Cloud-based learning management systems are the key for educational institutions that use distance learning models to improve student engagement and performance.

‘To maximise the options for flexible learning, higher education institutions are adopting extended-reach learning management systems (LMSs), which are essential for the support of blended instruction models.’

College life has changed dramatically over the past thirty years. We’ve seen improvements to the facilities available to students, major developments in the use of technology to teach and engage students, and amendments to regulatory mandates. Even the demographics of who attends college - and how and where they do so - is evolving.

Higher education institutions are under pressure to increase the number of enrollments beyond the capacity of the physical campus. Often, this results in an educational environment that combines on- and off-campus facilities, and online functionality that's supported by a blend of instructor-led and self-paced, self-selected curricula.
Online learning is one example - research suggests that more than 28% of US college students took an online course in 2015, which equates to 5.8 million students. However, it’s just one example of the advancements in education provision. To maximise the options for flexible learning, higher education institutions are adopting extended-reach learning management systems (LMSs), which are essential for the support of blended instruction models. They also deliver invaluable metrics that identify why student engagement and satisfaction levels have improved, and any approaches that should be adjusted to meet an institution’s business goals.

Because LMS solutions need to be deployed and managed in a flexible and scalable environment, colleges and universities can benefit from delivering them using a cloud computing model. Whether it’s deployed as a private or hybrid cloud, the use of a multifunctional, robust, and secure cloud platform is often the most cost-effective way to support LMS.

This paper discusses the benefits of LMS for the delivery of a cohesive, comprehensive, and coordinated learning experience across distances and institution formats, and the role that cloud computing plays in the facilitation of LMS.

The impact of learning management systems on higher education IT departments

Today, learning management systems are essential to the success of most colleges, universities, and other higher education institutions that want to transform their instruction models. With universities no longer limited to traditional, instructor-led, in-classroom formats, IT organisations have to accommodate a wide range of instruction and learning capabilities that take place over significant distances.

This increasing trend towards distance learning is a catalyst for LMS adoption, and in particular for the integration of different distance and online learning capabilities. There are numerous non-campus-based formats in which LMS is the ideal solution. These include substantial online courses, computer-based instruction, computer-aided instruction, and computer-assisted learning.

These, and other alternative learning and instruction formats have gained momentum not only in graduate and post-graduate courses and certification programs, but also in traditional underclass settings. This has created a sense of urgency for institutions to stitch together blended systems to accommodate the multiple approaches.

This helps broaden their appeal to students of different age groups, professional statuses, geographic locations, and special requirements such as non-traditional hours and learning environments.

‘Flexible, scalable, and secure platform solutions are critical to the success of the extended-reach teaching and learning systems,’ says David Heyns, Education Vertical Specialist for Dimension Data. ‘Variable content sources and formats, and general accessibility by any method and from any location are the key drivers for the support of emerging LMS technologies by cloud computing. In addition, by allowing the academic administrative interrogation of key performance indicators, the institution is empowered to deliver an improved student experience and a greater digital presence,’ explains Heyns.

Increasingly, IT professionals within higher education establishments adopt and even upgrade LMS systems to handle the multiple elements of educational programs. These include analytics that relate to student assessment and engagement, feedback on the available instruction, stakeholder collaboration, program content evaluation, and delivery methods.

‘This increasing trend towards distance learning is a catalyst for LMS adoption...’
‘By contrast, a **robust, agile LMS** that can **scale** with an educational institution’s needs will help **attract more students**, **improve the students’ satisfaction and engagement**, create a high-quality work environment for instructors, and promote **enterprise-wide collaboration** on the campus and at remote locations’

Learning management systems must also be flexible and robust enough to accommodate the diverse requirements of a range of institutions - Ivy League universities; community colleges; special interest, post-graduate facilities, and online-only colleges. At the same time, IT professionals must consider the need for an infrastructure that can support LMS for distance learning and other non-campus-based formats. This often means that on-premise IT infrastructures such as servers, storage, and networking have to be upgraded, and that cloud infrastructures and services must play a vital role in the support of LMS.

This is particularly true given the extent of the functionality that LMS solutions have to support. If an LMS can’t seamlessly support instruction beyond the physical campus, provide functionality for substantial online campuses, or enable student self-service for registration, collaboration, and other functions, institutions will lose their competitive edge when it comes to attracting students. Moreover, an LMS that lacks blended instruction capabilities will inhibit an institution’s ability to attract and retain quality professors and teaching staff.

By contrast, a robust, agile LMS that can scale with an educational institution’s needs will help attract more students, improve the students’ satisfaction and engagement, create a high-quality work environment for instructors, and promote enterprise-wide collaboration on the campus and at remote locations.

