

# Emerging Trends in Learning Management Systems

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## Abstract

The ever emerging technology world is leaving no sphere of our lives untouched. Technology has also made it's foray into the learning space and has completely redefined the way learning is imparted. From structured and formal environment the learning space has evolved into a virtual, mobile enabled, informal and social activity based world. These changes in the learning space are giving rise to changing needs. To keep abreast with these changing needs, the Learning Management Systems (LMS) space is ever evolving to try to keep pace at which the needs are changing.

A LMS is a software application for the administration, documentation, tracking, reporting and delivery of e-learning courses or training programs. There is a shift in the way learning is delivered- from e-learning to blended learnings, formal learning to social learning, desktop to mobile learnings, enhanced reporting and analytics, user friendly and configurable user interface and dashboards, from supporting employees to supporting extended enterprises- we have seen it all. This paper is aimed at looking at some of the emerging trends in the field of LMS brought in by the emerging technologies.

**Keywords:** *Learning Management System, LMS, Cloud LMS, Mobile Learning, Tin Can API, learning ecommerce.*

## 1. Introduction

The learning world is ever changing. Past couple of years has witnessed changes in the way learning is imparted at herculean pace. From structured and formal environment the learning space has evolved into a virtual, mobile enabled, informal and social activity based world.

These changes in the learning space are giving rise to changing needs. To keep abreast with these changing needs, the Learning Management Systems (LMS) space is ever evolving to try to keep pace at which the needs are changing. Learning from e-learning to blended learnings, formal learning to social learning, desktop to mobile learnings, enhanced reporting and analytics, user friendly and configurable user interface and dashboards, from supporting employees to supporting extended enterprises- we have seen it all. LMS providers across the globe are continuously reengineering and revamping their LMS

products to incorporate the new features that are coming in play in the learning space.

The changing learning space is every day bringing on board more LMS buyers and more providers; taking the growth of the LMS market to a breakneck speed. According to a research by Bersin & Associates more than \$2.5 billion will be spent on learning technologies in 2014. In their report, "Learning Management Systems 2013: The Definitive Buyer's Guide to the Global Market for Learning Management Solutions," Bersin & Associates have stated that between \$1.8 and \$1.9 billion was spent globally on learning management systems in 2013—an increase of almost 10 percent over the previous year. The report states that "... with more than 500 providers in the market, only five of them (Cornerstone OnDemand, Oracle, SAP, Saba, and SumTotal) have more than 4 percent market share."

The LMS was originally developed as a means of scheduling and managing formal training. Many educational institutions and pioneering corporations maintained systems on mainframe computers. In the new millennium, the corporate learning management system has developed into a business-critical technology platform and, says Bersin, "most organizations offer training and today nearly two-thirds of it is driven through digital content, mobile devices, video, and other new media sources." This means that in 2014, a learning management system is no longer a simple piece of software.

## 2. Some Emerging Trends for Learning Management Systems (LMS)

As new trends emerge in the fields of Information & Communication Technologies, they are revolutionizing the way education is being delivered online across geography 24 hours, 365 days a year. Though there is no knowing how the LMS market will look in next 3-5 years, there are some trends that have forayed in the LMS sphere in a big way and are playing a big role in revolutionizing the learning sphere.

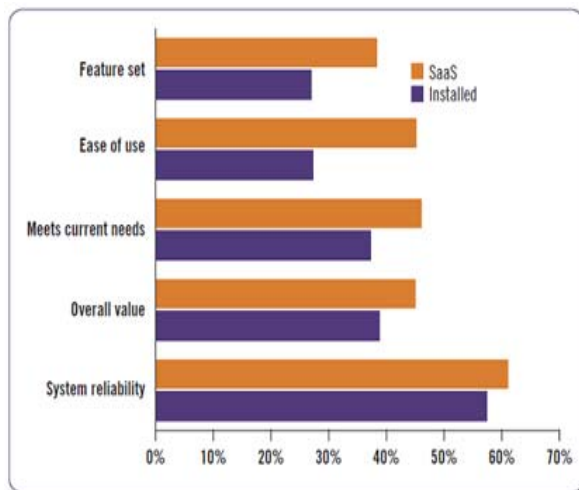
## 2.1 Cloud based LMS

### Introduction

Just a few years back, everyone wanted to host, run and manage their applications on their own servers running behind their own firewalls. This gave a sense of security and control to the organizations. Everyone wanted their own instance of LMS that could be installed for them behind their firewalls. All this has changed with the emergence of Cloud Computing. Cloud computing has given rise to Cloud based LMS that are inexpensive to install and maintain, provide faster upgrades and fixes to all users at the same time, enable training delivery in a quick and efficient manner and are accessible across the geography.

