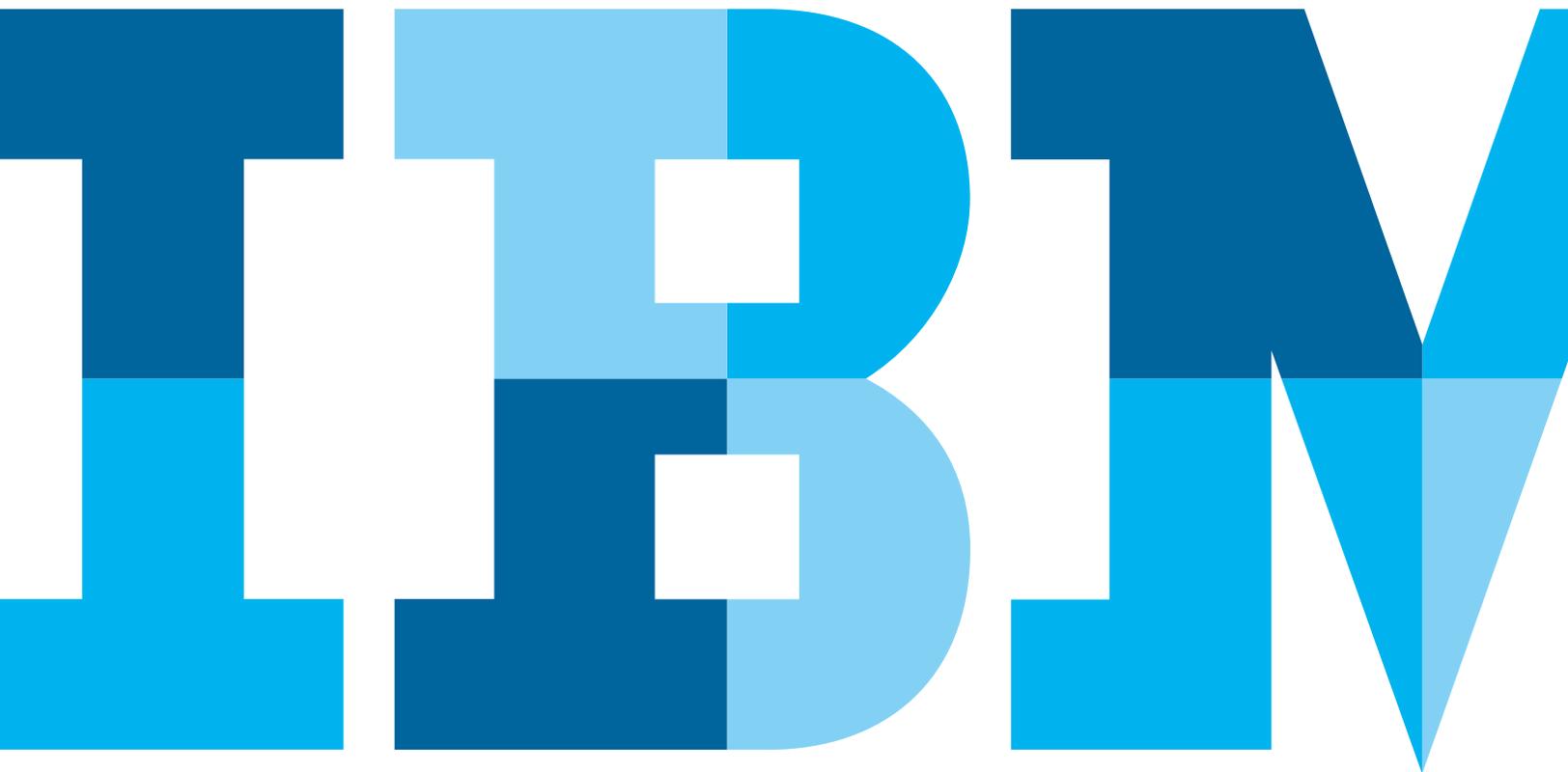


# Dynamic content

*Connecting performance and learning*



What is dynamic content? What role does dynamic content play in developing more effective strategies to tackle performance problems in organizations?