**Using cloud to optimise learning management systems**

Cloud computing plays a vital role in the support of LMS. In particular, hybrid cloud can be an excellent fit for LMS because of its ability to link cloud resources with on-premise infrastructures, applications, and services, or to combine multiple cloud systems from different providers.

Cloud maximises agility and the choices available to higher education IT professionals, which is essential given limited IT budgets, and the need to add and change educational services with little or no advanced warning.

Although cloud-based LMS can be deployed in a variety of formats such as private versus hybrid, or on-premise versus hosted, many universities make the decision based on content security policies that protect both instructional content and student identities - and this is often driven by regional, data sovereignty policies.
Larger universities that need to support multiple campuses across different regions typically require distributed, hosted solutions to accommodate multiple LMS systems around the world.

For higher education IT departments, selecting the right cloud platform is an important step because so much rides on the platform’s performance, availability, security, and customisation capabilities. And, because the stakes are so high, IT and business executives must acknowledge the importance of working with an experienced and knowledgeable, third-party provider. LMS is an increasingly important application, and not all in-house IT departments have the appropriate skill set or manpower to utilise its potential, or the capability to build and operate hybrid cloud environments. Therefore, it makes sense to find an experienced cloud service provider that has previously deployed LMS solutions.

The consequences of selecting the wrong platform can be highly detrimental - latency, or even service interruptions that impact the user experience for students and instructors are real concerns. And for those with less-fortified security defenses, they may become susceptible to malware, zero-day attacks, and advanced persistent threats. Cloud platforms without sophisticated threat identification and remediation systems can be vulnerable to data loss, security breaches, and other violations of regulatory compliance, which can result in fines, loss of confidence, and an erosion of the university’s brand reputation.

Cloud platforms are also required to support sophisticated analytics that can measure student engagement and achievement. They also provide valuable, real-time feedback to institutions that highlights how students interact with instructors, and how they collaborate with fellow students. The right cloud platform can also extend the capabilities of LMS by providing invaluable data about infrastructure availability and behavior, and student usage of educational resources such as libraries, learning centres, instructional applications, and support services. This helps provide critical indicators about student retention for the institution.

‘It’s critical that higher education institutions work with cloud partners who have an established track record in the provision of reliable, secure, scalable, and accessible platforms - platforms suitable for LMS.’

Partnering with Dimension Data for cloud-based LMS solutions

Finding the right cloud platform partner doesn’t simply involve a data centre visit and a quick chat about requirements. It’s critical that higher education institutions work with cloud partners who have an established track record in the provision of reliable, secure, scalable, and accessible platforms - platforms suitable for LMS.

Dimension Data has worked with colleges, universities, and other higher education institutions for years, and is the partner of choice for many. Dimension Data’s experts focus on the migration of applications and workloads from a strictly on-premise model to one that supports hybrid cloud and the use of applications such as LMS.

Dimension Data’s cloud is a flexible, secure, resilient, full-service infrastructure for production workloads and enterprise applications. The company has centres of excellence in networking, storage, and security, across six continents and offers a globally consistent service for multinational organisations.

It can provide both public, shared resources and private clouds either in the client’s data centre or in a Dimension Data data centre. Together, these models provide hybrid cloud environments that address the time-to-value expectations required by enterprise workloads and critical applications, and there’s an opex consumption model at every price point.

‘Dimension Data’s cloud is a flexible, secure, resilient, full-service infrastructure for production workloads and enterprise applications’
Today, many IT organisations are emerging as service brokers, leveraging cloud where they can and surrounding it with other delivery models as required. However, Dimension Data is able to surround the cloud with service delivery options to simplify the management of core systems and custom enterprise applications.

Dimension Data’s community cloud supports institutions that want to get the most out of their cloud-based LMS solutions, and can facilitate collaboration and problem resolution through the creation of a rich ecosystem of organisations and individuals who use LMS in a cloud environment.

**Conclusion**

Increasingly, higher education institutions want to embrace LMS platforms to support the different ways in which they educate students.

Successful deployment and management of LMS requires reliable, secure, and highly available infrastructures to ensure access to necessary educational resources - at any time and from any location. To achieve this, the selection of the right cloud platform to host and run an LMS solution is essential.

Dimension Data has an established track record for flexible, accessible cloud platforms, and offers capabilities and functionality that’s in demand for higher education in general, and specifically for LMS. The sector-focused community cloud acts as a rich ecosystem that institutions can use for collaboration, problem solving, and innovation. Additionally, Dimension Data’s various cloud platforms and cloud-based service delivery models offer seamless integration with on-premise infrastructures, which efficiently extend the institution’s IT footprint for maximum scalability and agility.

‘Increasingly, higher education institutions want to embrace LMS platforms to support the different ways in which they educate students.’

For more information on how to partner with Dimension Data for cloud-based learning management systems, please go to [dimensiondata.com/us-Education](http://dimensiondata.com/us-Education).

**References**

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