The Cloud based LMS are offered as a Software as a Service (SaaS) where the provider installs and operates the LMS in the cloud from where it is accessed by clients over the web.

According to the **2014 LMS Trends Survey conducted by the Brandon Hall Group**, 54% of all deployed LMSs are in the Cloud. The report also indicates that Cloud Learning Management System users are also most satisfied with the learning system – due to a myriad of contributing factors. The following graph shows the percentage impact of several factors.



Source: Brandon Hall Group, 2014

Fig. 1 Parameters depicting satisfaction level for users of Cloud LMS vs traditional LMS

### Benefits of using Cloud based LMS

Some of the benefits of using a Cloud based LMS are:

- Reduced cost as the client is not required to invest in servers, OS upgrades, software license fee, database administration, in house IT staff to manage such servers and applications and other such allied costs.
- Reduced time to set up and run an instance of the Cloud LMS for a new client as compared to the traditional LMS.
- Capability to seamlessly integrate with other systems in the organization. For example SAP, ERP and other such systems.
- High scalability to cater to the growing of different organizations.
- Higher uptime and availability with rare instances of unplanned downtimes and data loss.
- Anywhere and anytime access over internet.
- No issue of multiple versions of the LMS existing. As there is a code base so all instances of the cloud LMS have the same latest version running.
- Built with considerable emphasis to both application and database security.
- More flexible and open to customizations to suit needs of their clients.
- Offer and support mobile and social learning.
- Compatible with just-in-time learning.

## 2.2 Tin Can API

Technology is changing the way we teach and more importantly the way learners learn. This is evident in all spheres of learning- be it learning imparted at schools, colleges, professional institutions and even learning in workplaces. Organizational learning till recently followed a formal, structured manner with majority of the trainings delivered in a classroom based mode. A major part of organizational learning is now informal.

- As per the 70:20:10 learning model, around 10% only is formal (through planned trainings)! The remaining 90% is happening informally!
- Most informal learning is happening outside the LMS (such as visiting a webpage, viewing a YouTube video, playing a game/simulation, etc).

- All informal learning is happening across multiple devices (such as desktops, tablets, mobile phones, etc.)
- Most informal learning is happening even while learners are offline (without being connected to the LMS).
- Some of the learning interventions require dynamic ways of pulling data from external sources into a course (such as real-time weather data or product pricing or stock numbers, an instructor adjusting a scenario on the fly, etc.).

All this has brought an increasing need to record and track these learning experiences (both format and informal) so that analysis can be made about the effectiveness of learning gained by individuals. Birth of Tin Can API has made it possible to exactly do this.

#### **About Tin Can API**

Tin Can API also known as Experience API(xAPI) is a brand new specification for learning technology that makes it possible to collect data about the wide range of experiences a person has (online and offline). This API captures data in a consistent format about a person or group's activities from many technologies. Very different systems are able to securely communicate by capturing and sharing this stream of activities using Tin Can's simple vocabulary.

Mobile learning, simulations, virtual worlds, serious games, real-world activities, experiential learning, social learning, offline learning, and collaborative learning are just some of the things that can now be recognized and communicated well with the Tin Can API.

The Tin Can API is an open source API. It is a Representational state transfer web service that uses JavaScript Object Notation for its data format. The web service allows software clients to read and write experiential data in the form of "statement" objects. In their simplest form, statements are in the form of "I did this", or more generally "actor verb object". More complex statement forms can be used. There is also a built in query API to help filter recorded statements, and a state API that allows for a sort of "scratch space" for consuming applications.

#### **Key benefits of using Tin Can API**

Some of the benefits of using Tin Can API are:

- Taking e-learning outside of the web browser
- E-learning in native mobile applications
- More control over learning content
- Solid security using OAuth
- Platform transition; e.g. start e-learning on a mobile device, finish it on a computer
- The ability to track games and simulations
- The ability to track real-world performance
- Team-based e-learning
- Tracking learning plans and goals

### 2.3 Mobile Learning

As the trend to bring your own device (BYOD) is increasing, it is in parallel also pushing up a demand for LMS that support mobile learning. In 2013, Cisco's BYOD Insights report revealed that 9 in 10 Americans already use their smartphones for work purposes.