The purpose of this white paper is to answer these two basic questions. The answers offer insights into the way a learning content management system (LCMS) can improve individual, group and organizational performance by providing more effective and focused training. At the same time, dynamic content strategies can accelerate training development and deployment while reducing costs. Reducing the time required to develop and roll out effective, high-quality training also means you can speed time-to-market with new products and services. In short, if you adopt the necessary strategies and technology to support it, introducing dynamic content into training and performance provides your organization a competitive edge.

### “Traditional” e-learning: static content

To understand the meaning and value of dynamic content, we first must understand static content, a contrasting form of e-learning that still is dominant in many organizations.

Traditionally, in the world of e-learning and learning in general, content has been predominately static. Consider the typical scenario: E-learning courses are developed using stand-alone desktop authoring tools that “hard bake” the content into static material. Each change or update requires a lengthy, expensive process involving developers who have significant technical skills.

If courses in your curriculum share content, the situation is aggravated. For example, consider an airline that has produced five online courses. The course materials contain 15 instances of the same graphic detailing the components of an e-ticket. In the future, if the e-ticket format changes, training managers must verify all 15 occurrences are located and updated separately. This manual task also could involve processing the original file in many different ways to fit different devices and screens.

Updating static content is decidedly labor-intensive and error-prone. Even if you can get the changes scheduled and prioritized, the time required to complete the updates and publish them adds significantly to the management process. If the e-ticket graphic is used in the registration system, it also must be updated where students enroll – typically a learning management system (LMS).

In many organizations, courses are not regularly maintained because the maintenance process is too difficult, time-consuming or costly. If budgets are limited, competing priorities might take precedence. It is common for minor misalignments of content to be tolerated until they are too numerous, or until critical information is affected, and then a course is simply retired.

This is only part of the problem. Another significant shortcoming of static content is that the time and cost of development rules out the option of creating course variations to suit specific needs of different audiences. The traditional one-size-fits-all approach to content, many organizations use, serves no audience particularly well. The generalized nature of the material can result in audiences receiving about the same training, rather than receiving specific training that would lead to a greater depth of skill.

Static, general content flies in the face of a well-established truth about learning and instruction: Content must contain contexts and tasks specific to the learner. In fact, work completed by Malcolm Knowles and Carl Rogers in the 1960s, 1970s and 1980s concludes that effective adult learning materials must include elements suitable and relevant to the individual learner, while providing a forum for feedback and offering reinforcement.<sup>1</sup>

On the other hand, designing a course for targeted organizational roles can be too costly for most e-learning programs. That is why part of this white paper focuses on how a dynamic delivery LCMS helps enable organizations to more easily create targeted programs. The value of targeted

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programs for e-learning is optimizing the effect of a learning team through core strengths of the LCMS: assembling appropriate learning material to suit a role and learning situation.

Rogers asserts in his 1969 seminal work, “Freedom to Learn”<sup>1</sup>, when adult learners have control of the timing and direction of their learning, they are more likely to achieve significant learning results. An unfortunate attribute of static content is that its directional boundaries and content scope already have been established at the time of design and development. In addition to lacking the ability to adapt to a learner’s prior experience, lack of experience and learning gaps, static learning materials also are unable to provide a choice of self-direction through related materials, whether they are core or tangential.

Because static learning materials are missing these precepts of suitability and self-direction, it is difficult when using such materials to transfer training back to workplace behaviors and performance. In contrast, self-direction and remediation are core design features of the dynamic delivery LCMS. Dynamic learning materials provide access to both correctional and tangential materials to keep the learner engaged.

Finally, the time it takes overall to produce, review and launch a course with traditional e-learning methodologies and tools is unacceptably long. Producing static e-learning materials takes about the same amount of time it takes to produce traditional paper learning materials. This is because separate design, development, production and deployment phases must be completed, more or less in linear sequence. Each step can be accomplished only by applying a distinct set of specialized skills and knowledge.

