



Business Applications of Reusable Learning Content

*Analyses, Best Practices and
Business-Driven Solutions Based on
Current Technologies and Usage*

Chris Howard

Principal Analyst

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Overview

Reusable Content¹ in the Business Environment

KEY POINT

Because material is being rolled out quickly and new products and software are added annually, the goal is not to maximally train resellers at Autodesk – but to make sure the information is available, useful and accessible when they move through a process.

Traditional e-learning courses are designed to reach the broadest audience and to reduce the cost of training development. The drawback to designing training this way is that it may not address the unique issues of a particular audience and it reduces the likelihood of the transfer of training to the workplace. As a result, multiple courses may be needed to meet each audience's needs at considerable cost to the organization. An alternative to creating multiple courses for a variety of audiences is to adopt a reusable content strategy.

Adding complexity to the issue of targeting training to an audience's needs is the fact that new products and software are added constantly, and new learning material is rolled out quickly. As a result, not only does learning content require frequent updating, it becomes unreasonable to expect employees to be able to internalize the amount of information needed to perform every aspect of their jobs. Some organizations have responded to this by ensuring that the needed information is available, useful and accessible when employees move through a process – as opposed to expecting to fully train them. For instance, a process map may be accessed while on the job that includes the critical steps in a process. As the employee moves through the process, each step can be checked off to ensure that the process is correctly implemented. By doing this, employees can trust that information is available when they need it.

Knowledge (e.g., learning objects) is inserted into a toolset, allowing employees to move through complex processes within the workflow. This allows previously developed material to be drawn from a central repository or database (using available technology) to quickly customize courses to the audience's:

¹ "Reusable content" (also called "dynamic content") is discrete learning objects with no link to a specific course. These "discrete learning objects" can be a paragraph of text, a chart or diagram, or any individual piece of content that can be linked with other objects to create any number of training courses.

- Needs;
- Preferences;
- Experience levels; and,
- Identified performance gaps.

**KEY POINT**

Reusable content allows organizations to move from classic asynchronous training events to learning that occurs within the workflow.

Thus, rich content is quickly created that allows employees to successfully complete implementation and make appropriate decisions while performing on the job. Reusable content is typically utilized for learning materials covering topics that are variable or which require frequent updating, and supports more constant, unchanging materials (e.g., the physiology related to how a drug is metabolized). Reusable content, however, is also useful in organizations that cover multiple regions or include internationally distributed business units. Courses can be “localized” or customized to include regional differences (e.g., local practices, values, policies / procedures) and languages using reusable content.

In addition to using reusable content in this way to develop and update learning courses, this allows the content to be repurposed. Reusable content can also be used informally as reference material within the workflow (e.g., while a task is in progress) instead of requiring learners to access entire courses. Thus, instead of using the process map the content can be repurposed as reference workbooks that contain similar but more in-depth information (e.g., best practices and suggested questions for a client). From this perspective, reusable content is an asset outside of the traditional course setting because it allows organizations to move away from the classic asynchronous training event (e.g., sales or technical training) and into learning that occurs within the workflow.

Technology

As organizations shift toward utilizing learning objects (as opposed to full training courses), the amount and type of information that must be managed will expand exponentially.² This process becomes even more complex as more learning departments work collaboratively to develop courses. Frequently, multiple authors and stakeholders (e.g., subject

² For more information, *The Learning Content Maturity Model: Developing a Framework for Integrated Training and Knowledge Management*, Bersin & Associates / Chris Howard, January 2007. Available to research members at www.elearningresearch.com.

matter experts, legal departments and so on) may be working with the same content at the same time; hence, these content users need to be able to identify the most up-to-date and valid content. In response to these identified needs, learning content management systems (LCMSs) more commonly include functionality that assists organizations in holding, creating and distributing learning content; in addition, LCMSs can maintain version control and tag objects with metadata³ relevant to its authors and prior usage. Metadata provides an organizing system in which the learning objects are reduced to data fields, allowing for more detailed searches (e.g., new hire training, author of the training course). Metadata is said to provide the “who, what, when and how” of course content.