People are learning everywhere all the time at their own pace and on their own devices. This fact requires that eLearning must be designed for use on any PC, tablet, smartphones, laptop and every such device that is going to emerge in future.

The LMS of today cannot be single device, browser, operating system or resolution based. They need be multi device compatible.

#### **About Mobile Learning**

Mobile learning is the delivery of learning, education or learning support on mobile phones, PDAs or tablets. Mobile learning involves the use of mobile technology, either alone or in combination with other information and communication technology (ICT), to enable learning anytime and anywhere. Learning can unfold in a variety of ways: people can use mobile devices to access educational resources, connect with others, or create content, both inside and outside classrooms.

Mobile learning is available in the form of native applications, web applications and hybrid applications.

**Native applications:** These are mobile learning applications written for selected mobile platform (or platforms) for instance Google Android and/or Apple iOS | which can be used for learning in one way or another. These applications deliver the best user experience. They need no plugins and especially their handling is much easier. They can be used, when no mobile network is available.

**Web applications:** these are mobile learning applications that run in your web browser, which can be used for learning in one way or another. These applications are developed using HTML5, CSS and JavaScript code. These web apps are less powerful than native applications. They are platform independent. There is never a need to update these applications. All necessary updates come to automatically on accessing the LMS.

**Hybrid applications:** these are web applications enclosed in a native application shell. Portions of the application are written with code for a native application and other parts rely on familiar web programming languages. These applications allow users to easily update content displayed through standard web technologies while maintaining many advantages of native apps, like speed and access to selected hardware features on the mobile device.

### Key benefits of Mobile Learning

Some of the benefits of mobile learning are:

- Provides anywhere, anytime learning.
- Relative less expensive as cost of mobile devices is significantly less than PCs and laptops.
- Encourages collaborative learning.
- Engaging learning experience.
- Self-paced learning to suit individual learner's pace and style.
- Fits many different learning styles: reading(texts and graphics), videos, podcasts, animations, contributions to various forums.
- Improved social learning.
- Big data tracking.
- Increase effectiveness of on-the-job training (OJT) as learner's access and apply concepts in the moment.
- Offline tracking ability.
- Supports both synchronous as well as asynchronous courses.
- Integration with Tin Can API .

### 2.3 Learning ecommerce

Learning ecommerce refers to the ecommerce capabilities in an LMS using which the learners can purchase the offered courses. The ecommerce features needed in an LMS are quite different from the ones needed in any standard online store.

The organizations today not only have offices spread across the globe but also want to track and/or manage learning and development (L&D) of their extended enterprises as well. This has given rise to needs to have more enhanced features built into the LMS than what is

offered by the standard ecommerce module available in traditional LMS.

### Key features that ecommerce module of an LMS must have:

- Multi-tier pricing model for different audiences – The LMS must support defining appropriate pricing structures to enable defining different sets of pricing for same course in different regions/countries for different set of audiences.
- Multiple currencies- ability to define price of same course in different currencies so that users across the countries can purchase the same in their local currency.
- Multiple payment methods- credit cards, debit cards, net banking/ procurement cards.
- Group ecommerce.
- Group tracking and reporting of orders.
- Defining discounts and promo codes: dollar/currency amounts, percentage, single use, multi-use, expiration dates, selected courses.
- Tokens or training units purchase by organizations.
- Pre purchase trainings.
- Free vs paid enrollments.
- Single and bundled courses sale.
- Tax calculation.
- Secure and PCI compliant.
- Purchase from mobile device and tablets.
- Upselling (recommended courses).

### 3. Conclusions

The LMS scenario is changing everyday with the emergence of new trends in the field of technology and communication. We have briefly discussed a few of those above. Many more trends like social learning, gamification, personal learning environments, learning analytics using big data, talent management integration, MOOCs have already made their entry into the eLearning domain and will continue to do so over next few years.

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## References

- [1] Bersin & Associates, eLearning Management Systems 2013: The Definitive Buyer's Guide to the Global Market for Learning Management Solutions
- [2] Tin Can API Overview: <http://tincanapi.com/overview>
- [3] Brandon Hall, LMS Trends 2014: Installed vs. SaaS Deployment
- [4] Christopher Pappas, Top Learning Management System Trends for 2014

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