); creating a learning and knowledge platform by encouraging personalized learning and learner-centered decision making(Phillippo, 2012)   finally ending up with preparing a strategically focussed manpower to ensure organizational profitability (Wentworth, 2014). Goldstein & Ford (2002) too find that training having taken a

systematic and strategic approach requires a LMS with a view to enhance performance of both the individual and the organization. This is also the core principle of a learning organization which states that people must develop shared thinking and 'a unified corporate vision' (Senge,2006).

A study based on more than 100 organizations by Wentworth (2014) evidences that nearly 48 percent of the organizations have aligned learning and business strategies together through a customized LMS and out of these 70 percent record an improvement in the organizational profitability. Wentworth thus advocates that learning in organization first needs to be closely aligned with business strategies; then it must be monitored and managed by a properly designed LMS. His findings also show that a LMS contributes to such strategic benefits like greater retention, employee engagement, and improved performance and cautions that organizations which fail to monitor their learning management practices will have serious strategic issues with organizational growth, employee productivity and organizational profitability. A LMS also offers effective solutions to strategic issues, according to Wentworth, by identifying strategic areas and providing training to the talented individuals in those areas and ensuring better financial results for the organization. Another survey at MIT (Ben-Hur, Jaworski, and Gray 2015) apprehended a shortage of leadership talent and knowledge workers in organization in spite of enormous spending on employee training. This was proving, according to the survey, detrimental to the success of any L&D programs that were designed and developed as per the organizational strategic priorities.   The survey observed that though L&D has brought the training function of the organization closer to the business strategy and is seen aligned with it but there is a lack of a strong monitoring agency or a holistic tool like LMS.

A LMS also assists the organization to integrate its various functions such as Sales, Operations, HR, R&D and Legal, all upon a holistic platform in order to plan, create and control learning solutions and increase the organizations' business value. (Learning Circuits, 2006). Therefore a pre-requisite for a LMS is that the organization must have a set of well-defined business goals and strategies. It enables the L&D team of the organization to select a custom LMS that suits the organizational requirements and contributes to building up talent and performance among the employees. A LMS well suited to the organizational strategies and to its goals and objectives also initiates the process of establishing such best practices like leadership development, team building, succession planning, performance measurement, recruitment and promotion schemes, employee motivation, employee career advancement and overall completive advantage for the organization.

Stuart (2015) in the CIPD report, claims that approximately 40 percent of US training organizations use the LMS platform to provide a strategy-driven, need based training to their corporate clients. The annual estimated total revenue of LMS industry reached $2 billion in 2015 and is expected to grow to $7 billion in the next 3 years. Its global presence in 225 countries have over 68 million users registered and engaged with e-learning and expanding its usage by over 40% each year (LMS: Industry Insights 2015) . Fig 1 shows sector wise LMS usage with the education sector leading with 21% of the market, closely followed by the technology sector at 12% and manufacturing acquiring 9% share and Healthcare and Consulting taking 7% share each.
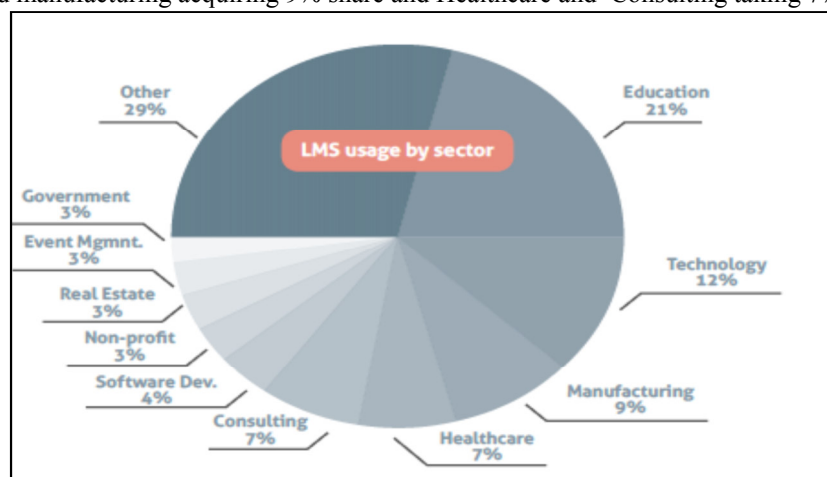

Figure 1 : LMS Usage by sector
Source : Learning Management Systems (Webanywhere; Industry Insights 2015)

There are several vendors selling LMS software for the corporate sector across the globe (McIntosh, 2016) including SumTotal (now Skillsoft), Saba, Meridian, IBM Smarter Workforce, Success Factors (now SAP) and Oracle. While in the education sector, the largest LMSs are Blackboard, Brightspace (formerly Desire2Learn), Moodle (open source) and Sakai (open source). Many organizations and universities however build their own proprietary systems to monitor their learning. An organization may buy the LMS software from any vendor since all large vendors provide almost similar features. For instance, SABA(2016) offers a package containing features like recruitment, compensation, performance, succession planning and career development

through a unified virtual classroom, a complete talent management tool that helps the corporate in end-to-end solution for preparing a strategic workforce.

