



Leveraging new technologies for healthcare education and training can dramatically improve efficiencies and reduce costs.

A Universal Cloud-Based Education Management Network ^{HS}

Improving Education, Training, and Certification Through Better Management Processes

The healthcare industry is finding itself in a rapidly changing environment with ever-increasing challenges to operate and achieve success efficiently and quickly. In this “faster, smarter, better” environment, timely delivery of quality education and training is imperative. Replicating the education and training process every time an organization has a need is inefficient. Although traditional e-learning management systems have been effective, they often operate in isolation, and are therefore incapable of interacting with one another in real-time without the high costs associated with technology integrations (see Figure 1).

Significant advances in technologies—most notably in terms of cloud-based platforms, maturing of e-learning tools, and the ubiquity of Internet access complemented by the explosive growth of online networks—have opened the door to a new era. Leveraging these new technologies for healthcare education and training can dramatically improve efficiencies and reduce costs. As a result, expectations regarding how quickly, easily, securely, and cost-effectively organizations and professionals should be able to deploy, track, maintain, and access learning and development assets have changed.

Breaking Down Silos

Although the priorities and emphasis of the various healthcare sectors differ, many education and training issues and challenges have common elements that require similar applications for their successful management. Faced with globalization, increased regulatory oversight, and costly investments, the industry must seize the opportunity to enhance efficiencies and productivity to ensure compliance and use resources more effectively. For that reason, the industry needs to transcend insularity (silo-based practices) and broaden its horizons by connecting learning practices.

Many organizations within the healthcare industry, particularly those forming the clinical research enterprise, have expressed a need to collaborate with respect to standardizing and sharing common education and training activities. For example, sponsors, principal investigators, and site staff involved in central nervous system (CNS) clinical research have started to discuss the best way to standardize training on clinical rating scales that are frequently administered in drug trials (e.g., the HAM-D-17 rating scale in antidepressant trials), with the ultimate goal being the establishment of a centralized registry for collecting and disseminating certification information. This would enable sponsors and other stakeholders to easily identify raters who have been trained and certified by qualified providers.

^{HS} Home Study article

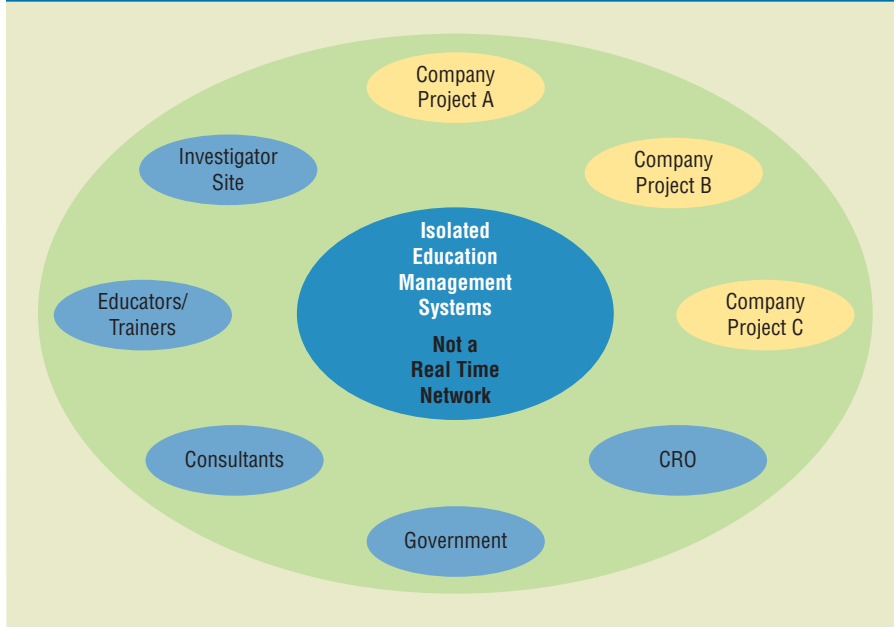
LEARNING OBJECTIVE

At the conclusion of this course, a participant should be able to describe at least five key characteristics/benefits of a universal CB-EMN for the healthcare industry.

