# ЛЬВІВСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ ВНУТРІШНІХ СПРАВ

## ПРОБЛЕМИ ЗАСТОСУВАННЯ ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ ПРАВООХОРОННИМИ СТРУКТУРАМИ УКРАЇНИ ТА ВИЩИМИ НАВЧАЛЬНИМИ ЗАКЛАДАМИ ЗІ СПЕЦИФІЧНИМИ УМОВАМИ НАВЧАННЯ

Збірник наукових статей за матеріалами доповідей учасників Міжнародної науково-практичної конференції 22 грудня 2017 р.

Львів 201

# Learning Management Systems for Homeland Security Training

Danuta Kaźmierczak,

Doktor nauk społecznych.

Uniwersytet Pedagogiczny im. KEN w Krakowie, Polska

**Abstract:** The technological advances influence human life in all spheres, produce positive as well as negative effects. The same ICT systems that foster development can be used to threaten the world with terrorism and cyberterrorism. The homeland security departments bear more and more responsibilities for protecting societies. The aim of this paper is to show the better side of new technology and suggest implementation of the learning management systems (LMS) for professional training of government officials and police officers for their jobs. The preparation involves practical and theoretical training that can be provided with both traditional and modern methods. LMS can offer tools for developing skills and competencies as well as deliver analysis how the single official's performance translates into 106 the performance of the whole department. To show that LMS is not only the whim of that time but necessity and the future, the author presents also the directions of its development.

**Key words:** LMS, training, homeland security, technology, AI

**Introduction**

The scope of homeland security department responsibilities is to secure the society from many threats, and involves: anti- terrorism, border security, immigration and customs, cyber security, and disaster prevention. Patrick J. Massey categorizes threats into inherently external in nature, i.e. inflicted upon us: earthquakes, terrorist bombings, hurricane, flooding. We can protect against, prepare for, and anticipate them but actually we are their passive victims. Yet, most of threats to the country are not immediate but long-term, and are not external, but internal – self-generated threats as we are doing them to ourselves or we are vulnerable to them. Undoubtedly, they pose a catastrophic risk to social stability. The list includes: the enormous indebtedness of treasury, global warming, an inferior mathematics and science educational system, decaying physical infrastructure, the mass-privatization of government services (leading to the increase of decision-making authority amongst those unconcerned about the public good); over-reliance on foreign energy sources, and the dual demographic pressures of dropping birth-rates amongst the native-born, which results in a rapidly aging population and population increases fueled by massive economic or war immigrants [1]. These threats are unpredictable, changing, growing in strength and consequences and difficult to control. To minimize them or fight effectively the homeland security needs adequate equipment but first of all, well trained officials and police officers. Training programs should be designed in a way to provide current content, develop required skills to number of officials and officers in the right time place quantity, quality and costs. They will be even more effective if include the evaluation system providing feedback for a trainer and trainee. These expectations can be met with Learning Management Systems (LMS). The aim of this paper is to 107 present generally the possibilities the learning management applications offer as well as the directions of their development and transformation into artificial intelligence for learning.

**1. Learning Management Systems and their tools**

Learning management systems have mainly been used to deliver formal learning, assign eLearning courses to students, track their progress, and evaluate their level of knowledge retention.

At present, the market offers LMS with more functionalities like social learning features that allow users to consult mentors, ask questions, cooperate, motivate and reward content contribution. Other features that a good LMS should include are:

♣ Automated Admin Tasks – to automate recurring tasks: user grouping, group enrollment, and new user population,
♣ Certifications and Retraining – to manage recurring training/continuing education/ compliance programs, Mobility – to accessed the content anytime, anywhere, regardless of device,
♣ Course and Catalog Management – to create and manage courses and course catalogs to deliver more targeted learning to the users,
♣ Content Integration and Interoperability – to support learning content packaged according to interoperable standards (SCORM, AICC, and xAPI),
♣ Content Marketplace – to provide learners with off-the-shelf courses from global eLearning content providers,
♣ Notifications – to support automatic, real-time feedback indicating learner progress, course completions, certifications, achievements, and comments,
♣ Gamification – to motivate by allowing learners to achieve points, badges, awards,
♣ Integrations – to allow for third-party integrations with other platforms, such as CRM, video conferencing tools,
♣ Ecommerce – to benefit from selling courses,
♣ Reporting – to track and measure the impact that training programs have on general performance of the trainer and the department.

A gap analysis evaluation identifies the lack of the skills and competencies necessary to perform successfully. Then 108 a personalized learning plan can be designed to increase the officers' skills (and subsequently, their operational performance and performance of the department) [2].