Eedo, for instance, has developed an LCMS (“ForceTen”) that facilitates the creation, management and transfer of knowledge. ForceTen allows for collaborative and distributed publishing that assists in managing:

- Version control;
- Version history; and,
- The processes to check-in / check-out material.

This system is unique – the learning content itself is separated from the “structure” of the learning content. Furthermore, Eedo’s ForceTen assists with:

- Content tagging;
- Developing, importing / exporting and reusing taxonomies; and,
- Supporting multiple languages.

Similarly, an LCMS created by Giunti Labs (called “learn eXact”) assists organizations in creating, managing, delivering, searching and tracking learning content. Learn eXact was built using XML⁴; this allows authors

³ “Metadata” is used for the purposes of labeling and locating content within a database or repository. “Meta-tagging” (from “meta-tag”) refers to the process of creating and storing data elements that describe the assets and modules contained in a course.

⁴ “XML” is extensible markup language, which improves the functionality of the web by allowing you to identify your information in a more accurate, flexible and adaptable way. It is “extensible” because it is not a fixed format like HTML (which is a single, predefined markup language). Instead, XML is actually a meta-language – a language for describing other languages – that lets you design your own markup languages for limitless different types of documents.



KEY POINT

A number of LCMSs (e.g., ForceTen by Eedo, learn eXact by Giunti Labs and LearnCenter by Learn.com) have been developed that provide functionality to manage version control, tag content, author collaboratively and deliver training efficiently.

to collaboratively create raw learning objects (e.g., reusable content), and structures templates that can be used on different platforms and devices (e.g., wireless, palmtop and wearable devices). The templates are compliant to international standards and specifications (SCORM^{5,6}).

Learn.com has developed LearnCenter X⁷, which includes an LCMS with similar functions as both ForceTen and learn eXact. LearnCenter's LCMS integrates into a complete enterprisewide or departmental e-learning initiative the following capabilities:

- Instructor-led training (ILT);
- Virtual instructor-led training (vILT) via WebEx;
- Web-based training (WBT);
- Collaboration;
- eCommerce; and,
- Knowledge-sharing.

This added functionality allows administrators, teachers, course authors and content providers to quickly create blended-learning opportunities that include aspects of instructor-led lectures, interactive scenarios and / or asynchronous material.

Finally, OutStart has developed seven LCMSs with varying levels of complexity and flexibility to meet the needs of their clients, ranging from small and simple to large-scale and challenging.

⁵ "Sharable Content Object Reference Model" (SCORM) is a set of specifications for course content that produces reusable learning objects.

⁶ For more information, *SCORM and AICC: What Are the Differences?*, Bersin & Associates / Chris Howard, February 22, 2007. Available to research members at www.elearningresearch.com.

⁷ "LearnCenter X" is a talent management suite and not a stand-alone LCMS. According to the company's website, "LearnCenter manages recruitment and retention, assessments and evaluation, compensation planning, performance management, learning and development, and succession planning – within one holistic solution, with one interface and one partner." Source: <http://www.learn.com/learncenter.asp?id=178441&sessionid=3-AA306996-5657-4500-866A-0792277ACED4&page=2>.

Implementation of Reusable Content

The prospective benefits of implementing reusable content are clear when examining both the potential applications for it, as well as the technology that has been developed to support its use in organizations. What is not clear, however, is how organizations have actually been implementing reusable content within their own processes and the business results that they have been achieving since implementation.

The purpose of this paper is to describe key trends occurring with reusable content by interviewing five large organizations from around the world. These companies include Autodesk, Ericsson, Internal Revenue Service (IRS), UBS and a global pharmaceutical company. Of particular interest was how reusable content is used for learning content repurposing, and meeting compliance with regulatory / legal agencies and channel partners. Some of the organizations interviewed took the path of reusable content in order to meet regulatory requirements, or to validate learning content in environments for which the information is mission-critical or has high consequence. Over the course of the interviews, several best practices in developing and implementing reusable content were identified. This research report will conclude with these best practices, as well as the future trends with reusable content.

Surveyed Organizations: Overview

Five organizations that have taken innovative steps in employee development and e-learning were interviewed. The following are brief introductions of the five companies involved in this study.