With a dynamic delivery LCMS, development groups can decrease materials development cycle times by employing reusable materials and incorporating the skills and materials of a geographically dispersed development team. Efficiency also is accomplished by performing in situ reviews live in the LCMS using subject matter experts, focus groups and instructors.

## Summarizing the problems with traditional learning and static content

Some of the business problems associated with static content and traditional development tools and methodologies are:

- Content is rarely up-to-date, which causes a significant negative impact on performance and business results.
- Courses follow a generic strategy for delivery to a single user-type or role.
- Each time a derivative course or module is created for a new iteration or audience, the maintenance effort is multiplied.
- Static courses do not adjust to a learner’s prior knowledge, knowledge gaps or desire to see related supporting materials.
- The time required to develop a static course can be too long. Release of new services and products could be delayed or their launch could be compromised, causing poor sales, after-sales support and service.

## Contrasting static and dynamic LCMS

In general, both static and dynamic LCMS programs use an object paradigm. Content is stored in small, discrete components as objects within a database. Course materials are comprised of a structure and a set of content buckets, or objects. The objects that create the course are drawn from a database to populate this structure. Given the discrete nature of these objects and the multitude of situations for which they can be combined, as well as the variety of methods of combining them, many new delivery options become possible.

Many commercial LCMS programs contain functions to control the authoring, structure and branding of the learning content. However, going beyond these abstractions of content, there are fundamental differences in the types of LCMS programs available in the marketplace.

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*“With a dynamic delivery LCMS, development groups can decrease materials development cycle times by employing reusable materials and incorporating the skills and materials of a geographically dispersed development team.”*

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In general, there are two types of LCMS. One is the static (or “publishing”) LCMS. The other is the dynamic delivery LCMS. The type of LCMS you employ dictates the number of delivery options you have and, ultimately, how much value can be extracted from your learning assets by reusing content in new contexts.

In a publishing LCMS, content is assembled for specific uses, such as web-based training (WBT) or a MS Word document, exported and consumed in some form. Delivery takes place on a separate system, such as an LMS in the case of WBT, or on a desktop computer in the case of a MS Word document.

Using a dynamic delivery LCMS, an organization gains greater opportunity for content reuse, because the content is consumed directly from the same system where it was assembled. Because the interaction between consumer and content occurs within the bounds of the LCMS, there are more opportunities to tailor the content for the needs of different audiences and thus create content packages with different variations.

### Dynamic content scenarios

Now that we have established how automating the development, management, maintenance and delivery of dynamic content can benefit an organization, let us take a look at this dynamic content at work to discover how it can benefit the learner. There are a number of scenarios in which creating a live link between learner and content can benefit both the learner and the organization. The following examples are just a few of many.

### Role-based course personalization

Suppose you are tasked with developing a course on customer service best practices using the airline example discussed earlier. You must consider two major audiences: managers who have direct reports and a unionized workforce. Suppose assessment performance factors into remuneration for managers, while for unionized workers it does not play a role. Suppose also that, in recent history, performance evaluations have played a role in making workforce cuts. We can create a good chunk of content suitable for both audiences – maybe 80 percent – but we ideally would custom tailor a significant portion of content to each audience.

Using traditional methods, it is very likely we would develop one course intended to cover all audiences. In exceptional circumstances, if this training is considered highly strategic to the organization, two courses might be mandated, probably as separate projects at considerable cost. In contrast, a dynamic LCMS could include two separate course structures, one for each audience. We would populate these structures largely with shared content, develop them once and store them in a data repository. We would populate a smaller number of structural elements with content unique to each course. For example, we might include scenarios and motivational devices appropriate to each separate audience.

With dynamic delivery, the LCMS stores the user’s role, or another system, such as a Human Resource System or Learning Management System, provides it. Either way, we can adjust content at run-time to deliver the appropriate version of the course. The result: custom-tailored content developed, maintained and delivered cost-effectively.

