Collaborative E-Learning Systems

Increasing the Pace of E-Learning Development at Norfolk Southern

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In This Case Study

The concept of rapid e-learning is being increasingly adopted among training practitioners. Training executives that have developed and deployed successful programs over the last several years have given their organizations a taste of the power and accessibility of electronic distribution for training materials. Now, the organizations want more of it—and they want it faster. The concept of rapid e-learning, at a high level, involves making the training process more accessible to subject matter experts and reducing the "time-to-learn" over that of traditional development cycles.

The popular technologies for rapid e-learning are mostly variations of PowerPoint conversion tools and systems. But, these solutions only address a portion of the real issues in making e-learning more accessible. These solutions have their limits for the type of training they can effectively produce.

This case study discusses another approach to the rapid the e-learning challenge: one that addresses not only content development but also process, asset management, and leveraging an existing infrastructure.

Case Study

About Norfolk Southern

Norfolk Southern Corporation controls Norfolk Southern Railway Company, a major freight railway company. This Norfolk, VA-based company operates 21,500 route miles in 22 eastern states, the District of Columbia, and the province of Ontario; serves 20 ports; and connects with rail partners in the West and Canada, linking customers to markets around the world. The company has 28,000 employees located in the 22 states served by the rail network.

Training Organization

Norfolk Southern's corporate training development group is responsible for:

1. Production and management of technology-based programs used throughout the company, such as new-hire training.

2. Management of the "Corporate Media Center", which acts as an e-learning service agency to other departments within the company.

3. Management of the company's training infrastructure, the TEDS learning management system (LMS).

The corporate training group employs 5 full-time staff members and contracts employees on an as-needed basis. There are other distributed training groups in the information technology and railroad operations areas.

The Business Challenge

Not unlike many large enterprises, Norfolk Southern has been delivering e-learning to employees for a number of years. (The transportation industry was an early adopter of CD-ROM training.) The corporate training development group has been using stand-alone authoring tools including RoboDemo (now Captivate), Lectora, and Authorware. While these tools have proven effective for some purposes, the company needed a more integrated and efficient approach to the courseware development process. Specifically, Norfolk Southern needed to address the following challenges:

1. **Rapid Course Development.** Often, the corporate training development group had several days or weeks to produce a training program—not months. The existing process was too time consuming to respond to changing business demands. The tools in use required technical expertise (resulting in a steep learning curve), and were not effective for programs that needed to be delivered quickly. The group also lacked the resources to respond to training needs using a traditional development cycle.

2. **Subject Matter Expert Involvement.** Research by Bersin & Associates indicates that collaboration with subject matter experts (SMEs) is frequently cited as a top challenge for e-learning developers[1]. Norfolk Southern needed an integrated approach that would simplify the workflow associated with SME involvment.

3. **Asset Management.** The stand-alone e-learning development tools did not provide a mechanism for developers to share and reuse learning assets across courses. This need had to be resolved.

4. **Learner Performance Tracking.** Content integration with the TEDS LMS, including course tracking, was a frequent problem area. Often, some type of technical expertise was used to ensure LMS and courseware interoperability. The company was launching an ever-increasing amount of compliance programs that required reliable tracking and scoring (e.g. Sarbanes-Oxley training). Any solution necessitated seamless integration with the LMS to verify learner performance, while meeting other requirements.

5. **No proprietary player.** Due to security concerns, the company's IT department prohibits the installation of additional software on desktop systems.

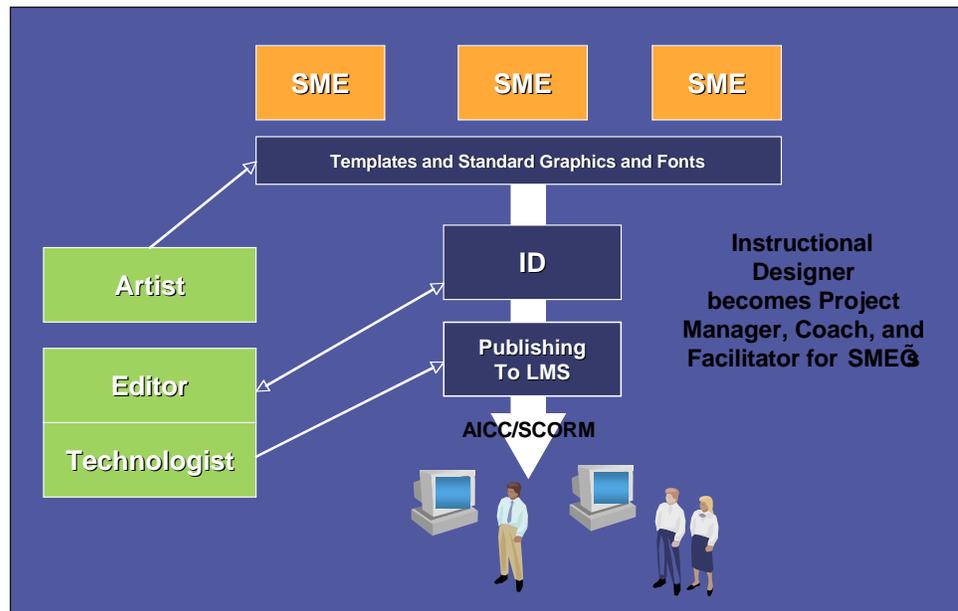[1] *E-Learning Development Tools: What Works™*, Bersin & Associates, 2003