DISCLOSURES

Kim I. Bishop, MS, PhD, discloses that she is a consultant for Hillicon Technologies.

Figure 1 Example of a Traditional e-Learning Management System



Some information providers (authors, trainers, publishers, professional organizations, and specialty vendors) have already started to offer such registries; however, much of the information, like many other valuable learning resources, is held in closed and proprietary management systems that lack interoperability. Interoperability is defined as "... the ability of two or more systems or components to exchange information and to use the information that has been exchanged."¹ Therefore, the lack of interoperability means that applications and their data are isolated, and that redundant data entry is required.²

As Saul Kaplan, founder and chief catalyst of the Business Innovation Factory, writes:³

How many capabilities are locked away, underleveraged in organizational or industry silos? Who hasn't suffered a severe case of innovator's envy, coveting access to information and capabilities that seem so tantalizingly close? Most innovation doesn't require inventing anything new. It is often just a matter of combining and recombining capabilities across disciplines, organizations, and sectors. The problem

is that those capabilities are often impossible to access. The biggest opportunities in health care, education, security, and energy lie in the gray areas between silos. We need to think and act more horizontally. In doing so, we'll connect unusual suspects in purposeful ways.

Kaplan asserts, however, that often people remain enmeshed in their silos because they cannot see the potential benefits of collaboration. He concludes:³

This pattern repeats itself over and over. It is not the technology that gets in the way of innovation. It is humans and the organizations we live in that are both stubbornly resistant to

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experimentation and change. If we want to make progress on the big issues of our time, we have to look up from our silos and become more comfortable

recombining capabilities in new ways in order to connect the unusual suspects.

In a similar vein, Evan Rosen, executive director of the Culture of Collaboration® Institute, writes:⁴

No business, institution, or government agency is immune from silo syndrome in which barriers develop among the organization's many parts. But adopting collaborative culture, processes, and tools can keep silo syndrome in check and create greater value. . . . This manifestation of silo syndrome breeds insular thinking, redundancy, and suboptimal decision-making. Silos also commonly extend to systems and data. As systems fail to interact and data [become] trapped and unavailable to decision makers outside the silo, people are less likely to interact. When people are culturally inhibited from interacting across departments and functions, they avoid sharing data and information outside their silos. It's a vicious cycle, one that can cost an organization in agility, productivity, and responsiveness.

One of the five steps Rosen proposes to break down silos is the adoption of common systems and processes. For the purposes of the healthcare industry, especially the clinical research enterprise, this step most clearly ties to the advantages of being able to access one central repository to share, reuse, manage, deliver, track, and archive

learning content—even when training activities span multiple organizations around the world—in a manner that resolves the inefficiencies and redundancies in training that are common-

place today in order to improve compliance and reduce costs (see Figure 1).

The Solution

A universal cloud-based education management network (CB-EMN) for the healthcare industry is a standardized cyberinfrastructure (common system and process) model that promotes access and the exchange of learning assets among its members. Such an e-solution can streamline education, training, and certification processes to improve upon efficiencies and productivity at price points unreachable with traditional methods. This “Mother Cloud” of clouds approach fosters collaboration, and will help break down barriers and reduce the impact of silos that currently exist within and between organizations across industry sectors.

The focus here is on the ability to aggregate and consolidate education and training resources, no matter where a particular activity comes from or who owns it. The technology jargon is not as relevant in this article as is the central principle of a cloud-based solution—being able to share resources; the economic benefits simply do not work without this. Cloud-based concepts are not new to technology and network companies; clinical researchers can take advantage of the experience of these companies and adapt the same concept to EMNs, just as social networks have successfully done over the past several years. By applying and integrating existing and emerging technologies to EMNs, we can ensure cost-efficiency and solutions that evolve with the industry as the educational and training needs change.