This is often referred to as “personalization”– the process of adjusting content for specific requirements of different audiences and providing it either as a package or as a single application that adjusts based on user input. You can adjust content for regional differences in policy or procedure, for example. In a global organization, you might subtly accommodate different local practices, values, cultural references and accepted modes of communication. If you have

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a larger variety of characteristics in your workforce, you will need more complex configurations of adaptive content. An LCMS enables you to establish content selection based on multiple criteria embedded in the categories making up a user profile.

For example, the LCMS could select content related to policy or describing product features according to “region,” if there are regional differences, while the procedures it selects concerning use of related tools, such as a CRM, might vary according to “role” (e.g., sales representative, account manager, sales manager).

#### **Same course, multiple brands**

A simple example of personalized course content is “same course, multiple brands” – an original course dynamically rebranded to fit additional audiences. In other words, you use the same course materials to produce two different packages with different graphic looks. For example, you can use course materials designed for training internal audiences (customer service, sales, etc.) to train end partners or customers. Customizing a course for differentiated audiences with different brands adds a perception of value and quality to the materials.

Using traditional training methods, it is fairly easy to make a detailed copy of course materials and provide them to a graphic designer to change the visual branding. Typically, the designer swaps the graphic portions of the course materials, and the course manager uploads the new course for delivery to the new audience. The disadvantage is that you now have two versions of the same course to maintain. If you make changes to the original course, you also must make changes to each derivative course, re-upload the materials and re-register the students – much more time and energy involved than maintaining one course, even if you have only a single derivative course. Now imagine the difficulty and manual effort required to update and manage courses for an internal brand, 10 partners and 200 customers. Traditional maintenance plans make this type of content reuse impossible, ruling out possible revenue opportunities related to new channels.

With a dynamic LCMS, all materials in the original course are dynamically shared each time they are used. The “viewer” or branding of the course is managed in a separate location from content, enabling new viewers to be created independently of the course materials. This has several benefits:

- As you make content changes to the original course, each course with shared content receives those changes automatically, which means the next time a student receives training from this course they are receiving the latest content.
- If you need to make a change to the look and feel or “viewer” for the course, you can make the changes without affecting the availability of the course(s) or content contained in it.

#### **Same course, multiple LMS**

Another common example of personalized course content is a single course published to multiple learning management systems (LMS). A healthcare content provider might license curriculum for healthcare conformity and compliance training to many healthcare and medical services providers. In the past, such providers have struggled to make sure customers have the latest materials. Even if they sent customers the most updated materials, there was no guarantee the updated materials were being used.

Traditional development, distribution and updating of a curriculum is a multistep process that looks something like this:

#### **Initial development and deployment**

- Develop content
- Package content
- Transport content to LMS(s)
- Register students within LMS(s)

#### **Maintenance**

- Find content to change
- Make changes
- Re-package content
- Transport content to LMS(s)
- Register students within LMS to new course
- Repeat as necessary

With dynamic content, the process is much simpler. You must import a “reference” to your content, but the content delivery and branding is performed automatically. You can apply curriculum updates in the dynamic LCMS. Likewise, as your needs change, you can make branding changes directly from the dynamic LCMS without having to send updated content packages. You will inform each person who needs to know about the maintenance with a simple email detailing the changes, which in some cases already have been made. Dynamic curriculum changes look something like this:

#### **Initial development and deployment**

- Develop content
- Create a link
- Import link into LMS(s)
- Register students within LMS(s)

#### **Maintenance**

- Find content to change
- Make changes
- Changes are readily available without redeployment or re-registration

#### **Linguistic variations**

Linguistic variation is another form of personalization, and potentially one of the most expensive variation. Providing course content in different languages requires alternatives to each textual element of the course materials and many visual elements. When you use conventional authoring tools and methodologies, the cost of generating a second language version of a course generally is estimated to be 40 percent to 60 percent of the original version’s cost. This ratio can range upwards as high as 80 percent, depending on the tools and methods used in the course and its complexity. In essence, to produce a second language version of a traditional course, you have to pay for the production of the course twice (including the usual project management and quality assurance costs), plus the cost of translation.

Using a dynamic LCMS with a translation facility, you can reduce the cost of a second language version to about 15 percent to 20 percent of the original course’s cost, with most of the cost being applied to translation. How is this accomplished?