Figure 1: The Collaborative Authoring System at Norfolk Southern Integrated with Their LMS

Installing a Collaborative E-Learning System

Given the pressing need to address training programs faster than ever, Norfolk Southern installed an integrated courseware development platform, which increased productivity and reduced the time-to-learn criteria for new programs. The platform, from CourseAvenue, provides a template-based[2] authoring system. Course developers and subject matter experts can collaborate on e-learning projects, reducing the time required for review and approvals.

The system also provides a set of courseware templates that are reused across training courses—saving the time needed to develop a new layout and navigation scheme for each course. No more than 10 templates are used, which keeps development time to a minimum. While the traditional stand-alone authoring tools are still being used for specialized purposes, their usage is decreasing. The CourseAvenue system allows for integration with these tools, when required.

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[2] Templates provide the framework and layout for courses that can be augmented with content. Using templates can improve the development cycle and provide consistency in style and instructional quality.

Rapid Compliance Training

Norfolk Southern was able to quickly apply the new technology and comply with the Sarbanes-Oxley Act at minimal expense. Instead of distributing written guidelines that required employee signatures, the training was distributed online. The guidelines were entered into a template, using CourseAvenue; an assessment was added; and then the course was delivered to the enterprise through the LMS. The LMS provided on-demand reports indicating the training was completed.

Accessibility

Accessibility was a three-pronged challenge. The first challenge was to find a method to effectively collaborate with the geographically dispersed content contributors. The second challenge was then being able to communicate this training to Norfolk Southern's employees, who were also geographically dispersed. And the last challenge was being able to accomplish the first two challenges while adhering to corporate IT security requirements. CourseAvenue easily met these challenges because it is a Flash-based system. Content authors located at the corporate headquarters could easily collaborate with the SMEs located in the field offices. Once the courseware was developed, it was readily accessible to the employees via their desktop systems. Using a Flash-based system, like CourseAvenue, does not require software to be installed on the user's system, thus, adhering to corporate security policies.

Asset Reuse

CourseAvenue enables developers to label content assets. This facilitates easier search and retrieval for assets that can be reused in other courses. For example, SMEs at field maintenance locations are taking photos (assets) and entering them into the system with the appropriate labels or "tags". While building courses, the content developers then use the system to search for the needed photos (assets) to augment the training content.

The system has been used to deliver 10 courses over a period of 4 months. A number of new training programs are being developed with the system on various technical and operational topics. The Manager for HR Systems and Development estimated that they have reduced previous content development resources by 60-80%.

Lesson Learned

Consider a balanced approach in courseware development. Addressing an ever-changing business climate required the Manager for HR Systems and Development at Norfolk Southern to shift priorities. Previous e-learning programs emphasized instructional design quality at the expense of timely delivery. As the business demands changed, the priorities shifted to a more balanced approach that enabled a faster turnaround time for course development, and better delivery and tracking through the company's LMS. The template-based system enables enforcement of instructional standards without requiring lengthy development cycles.

LMS integration can be tricky. The e-learning development team's strategy was to use the existing LMS infrastructure for course delivery, obviating the need to install a separate delivery system. They wanted to leverage Norfolk Southern's existing investment, while minimizing integration challenges. The team considered several solutions, including PowerPoint conversion tools. They found that these other tools provided limited or unreliable LMS integration. The key factor in selecting CourseAvenue was its ability to seamlessly integrate with their existing LMS. Furthermore, courseware produced with CourseAvenue is easily exported as a SCORM or AICC package/structure. As learners take courses, their scores and other tracking data are stored in the LMS.

Simple asset reuse goes a long way. Elaborate systems for cataloging, searching, and reusing e-learning content (or learning objects) can be costly, and, sometimes, do not provide business benefit. While these systems have produced value for some organizations, smaller training departments are unlikely to invest the time and staff needed to get started with a full-scale learning content management system (LCMS) implementation. Norfolk Southern discovered that they were able to reuse content assets quickly by using a simple labeling scheme that was gradually implemented over time.

About Us

Bersin & Associates is the only research and consulting firm solely focused on What Works™ e-learning research. With more than 20 years of experience in e-learning, training, and enterprise technology, Bersin & Associates provides a wide range of services including market research, best-practices, vendor and product analysis, corporate workshops, corporate implementation plans, and sales and marketing programs.

Some of Bersin & Associates innovations include a complete methodology for learning management system (LMS) selection and application usage, an end-to-end architecture and solution for training analytics, and one of the industry's largest research studies on blended learning implementations.

Bersin & Associates offers the industry's first e-learning research subscription, "The E-Learning Research Center" (http://www.elearningresearch.com), which offers up-to-date research, product selection guides, whitepapers, and access to other experts online. This service enables corporate training managers, vendors, and consultants make faster, better decisions about e-learning strategy, programs, and technology.

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