**2. The future of learning technologies**

When Heidi and Alvin Toffler formulated a futuristic and rather creepy vision of artificial intelligence able to fight, think and make decisions for us or against us [3], people still believed that it is in the realm of fantasy not reality. Yet, experts and technological developments show that gradually this vision comes to life. According to research firm IDC, worldwide spending on robotics will top $188 billion by 2020, up from $91.5 billion in 2016, due to new use cases and acceptance in the marketplace. Innovators in the field of robotics are delivering robots that can perform a wide range of tasks well or better than humans, which foster the adoption of robotics into many industries. Boston Dynamics, known for its terrifying-looking robots, has recently presented a humanoid robot able to jump from block to block and do a backflip. There is also pressure on governments from some experts to regulate artificial intelligence and robotics, much like society does with other sectors, such as food and drugs [4]. Artificial Intelligence is also useful in the field of learning. LMS administrators spend long hours on error prone, and repetitive tasks such as managing users, enrolling users to courses, or tagging content. AI will automate most of these tasks and, even will do the job better. Below are a few examples: An administrator makes decisions using manual steps and AI will be able to suggest or assign learning assets to learners based on a set of criteria like:

♣ Learning objectives: identifying the relevant learning objectives and topics for the role and the task at hand
♣ Skills data: suggesting what has worked in the past to increase specific skills in similar roles, ♣ Performance Data: suggesting what has worked in the past to increase specific KPIs (Key Performance Indicator, e.g. reach 109 80% of successfully completed operations, solved cases, identified crimes),

♣ Learning style: suggesting preferred learning style/format: e.g. a full course or a collection of small content bytes,

♣ Preferred channel: suggesting the use of mobile for people that are constantly on the go or full desktop for highly technical and detailed instructions,

♣ Personal interests: considering user preferences,

♣ Organizational behavior: considering the characteristics of the department the learners are a part of,

♣ Learning interventions: modifications according to a change in regulations, compliance, or in company policy,

♣ Content Discovery Beyond automating processes: AI will discover new learning content for a given population of learners by analyzing what is available through online systems, such as video platforms (e.g. YouTube, Vimeo, Kaltura), online learning and teaching marketplaces and social platforms to provide highly personalized learning opportunities,

♣ Chatbots AI algorithms: provide learners with answers. Subject matter experts (SME) will no longer train people; they will train robots who will, in turn, train the end users. Chatbots can be specific to the job: an Onboarding Chatbot who trains new employees on the first few days, a Security Chatbot,

♣ Keeping Humans in the Loop: chatbots can also identify subject matter experts in the organization to meet learners' needs. For example, when a chatbot is not able to provide an answer, it could direct the question to someone who has been identified as an expert on the topic at hand,

♣ Content Creation Consider even the authoring of content [5].

**Conclusion**

The training management system can effectively support learning as it actually happens (i.e., via a mixture of formal and informal methods) and provide a channels to deliver, monitor, and measure learning activities.

The key advantages of LMS is that it can provide metrics to measure productivity and progress, as well as make the connection between how learning impacts organizational performance. 110 The research by Brandon Hall Group shows that 54% of organizations who have invested in learning technology have seen improvements in productivity and engagement. 91% of these organizations also reported a stronger link between learning and organizational performance [2]. Another crucial advantage of LMS implementation for homeland security departments is that the system provides the up-to date content recognizing needs of the single officer/learner, the department and society as it draw from social media, which definitely transfer to identification of threats, vulnerabilities in society and ability to respond to them. LMS is the demand of time, helpful tool to increase performance and make use of AI services in the future.

---

1. Massey P.J., Generational Hazards, HOMELAND SECURITY AFFAIRS, The Journal of the NPS Center for Homeland Defense and Security Home , Volume XIII – 2017, https://www.hsaj.org/articles/142(30.11.2017)

2. BACK TO BASICS: LMS 101 The complete guide to learning management systems by Docebo, 2017.

3. Toffler A.H., Wojna i antywojna, Wydawnictwo Kurpisz S.A. Poznań, 1993

4. Ciaccia Ch., Elon Musk is freaked out by the creepy backflipping robot, Fox News; http://www.foxnews.com/tech/2017/11/27/ elonmusk-is-freaked-out-by-creepy-backflipping-robot.html (30.11.2017)

5. Canonico M., EMERGING TRENDS: L&D AND THE ARRIVAL OF AI, Docebo 2017.

**402**