Autodesk, best known for its AutoCAD software, is a diversified software company dedicated to technologies used in everyday business practices for advanced modeling, digital collaboration and practical data management. Currently, Autodesk has more than seven million users, 2,500 third-party developers, and strategic partnerships with industry leaders, such as Hewlett-Packard, IBM, Intel and Microsoft.

Ericsson, founded in 1876 and headquartered in Stockholm, Sweden, is one of the largest telecommunications equipment manufacturers and suppliers of mobile core chipsets. Ericsson's core systems include

supplying infrastructure for all major wireless technologies and modernizing existing copper lines for broadband services; in addition, the company also provides services, such as business consulting, and developing and managing learning / employee development programs.

Internal Revenue Service (IRS), a bureau of the U. S. Department of the Treasury, processes more than 224 million tax returns and \$2 trillion in taxes annually. In doing this, the IRS strives to provide high-quality service to the public, and the execution and application of the internal revenue laws with integrity and fairness.

UBS is a global banking and securities firm headquartered in Zurich and Basel, Switzerland, with offices in 50 countries. As the world's largest wealth manager and the market leader in retail and commercial banking in Switzerland, UBS employs more than 70,000 people around the world including the Asia-Pacific region.

This Forbes 500 **pharmaceutical company** is a global leader in the research and development of innovative lifesaving and life-enhancing treatments for several therapeutic areas. Currently, this organization employs more than 42,000 individuals worldwide.

Business Case for Reusable Content

KEY POINT

Traditional e-learning courses may cost up to \$50,000 hourly, and take several months to develop and publish.

Creating and updating traditional e-learning courses can be expensive (approximately \$10,000 to \$50,000), time-consuming (e.g., several months to produce) and can require technical expertise. As instructional content shrinks in shelf-life, reusable content becomes a viable solution. By separating course structure from course content, the following may be achieved:

- Strategic savings in time;
- Simplified course development; and,
- Gained learning opportunities.

Reusable content provides the capability to update training courses without the delays experienced in traditional e-learning courses. Usually, if a graphic is changed in one course this update would require a manual change of the graphic in all other relevant courses. With reusable content, a change made in one course automatically ripples throughout all courses with the same graphic. Therefore, the lag time that would occur when updating traditional e-learning courses in which new learners may receive old information is eliminated. Another source of cost-savings occurs when an organization must ensure training is available in multiple languages. On average, course translation to another language is between 40 percent and 80 percent of the original development cost, depending on the complexity of the course. With reusable content, this cost may be reduced to 15 percent to 20 percent of the original development cost.


KEY POINT

On average, translating a course into another language is between 40 percent and 80 percent of the original development cost. With reusable content, this cost may be reduced to 15 percent to 20 percent of the original development cost.

Reusable content is also beneficial when employee development programs are linked to performance management systems and user profiles. Once a performance gap has been identified by the performance management system, up-to-date, real-time training (customized to the learner) may be made available. Training can also be developed based on the user's profile that includes prior training and experience. This allows organizations to efficiently address performance lapses, and identify those employees who need to reexamine previously completed courses or receive updated information. This results in time-savings for employees because they can quickly access learning content relevant to their specific needs and learning departments can easily distribute relevant training. This also reduces the need to revisit redundant content, as well as the

hours spent by employees in training. For instance, the pharmaceutical company interviewed reported that it has developed job-aides as performance support tools for managers to assist them in tracking the learning and progress of their subordinates. Predictably, organizations can then expect improvements in performance much more quickly than when using traditional approaches to employee development.

Case in Point: Grange Insurance

Another organization, Grange Insurance (which insures vehicles, homes and businesses across 10 U.S. states and employs 600 claims adjusters) uses a portal interface that provides its employees with constant access to all claims training courses – regardless of format (e.g., ILT, e-learning and so on). The company's employees and their managers can develop, monitor and update development plans that are tailored to the needs of the employee and the organization. In addition, by monitoring employees' needs and skills gaps courses can be quickly created to address critical needs. Grange Insurance reported that the implementation of Learn.com's LearnCenter has provided both streamlined and automated enterprisewide capabilities, in addition to helping the company transition toward its goals of learner-led performance improvement. 