1.4. Conclusion

LMS thus brings out the best value to the client organization in terms of cost advantage, monitoring of multiple tasks, delivery of performance improvement and several other business solutions. A question is now raised to know whether the LMS be recognized as a tool or a strategy. Training practitioners and experts look at the LMS as a strategy which is implemented to bring about the required outcome or organizational change. When well implemented this strategy results in enhancement of both individual and organizational performance. Moreover, when learning is mostly on demand and predictive of some results, a LMS only can offer a dedicated learning architecture combining all the required training resources and innovative applications.

A LMS is definitely not a tool since there is no such specific activity or function that it is used for. In a few organizations, LMS is procured or developed internally as a tool to serve a strategy because when an organization decided to buy a LMS software, it clearly define its strategy and sets the goals it wants to achieve and is aware in what way the LMS would be helpful in achieving these goals. Moreover, one of the objectives of opting for LMS is to replace the conventional T&D system, thus increasing the dimension of training to such an extent that it can be seen aligned with the business strategy

The Future of LMS is going to be dynamic since organizational work force is extremely mobile and distributed geographically, working in 24x7 environments across all time zones. This workforce will be increasingly dependent on the access of data and a continued training support. The LMS will have to continually evolve and adapt to new learning challenges and skills requirements with the changes in technology. With the passage of time, a LMS will have to create and document large amounts of content; it will have to customize itself according to new processes and strategies of the organizations; it will need to become more user friendly.

REFERENCES

Aventis Pharma (2002) Performance Management, Foundation for a Performance- Driven Company, *Aventis Pharma AG*, Poseidon Haus, Frankfurt, Germany (2002).

Ben-Hur, S., Jaworski, B., and Gray, D. (2015). Aligning Corporate Learning With Strategy *MIT Sloan Management Review* Fall 2015 Research Feature September 01, 2015

Black, E. W., D. Beck, K. Dawson, S. Jinks, and M. DiPietro, The other side of the LMS: Considering implementation and use in the adoption of an LMS in online and blended learning environments*, Tech Trends*, vol. 51, no. 2, pp. 35-53, March 2007.

Foreman, Steve (2013). The Six Proven Steps for Successful LMS Implementation. *Learning Solutions magazine* (https://www.learningsolutionsmag.com/ retrieved on 20.1.2017)

Gibbs, S. (2003) Line manager involvement in learning and development: small beer or big deal? *Employee Relations*. Vol 25, No 3. pp281–293.

Goldstein I. L. & Ford K. (2002) *Training in Organizations: Needs assessment, Development and Evaluation* (4th Edn.). Belmont: Wadsworth.

Hutchinson, Sue (2007) The role of the line manager in learning and development, Latest trends in learning. *Training and development : Reflections on the 2007 learning and development survey CIPD Survey, 2007*

Jennings, Charles (2007) Integrating learning and development into wider organisational strategy ; in *Training and development : Reflections on the 2007 learning and development survey CIPD Survey, 2007*

Learning Circuits. (2006). A Survey of Learning management systems Retrieved from http://www.learningcircuits.org/2006/August/2006LMSresults.htm

LMS (2015) Learning Management Systems: Industry Insights 2015. Webanywhere: stretched Beyond

Martin, K., M. A. Quigley, S. Rogers (2005) Implementing a learning management system globally: An innovative change management approach *IBM Systems Journal*, Vol 44, No 1, 2005

McIntosh, Don (2016). Vendors of Learning Management and eLearning Products *Trimeritus eLearning Solutions Inc*

Mihai, Livia (2016). How to coordinate your company L&D strategy with an LMS (http://blog.matrixlms.com/category/managers/. Retrieved On 13/6/2016

Oakes, K. (2002). E-learning: LCMS, LMS—They're not just acronyms but powerful systems for learning. *Training & Development*,56(3), 73-75.

O Connor, Mary K. And Sylvia Wulf (2014) the Power ofCross functional Teams *Velocity* 32 (32) Q,3, 2014

Phillipo, John and Sarah Krongard (2012) Learning Management System (LMS): The Missing Link and Great Enabler. *Massachusetts ASCD Perspectives*, Spring 2012.

Purcell, J. and Hutchinson, S. (2007) Learning and the line: the role of the line manager in *Learning and Development* [online]. London: Chartered Institute of Personnel and Development. Available at

http://www. cipd.co.uk/onlineinfodocuments [Accessed 16 April 2007].

SABA (2016) *A Corporate Overview: A Brochure*. Retrieved form https://www.saba.com/anz/lms/

Senge, Peter M. (2006). Leading Learning Organizations The Bold, the Powerful, and the Invisible. In *The Leader of the Future* , Goldsmith and F. Hesselbein, Eds . Jossey Bass, Inc., a subsidiary of John Wiley & Sons Company

Stuart, Ruth (2015) *Learning and development Annual survey report*,. 2015 CIPD retrieved from cipd.co.uk/learninganddevelopmentsurvey

Sum , Vichet (2010) Integrating Training In Business Strategies Means Greater Impact Of Training On The Firm's Competitiveness *Research in Business and Economics Journal*, Wiley

Watson, William R. and Sunnie Lee Watson (2007) An Argument for clarity: What are Learning Management Systems, what are they not, and what should they become. *TechTrends* March/April 2007 Volume 51, Number 2

Wentworth, David (2014). Trends for the Future of Learning and Development, *Training Magazine* 28 August 2014