The idea of EMNs is not a novel one, as governments, universities, and private organizations have for many years tried to create the perfect method to manage education and training processes in the healthcare industry. However, inefficiencies in the development of standardized learning programs, and in the delivery and storage of such standards, have been challenging. With the emergence of the Internet and improvements to technology processes during the past 5 to 10 years, EMNs are still

evolving. Although standalone automated EMNs are an important first step, a universal CB-EMN would result in a radically more power-efficient, cost-effective, and collaborative process.

CB-EMN means that information is not stranded in a silo; it is combined into one digital cloud available on demand anytime, anywhere, by anybody in the network. Information can be referenced from one managerial system into another while protecting copyright, confidentiality, and privacy interests.

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The cloud-based service model offers the industry access to a rich range of services and applications without the overhead of having to deploy and manage the underlying infrastructure. This results in much lower costs for access to services and applications, especially for one-time or periodic refresher training, where resources may sit idle for months until required. As a result, many organizations are increasingly embracing a CB-EMN solution (see Figure 2).

Moving Toward a Universal CB-EMN for the Healthcare Industry

A first key step in the transition to a universal CB-EMN is to move away from the traditional siloed healthcare e-learning management environment. These systems can be financially “out of reach” for many companies and cumbersome to use, causing delays, inhibiting collaboration, and making it difficult to show compliance and control.

A universal CB-EMN addresses these limitations in a unified, industry-

specific-processes hosted foundation that is designed to facilitate compliance and the sharing and reuse of knowledge, learning, and development resources among members, within and across organizational boundaries. This proven, cost-effective solution is inherently democratizing, enabling anybody at any budget level who has or wants any type of education, development, or training to participate at the same level.

Not only can a universal CB-EMN manage the process more effectively, it is flexible and scalable as learning and development needs grow in the future. Many manual operations could be reduced or eliminated, and redundant education, data, and efforts minimized. With such process improvements, tremendous efficiencies in terms of time and cost savings could be realized, ultimately raising the quality of healthcare education and training through a noble and global endeavor.

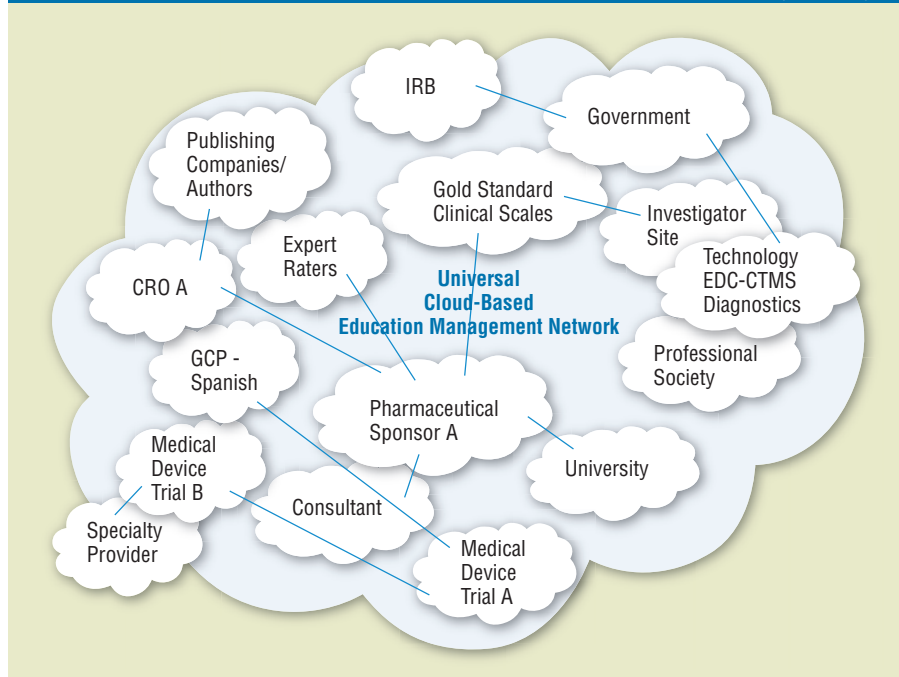
The Stakeholders

The target population for a universal CB-EMN includes anyone involved in the healthcare industry requiring documentation of education and training; it is of particular value to those involved in global clinical research. Sponsors, contract research organizations (CROs), institutional review boards, regulatory agencies, hospitals, universities, content providers, publishers, specialty vendors, authors, educators, trainers, copyright holders, consultants, for-profit companies, nonprofit organizations, investigator sites, certifying and continuing education providers, governments (regional, national, and international), healthcare professionals, clinical researchers, and others can all benefit from the same networking environment (see Figure 2).