Applications for Reusable Content

In acknowledging the potential financial, performance and logistical benefits of applying reusable content, it is important to consider the primary ways in which reusable content is being utilized in organizations today. Currently, the two primary purposes for reusable content are:

1. As a method of reusing learning objects to reduce development costs and customize training courses; and,
2. As a means by which to comply with legal / regulatory agencies and respond to relevant channel partners.

Reusing Data



KEY POINT

Three benefits to content reuse include the reduction in development time, the ability to rapidly adjust to learners' needs, and the consistency in the content and style of the training provided.

A number of benefits are offered by reusing learning content. Three benefits identified by Eedo include the:

1. Reduction in development time;
2. Ability to rapidly adjust to learners' needs; and,
3. Consistency in the content and style of the training provided.

Although it is often lower-level media (e.g., graphics, charts and logos) that are the most commonly reused, a number of recommendations can be provided to maximize the reuse of content. Eedo suggests that it must be broken down to the smallest part (e.g., a graph or paragraph of text) and accurately tagged with metadata. When a consistent tagging methodology is used (i.e., a "unified content strategy"), content can be reused to its maximum benefit.

In the past, content reuse has been limited to online courses. However, organizations are finding that, by modularizing all learning content (including ILT courses), content can be reused in online and classroom settings – as well as in creating blended-learning opportunities. In addition, immediate deliverables, design documents and access to the full chronology of the project history becomes available online. At the IRS, this has been a consistent goal since, by converting all content output (e.g., job-aides and ILT) to reusable content, this will allow maximum reuse across all types of employee development.

In addition to expanding the range of materials that can be converted to reusable content, organizations are finding that learning objects should be maintained in a variety of formats and media. This ensures that the content is made available to a variety of different hardware, software and networks through which the courses will potentially be used. This will become increasingly important as organizations begin to initiate mobile learning (m-learning^{8,9}) programs. m-Learning is an extension of e-learning from a learner's desktop computer to his / her mobile devices (e.g., cell phones, personal digital assistants and wearable PC access). For this reason, learning content will need to be more quickly adapted to the relevant platforms.

Meeting Compliance



KEY POINT

Unless course content can be customized and maintained in a central repository (which tracks these adjustments), content reuse may not be possible.

Quite often an organization needs to adapt its training to multiple standards or regulations. Unless course content can be customized and maintained in a central repository (which tracks these adjustments), content reuse may not be possible. In fact, UBS reported that the ability to track reusable content offered outside of a learning management system (LMS) and individual usage are among the biggest challenges related to compliance and regulatory requirements. The company indicated that LMSs are, therefore, relied on for the detailed tracking required for legal purposes – but improved features for individual tracking are needed in content and document management systems.

Many organizations span multiple regions, states or countries – and must adapt to multiple standards, local laws and market regulations. As a result, it is important that learning content can be adapted. One tool that can be used for this purpose is ForceTen. The metadata created in ForceTen was developed to adapt to most applications (e.g., SCORM 1.2, AICC¹⁰ and

⁸ “m-Learning” combines the technologies of mobile communications with “e-learning” – the goal of which is to develop learning content that integrates with mobile applications, and provides learning and performance in a just-in-time, just-in-place dynamic.

⁹ This information is based on current research on the topic of m-learning, the report for which is due to be published in Spring 2007.

¹⁰ The “Aviation Industry CBT Committee” (AICC) is an international association of technology-based training professionals that develops guidelines for the aviation industry in the development, delivery and evaluation of computer-based training (CBT) and related training technologies.

PENS¹¹), so that organizations can meet their specific requirements and adhere to standards. For instance, the IRS must check every object that is created within the LCMS, the metadata tags and the functionality of every template used for compliance with Section 508 of the Rehabilitation Act¹². In addition, the IRS and all government agencies are required to maintain and report on sensitive information about their employees (e.g., race and national origin); through the use of the LCMS, this information can be safely and efficiently drawn from relevant databases to generate the required reports.