To produce a second language version when you are using a dynamic LCMS, you will first export the course’s text objects outside of the LCMS as structured text with sections marked for translation. Once the text objects are successfully translated, the translated objects are pulled back into the production environment to populate a second version of the same structure. Non-textual components also are pulled in and left untouched. The language delivery options are stored and available as part of the user profile, so they can be applied automatically or, in many cases, learners can select which language is most appropriate for them.

#### **Deliver targeted lessons to fill learning gaps**

The examples above illustrate how elements of a simple user profile (with variations such as role and language) can determine what content will be delivered to a learner. Both static and dynamic processes deliver e-learning courses. However, dynamic LCMS programs offer additional capabilities to support a wide variety of knowledge management and performance support strategies using small parts of a course’s learning assets. For example, because LCMS programs track learner performance against objectives, you can target and remediate performance gaps with pages and lessons at the most appropriate learning levels.

Additionally, a dynamic LCMS provides further learning opportunity. You can program your LCMS to suggest supplementary materials that cover similar knowledge domains or learning objectives. This typically is referred to as “Prescriptive Learning.” Although several static delivery methodologies allow for remediation within the same course, a static package does not naturally encompass external resources. The amount of tangential and related material you can make available to support learning increases when you employ a

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continuously evolving learning content repository. In fact, you can reduce training seat times by significant amounts when you implement a strategy that solely targets learning gaps as the majority of the e-learning delivered. This could lead to dramatic increases in productivity and human resource availability.

### Other dynamic LCMS strategies

#### Targeted delivery

Another example of a dynamic LCMS strategy is providing up-to-date (real-time) performance data in a business application to determine appropriate content for an individual learner. Examples of this type of business application include talent management systems, CRM platforms, call-center management applications, manufacturing quality assurance systems and internal system carrying intelligence about an individual's performance as compared with established norms. These systems can send triggers to a dynamic LCMS, automatically create enrollment events and send notifications to affected system users.

#### Multimodal training outputs

Another common use for the dynamic LCMS is separating content from its branding and presentation layer to produce many different output types, including MS Word documents, PDFs and mobile applications. The dynamic demand and generation of your content from the LCMS enables these materials to be filtered and branded on the fly for the requesting audience in the format they desire.

As a development group immerses itself in a dynamic LCMS, other strategies become apparent over time. The group might use the system to generate targeted newsletters or leverage metadata to provide learners the ability to search and retrieve performance support materials as needed. Forward thinking organizations that want to support their workers make sure content is up-to-date and available by multiple means.

### Conclusion

Dynamic content strategies have succeeded in enterprise content management for many years. Dynamic LCMS technology is enabling the same type of success with application in the sphere of learning. Ultimately, dynamic content, backed up by technology and strategies that help ensure rapid development and deployment of content, help make us better equipped to respond to business problems that relate to training. This includes the following:

- How can we help ensure course materials are customized to different audiences, so their needs are met and so what is learned transfers back to the workplace?
- How do we connect people with content (not just courses, but different types of content) to support learning and performance. How can we implement just-in time strategies to accomplish this goal?
- How can we better target learning and performance support strategies toward real gaps in performance that stand in the way of achieving business objectives?

Dynamic content can provide the basis for meeting these challenges more effectively than ever before. However, the technology alone cannot supply all the answers. To gain the corporate advantages discussed in this paper, we also must invest in the organization, development and management of the content. Developing and implementing a strategy to leverage dynamic content requires planning and organizational commitment. The risks involved with such undertakings have decreased as capable LCMS vendors have increased their experience with change management strategies. Deploying such a strategy is likely to bring great reward: reduced costs, faster time to market and improved individual, group and organizational performance.

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1 Knowles, Malcolm and Rogers, Carl. We are referring to a body of work by these two authors. For more information, please refer to: <http://eric.ed.gov/?id=EJ296369>.

2 Rogers, Carl (1969). Freedom to Learn: A View of What Education Might Become (1st ed.). Columbus, Ohio: Charles Merrill.



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