Understanding Learning Assets

A universal CB-EMN can aggregate, consolidate, and store learning assets in any format from multiple sources for reuse and sharing (per permissions, applicable fees, licences, etc.) more efficiently from a single point while protecting privacy

Figure 2 Example of a Universal Cloud-Based Education Management Network (CB-EMN)



clinical trials has become particularly challenging. Cooperation among countries and universities on their education systems, institutions, programs, and diploma recognition procedures within the framework of a universal CB-EMN makes a significant contribution to promoting professional mobility and mutual recognition of professional qualifications globally.

A universal healthcare CB-EMN offers a tremendous opportunity to centralize CME management and oversight globally.

and confidentiality interests. This is especially beneficial for standardized and copyrighted training and certification activities that have been accepted by the healthcare industry.

Innovative training methods that are much more conducive to individual learning preferences can be implemented. For example, online courses can be delivered in multiple modules, so as not to overwhelm the learner with volumes of information (promotes “chunking,”⁵ which is a well-known, efficient strategy for optimal learning). Audio/video is often embedded within modules that provide learners with the ability to pause and rewind the videotape at any point in the lecture in case they missed or did not understand a point.

Blended learning solutions (a combination of traditional, instructor-led, and Internet-based learning)⁶ adopted by trainers and organizations around the world can also benefit from a universal healthcare CB-EMN. That is, education or training that may be delivered not only online, but “live” at an investigator meeting or in a classroom-based forum of sessions, which could contain continuing education credits, can still be tracked forever in a universal CB-EMN.

“E-Pedigree”

A universal CB-EMN is a living database (central repository) to store an individual’s “e-pedigree” or “professional value”—that is, his/her information for past, present, and ongoing learning and development activities, as well as any professional qualifications that are essential to compliance, such as *curricula vitae*, resumes, diplomas, certificates, non-credit and credit-granting continuing education activities, and other evidence of formal qualifications. Educational and professional records can be verified in real time and transmitted through a compliant network of permissions, while protecting confidentiality at the same time. This significantly reduces administrative burdens while still ensuring accountability.

The issue of mutual recognition of professional qualifications is gaining prominence as healthcare professionals increasingly become more transient, not only in terms of moving from one company to another, but also from one country to another. With more and more complex trials being conducted on a global basis, evaluation of the qualifications of potential investigators and clinical research staff regarding their suitability to conduct

Although the European Accreditation Council for continuing medical education (CME) and the American Medical Association have reciprocity for accepting certain CME credits offered by either organization,⁷ CME credits are still in the process of being harmonized between countries. For example, the Global Alliance for Medical Education,⁸ an organization representing various stakeholders in international CME, is bringing together the leaders in CME to harmonize the processes for standards throughout the world.⁹ A universal healthcare CB-EMN offers a tremendous opportunity to centralize CME management and oversight globally. As more CME is being delivered online each year, a universal CB-EMN facilitates cross-comparisons of programs and effective processing of credits in a consistent and timely manner.

Streamlining the Process

Continuous training and education are essential in the healthcare industry, especially for those involved in the clinical research and development process. However, the sheer volume can be overwhelming and time-consuming, and is particularly burdensome when professionals are requested by differ-

ent sources to train again and again on the same industry-based topics. This is especially true for the amount of training devoted to regulations, good clinical practices, standard operating procedures, guidelines, and standard clinical scales. Although it is a well-known fact that practice improves learning, there exists a middle ground.