Case in Point: Odyssey HealthCare

Healthcare is another industry that must meet state and federal regulations. For instance, Odyssey HealthCare, a Medicare-certified hospice program spread across 30 U.S. states and has more than 5,000 employees, must meet compliance with the U.S. Department of Health & Human Services' Conditions of Participation (CoPs) in order to retain certification and receive payment from Medicare, as well as the Federal Health Insurance Portability and Accountability Act (HIPAA) regulations. Under these regulatory agencies and obligations, Odyssey HealthCare is required to provide regularly updated training to its employees. In order to meet this compliance obligation, Odyssey HealthCare has implemented an LMS from Learn.com. Using this system, the organization can monitor when e-learning modules are completed, maintain a calendar of what courses are required within each employee's personnel file and quickly compile reports to demonstrate compliance when necessary (in responding to audits by regulatory agencies).

Using Learn.com's CourseMaker Studio tool, content can be easily translated into e-learning courses to meet Odyssey HealthCare's obligations, using presentations and notes developed by corporate departments. ↪

¹¹ "Package Exchange Notification Services" (PENS) is an interoperability specification that makes it easier for learning content management system (LCMS) and learning management system (LMS) products to cooperate on the staging, transfer and submission of "LMS-ready" packages. The specification simplifies deployment of content for key e-learning standards, supporting content packages in either AICC or SCORM content package formats.

¹² Section 508 of the Rehabilitation Act requires that all information technology is accessible and usable by Federal employees and members of the public who have disabilities.

Aside from compliance to regulatory and legal agencies, organizations may also be contractually obligated to their channel partners. Channel-readiness (e.g., compliance) requires that certain learning objectives are met and the appropriate content is distributed enterprisewide. To do this, it is important that learning content is tagged, deployed (although different employees may need and receive different content) and completed to show compliance. However, reusable content can be used in multiple ways (e.g., as packaged service offerings and on-boarding initiatives for resellers) to fulfill different objectives. For instance, Autodesk reports that there may be more than 180 potentially unique learning patterns that must be mapped to unique but potentially overlapping scenarios in their partner agreement – based on the level of partner, level of the reseller, type of reseller (e.g., industries covered) and the role of the person (e.g., sales, technical, resales / postsales). As a result, a majority of effort is spent on measuring what the curriculum looks like and how the organization can be sure that it is maintaining compliance.

As another example of compliance, the IRS must remain compliant to Congressional changes to internal revenue tax codes and, therefore, frequently must update its training. With reusable content and metadata tagging, updates across courses, job-aides, and classroom and online training can be quickly updated to maintain compliance with all changes.

In reviewing how organizations develop and deploy reusable content for compliance, a warning emerged. The pharmaceutical company stated that, when learning content is fully available for reuse away from a reusable environment, it is possible that the content can be taken out of context. This is particularly problematic when the course is compliance-related training for which the meaning should not be subject to interpretation by the learner.

Other Organizational Functions for Reusable Content

Although we have presented data reuse and meeting compliance as the primary applications of reusable content, we conducted interviews with innovative organizations to glean:

- How reusable content has been utilized in their organizations;
- The challenges experienced in using reusable content;

- Business results stemming from the implementation of reusable content; and,
- Any best practices that have been learned along the way.

In addition, we provide examples from four of these featured organizations of how each utilizes reusable content.

The IRS reports that a number of factors were sought when selecting an LCMS – but that reusable content has always been a strategic goal. The IRS sought a system that:

- Was easy to use;
- Offered metadata tagging for easy retrieval and revision (from within a central repository); and,
- Included an enterprisewide tracking process.

Prior to implementing the LCMS, the IRS developed in-house SCORM-based course templates in HTML that the entire organization could use. This facilitated course development and revisions, and also contained metadata tags. Ultimately, Plateau was chosen as the LCMS system for use within the IRS and was deployed in December of 2005. In practice, the IRS has found that, by linking the learning content to both the internal revenue manual and code, class materials can be pulled directly from the manual and easily updated. In addition, when a new training effort is initiated, authors can search the LCMS for content that relates to a particular internal revenue code to see what is already available. Since deployment, 50 course developers have been trained – but the IRS foresees 100 to 200 course developers (spanning 12 business units) still need to be trained on the new LCMS.



KEY POINT

One method to reduce cost may be to use open source technology that is already available.

The pharmaceutical company uses a mix of reusable content approaches. Some groups within the organization develop courses collaboratively using discrete objects that are available on a centralized server – while other groups use metadata and taxonomies to manage and store their content. The groups that use metadata and taxonomies often handle regulatory compliance material, and regularly update courses when changes occur in the regulatory environment. In addition, learning objects are reused in web-based, self-paced modules and as review material for the company's formal training program. The organization

indicates that the plan is to eventually move to a true enterprisewide solution; there are plans to develop a wiki¹³ site to store reference materials.

At UBS, content is developed using a modular approach on multiple AICC-structured files that allow different reusable content to have the same physical assignable units (AU). These AUs can then be grouped for different target audiences as needed or for multiple business units requiring different structures of the same content with the same physical shareable content objectives (SCOs). UBS has utilized reusable learning objects by directly linking course material and learning objects to its intranet for direct on-the-job performance support, and on intranet pages for specific target groups or user populations. The learning objects are also cross-tagged to objects that are related to other topics.

Although maintaining a reusable content approach can be a significant initial investment, Autodesk offers a less expensive alternative. Autodesk (which deals with several hundred clients) would not be able to provide services on a classic client-server model without the use of web applications. Through open source technology (e.g., Web 2.0), the company has reduced its costs, and has tracked patterns and ensured consistency across clients. For instance, Autodesk uses an assessment interview to capture detailed information about each customer within a database to identify these patterns and better understand its customers. By using web-based tools, the application can be extended to include how the user interacts with the customer.

Challenges of Reusable Content

Although a number of uses and benefits exist with reusable content, there are also some potential challenges, such as the ability to maintain a single-source database for all learning content. Learning objects may be in different formats, making it difficult for a change in one form to be translated to other formats of the same content. This challenge is negligible in organizations for which most of the learning objects are created in similar formats. In organizations for which form, structure and language of learning objects are widely variable, however, single-source

¹³ For more information, *New Technologies for Corporate Learning: Part 1 – Podcasts, Blogs, and Wikis*, Bersin & Associates / Karen O'Leonard, May 2006. Available to research members at www.elearningresearch.com.

publishing may be more problematic and content reuse may be limited in its application. However, metadata may be used to coordinate content materials across departments.

As Autodesk's director, North America channel readiness stated,

"The whole goal is to really focus on, from a content standpoint, a really generic database of generic file types of rich content that can be opened up and reviewed, and played on your toaster if they have to be. The game is to keep it simple and idiot-proof. You may change vendors, you may change lots of vendors, you just don't know. [The file types] have to stay generic."

Another challenge of reusable content is that it may require a significant initial investment. The time and resources needed to develop effective taxonomies / metadata, while accounting for workflow and strategic course structure, may be high. Despite this, improved organizational performance and course development cycle time will eventually exceed the initial investments. In addition, inexpensive information management tools, such as open source technology (e.g., Web 2.0), are more frequently being used to leverage classic web applications.

Business Results

The pharmaceutical company identified two main business results related to reusable content. First, managers are able to provide performance support when skills gaps are identified. Second, new information about changes within the business can be more easily shared. For instance, with preliminary work instructions and training provided, LMS administrators can easily receive updated information online about new processes. Thus, the entire LMS administration community (approximately 250 employees) can be quickly and efficiently updated.

Autodesk takes a different (and more traditional) perspective in considering the business results related to reusable content. Although training is measured¹⁴ and analyzed, the company follows an indirect cost-recovery model related to reusable content – in which the return on investment (ROI) is in seeing its business partners close deals (i.e., emphasis is on presales processes). Autodesk proposed that this builds a better business case for reusable content outside of the traditional training courses. In order to do this, the company first considered the problem and then defined what the success of the problem would be. From this, the learning objectives emerged, as well as the factors that should be measured to show business results. Currently, Autodesk emphasizes specific sales initiatives, such as contract extensions and whether cross-breeding occurs to assess if training is adding value. As Autodesk's director, North America channel readiness commented,

“Ultimately, the concern is not about the learning experience or whether the content will be able to be reused, it is whether the training resulted in profit. But if you can get there through reusable content, all the better.”