A universal CB-EMN encourages sharing and reuse of information resources, particularly curriculum and training materials. With proper permissions, an authorized member is able to verify in real time whether an individual completed an educational or training activity and obtained (re)certification. In the case of a clinical trial, if the educational or training activity was completed and any expected (re)certification was received within a period of time that was acceptable to the sponsor, then much superfluous education and training could be eliminated. Many sponsors, investigators, site staff, and raters would welcome this.

There is benefit in coordinating training activities so as to ensure consistency in the manner in which procedures are implemented, particularly when new and complex concepts are introduced. In clinical trials, for example, steps should be taken to minimize trial drift (deterioration in performance as a trial progresses)¹⁰ and/or rater drift (an unintentional change in the way the rater defines criteria and standards over time or across a series of ratings)¹¹ throughout the trial by providing quality coursework, certification, periodic refresher training, and recertification to ensure high levels of performance are sustained.

Collaboration via Controlled Access

The adoption of a universal CB-EMN allows education and training content to be shared and reused on demand while protecting copyrights through permissions, applicable fees, licenses, and the like, within and across organizational boundaries through a secure Web interface. Companies can bring in the right resources for specific projects at the right time, wherever they are in the world.

Evidence-Based Education and Inter-rater Reliability

The ability for people to perform a task the same way or better than when they initially performed it is an important and continuous challenge in the healthcare industry. Hence, being able to measure evidence-based education and inter-rater reliability is very important (low levels of agreement may indicate that the raters need to

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be retrained). Pharmaceutical and biotechnology companies have been using this type of quality control approach for many years, especially in CNS clinical trials.

Today's technologies allow for data collection to evaluate both evidence-based education and inter-rater reliability in real time from a single point, no matter who provides it or where it comes from in the world. This brings tremendous value to sponsors and CROs who want to conduct global clinical trials.

Anytime, Anywhere Access

With today's technologies, authorized users can easily access the education and training activities they need 24/7 via a standard web browser. This enables learners to study using a device of their choice at the time, place, and pace that best fit their busy schedule (e.g., using a smart phone and earpiece when commuting to/from work on the train).

Regulatory Compliance and Verifiable Audit Trails

With current technology and quality printers, the ease with which counterfeit degrees, diplomas, and other certificates can be manufactured has skyrocketed.¹² Records should be checked against centralized repositories/databases to verify the authenticity of documents and to help identify fraud and other incidents of abuse quickly and accurately.

Increased global regulatory oversight has created the need for a higher level of business transparency, documentation of qualifications, and professional development compliance. Consequently, more and more sponsors and regulatory agencies are turning to neutral, third-party resources to confirm accountability. A universal healthcare CB-EMN makes it easy for auditors and regulatory investigators

to perform complete audit trails virtually and/or onsite for traceability and reproducibility with versioning and electronic signatures, time and date stamped.

This degree of transparency and documentation would keep stakeholders at the forefront of the ever-changing global regulatory landscape and provide an extra safeguard against fraudulent activities. Taking a proactive approach to compliance has been proven to improve quality and to reduce significantly the risks associated with regulatory inspections and sponsor audits.

Closing Thoughts

A universal healthcare CB-EMN is a powerful tool to connect organizations and professionals to others with whom they share learning and development affinities, so that they can more effectively communicate, meet regulatory compliance requirements, improve efficiencies and productivity, reuse and exchange resources, streamline processes, and self-organize. It represents a wider bond that can help to strengthen the management of professional needs and ongoing development in order to meet global competitive challenges in the industry. Uniting in the "Mother Cloud" enables organizations to rapidly reconfigure for efficiency, which can help ensure their futures in the

marketplace by delivering superior value to the industry.

In today's challenging global economy and regulatory environment, the value of a universal healthcare CB-EMN is too compelling to ignore. The potential for savings, both in terms of time and costs, will exponentially increase as organizations within and across sectors converge. The universal CB-EMN concept presented here illustrates the potential that exists, and what is possible with adequate cooperation, collaboration, and coordination to transform the entire dynamics of the healthcare industry. As it becomes effectively adopted, a universal healthcare CB-EMN could be the catalyst for revolutionary advances that many organizations have been craving.

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