¹⁴ For more information, *High-Impact Learning Measurement: Best Practices, Models, and Business-Driven Solutions for the Measurement and Evaluation of Corporate Training*, Bersin & Associates / Josh Bersin, November 2006. Available to research members at www.elearningresearch.com or for purchase at www.bersin.com/measurement.

Best Practices in Developing Reusable Content



KEY POINT

Using metadata and taxonomies allow organizations to track how and where course material is used, as well as assisting course authors in creating learning material.

Reusable content systems allow all materials (regardless of form or content) to be held in a single web-accessible environment. This allows designers, developers and others to access and distribute material easily and efficiently. One best practice to maximize its utility is that the reusable content must be easily retrieved and updated. Taxonomies, metadata and full-text searches are examples of some methods used to ensure searchable and reusable learning content. Metadata and taxonomies have been described as the cornerstone of content management because they streamline the categorization and management of learning content.

There are a number of benefits to using metadata effectively. First, it provides rich information about learning objects by documenting all uses of and interactions with the content. Second, courses can be systematically developed using a decision-making matrix that accounts for:

- Media and delivery type;
- Complexity (e.g., fact sheets / reference materials to WBTs / simulations);
- Amount of change to be trained; and,
- The standardization or templates used for creating learning materials.

Finally, it breaks down learning content to its simplest components to increase its reuse in the widest range of deployment methodologies. Although some suggest that metadata tagging is the most accurate when conducted manually, the IRS has implemented software from MetaSoft that links content to internal revenue manual (IRM) topics and to the internal revenue code for which employees are responsible. This automated tagging is then checked during content intake for certain components and, if the tags are missing or incorrect, the content is returned.

Autodesk's director, North America channel readiness suggested that breaking down content into smaller learning objects is a unique perspective from what is typical in the training field. Usually, people consider the end product (e.g., a book or a website) and this limits

the degree to which reuse is considered. Thus, another best practice exists when the final states of the materials are intentionally ignored – the basic content can be combined into very complex interactions and rich reusable content that can be focused on transferring the right information to the right people at the right time.

For Ericsson, another best practice in using course assets outside of the course is through the use of DACUM¹⁵ (Developing A CurricuM) processes. These processes (e.g., occupational task analysis for the purposes of creating curriculum) are used to identify duties, skills and tasks lists, and create the needed course assets. However, there is a recent initiative toward using performance consultants¹⁶ as an alternative to the DACUM process since the consultants move beyond merely identifying training needs to identifying solutions for improving performance and transferring knowledge.



KEY POINT

A representative from the IRS stated, “... *It has been very deliberate, slow steps because we spent a lot of time trying to figure out how to tag it, so it’s not just for online ... it can really be used across any employee development we might work on.*”

In order to form an effective plan for content, another best practice is to define the learning content strategy – to determine which elements of reusable content would be most relevant and useful to an organization. At one healthcare equipment company, a detailed learning content strategy defined the ways that content was going to be reused and reusable in light of the regulations for U.S. Food & Drug Administration (FDA) compliance and validated systems (according to 21CFR, part 11). The process took into account the:

- Organizational structure;
- Technologies being used;
- Different business units that would take advantage of the content; and,
- Approaches to content deployment that we needed to meet:
 - Training needs;
 - Records and compliance needs;

¹⁵ A “DACUM” facilitator assists workers in analyzing their occupations through the production of a job profile chart during a neutrally facilitated storyboard session to enhance employee development, training programs and human resource services. Source: <http://www.dacum.org/example.asp>.

¹⁶ For more information, *High-Impact Learning Measurement: Best Practices, Models, and Business-Driven Solutions for the Measurement and Evaluation of Corporate Training*, Bersin & Associates / Josh Bersin, November 2006.

- Legal requirements;
- Documentation requirements; and,
- The use in performance support applications.

The learning content strategy was also linked to the larger learning strategy that included the organizational structure of the training function and organizational development under HR. The learning content strategy had (as fundamental pieces) a map of the process by which content would be planned, assessed, built, managed and distributed. The approach also called for a “road map” that would integrate technology, new strategic initiatives, and the corporate goals and objectives. For example, the need to comply with the Sarbanes-Oxley Act of 2002 drove certain legal and compliance requirements, as well as certain content and training components that were necessary.

A final best practice is to ensure that the process guides the choice of tools. Unless there is a strict idea of reusable versus “unreusable” content in an organization, the tool used to manage the material does not have to be complicated. In fact, something as basic as folders in Microsoft Outlook can be used to manage reusable content. Autodesk currently uses several different tools to support its learning content (e.g., FTP, KMSI, OutStart, safesforce.com and Siebel). Because many of the tools used to manage reusable content have common denominators and approaches, Autodesk recommended that the important thing to consider is the relationship between the process and tools.

Too frequently organizations get caught up in the bells and whistles of a tool. It should be the process and the learning needs that drive which tool is used, not the reverse. Ultimately, off-the-shelf tools in today’s marketplace are configurable and malleable. It is no longer assumed that a process will need to be reengineered around a given tool. Generally, a number of tools, which act as underpinnings, will be available – sometimes with only certain processes. The key is that tools change from year to year. In fact, Autodesk argues that reusable content should be designed outside of the tool to retain its independence from a given tool.

**KEY POINT**

Autodesk’s director, North America channel readiness suggested, “... *You’ve got to think about where the relationship between the tool and the process are important – but use the process to define the tool, not the tool to define the process. It sounds obvious, but most large organizations can get fascinated by the shiny object of the toolset.*”

Future Trends



KEY POINT

The benefit of m-learning is that employees have continuous access to relevant training resources without having to be at their desks.

In general, two trends can be identified as they relate to reusable content. First, organizations are moving toward the use of mobile learning (m-learning). Learn eXact is one LCMS that has implemented functionality that facilitates knowledge transfer to distributed employees (i.e., eXact mobile). The benefit of m-learning is that employees have continuous access to relevant training resources without having to be at their desks. For example, employees can receive or access small quantities of information through their cell phones or personal digital assistants (PDAs). These nuggets of information can be coupled with short questions that must be correctly answered via text messaging before additional information is sent to ensure the information is correctly interpreted. As a result, m-learning is a new trend that makes learning and information continuously available to employees.

A second trend is that performance consultants may begin to play a larger role in determining the learning needs and the best ways to approach these needs. Performance consulting assists organizations to achieve performance excellence and business goals – by diagnosing problems in business processes and collaborating with management to identify solutions. In addition, performance consultants facilitate a cultural change from the organization's focus on training as a solution to identifying solutions for knowledge transfer and performance improvement. This will be particularly relevant as organizations begin to more fully utilize reusable content as a replacement to fully formed courses. Too often organizations focus on the final product (e.g., the training materials) and not on how best to ensure that employees are working effectively.

Conclusions

Reusable content may be the most effective path for organizations, especially in meeting compliance and other training requirements for both regulatory agencies and channel partners. Four LCMS vendors were reviewed (i.e., Eedo, Giunti Labs, Learn.com and OutStart) – and show great promise in the technology, flexibility and functionality of the tools offered for the development, use and maintenance of reusable content by learning and development organizations.

ANALYSIS

The applications for reusable content increase the flexibility and speed with which e-learning courses can be developed.

Based on initial findings and the industry best practices, reusable content presents significant benefits to enterprise environments and is particularly notable in highly regulated industries. The applications for reusable content increase the flexibility and speed with which e-learning courses can be developed – in addition to allowing organizations to have confidence that content updates will be quickly implemented throughout all relevant courses to maintain compliance with various stakeholders. Although some challenges were raised regarding the implementation and maintenance of reusable content, it appears that the long-term benefits of a reusable content approach can overcome some of the issues surrounding the initial structuring of the content (e.g., time required to tag learning objects and changes in workflow). Further, the implementation and utilization of reusable content will assist organizations in adopting identified future trends in training (i.e., m-learning), and indicates a strong commitment to achieving performance excellence and business goals.



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