

How British Telecom created fully accessible e-learning

Background and context

BT is one of the world's leading providers of communications solutions and services, operating in 170 countries. Its principal activities include:

- Networked IT services;
- Local, national and international telecommunications services;
- Higher-value broadband and Internet products and services; and,
- Converged fixed / mobile products and services.

Operating with the support of more than 104,000 employees, BT consists principally of four lines of business – BT Global Services, Openreach, BT Retail and BT Wholesale.

In 2005, British Telecom determined that all new e-learning content must comply with the Worldwide Web Consortium's (W3C) web content accessibility guidelines (AA) for conformance for individuals with disabilities. The enterprise recognised two key needs – those of:

- Industry standardisation / compliance; and,
- The ability for the lines of business to produce their own training content specific to departmental requirements.

BT successfully launched and implemented a new learning management system (LMS) in 2006. One year later, the learning and development (L&D) team turned its attention to a new challenge – how would L&D achieve its goals to:

- Support the business need to create and update learning content;
- Do this more quickly and cheaply;
- Ensure quality; and,
- Adhere to industry standards for accessibility?

After assessing line-of-business requirements and capabilities, L&D decided to implement a collaborative system for authoring, managing and deploying learning content. Now, nearly a year after its initial implementation, BT's collaborative authoring system is enabling the lines of business to deliver e-learning content more quickly and efficiently – and ensuring compliance with the company's commitment to accessibility.

In this case study, you will discover:

- Business challenges driving end-user demand for simpler, faster ways to produce training;
- The company's approach to the evaluation and selection of an authoring system;
- Details of system implementation and its associated challenges;
- The impact of a collaborative authoring system on the development and delivery of training; and,
- Lessons learned.

Business Drivers

In the case of larger projects (for which time to deliver was not critical), the traditional approach of engaging vendors worked well. With smaller projects (for which timely delivery was essential), however, working with an external vendor proved ineffective. The process of producing a business case, securing finance and coordinating with an external vendor was too slow and expensive. British Telecom's L&D team identified a number of situations for which the standard approach of relying on external vendors failed to meet the demands of the business. These situations involved:

- Frequently changing training content;
- The rapid training of a target audience due to time-to-market pressures;
- The cost effectiveness of engaging a vendor for a small target audience; and,
- Rapidly converting available low-level material to online content.

The accessibility element warrants closer attention when you consider the following statistics:

- In the UK 17% are born with a disability (*Source: Institute for Public Policy Research*)
- 4 out of 5 become disabled while employed (*Source: Able2Network*)
- Typically 3% leave a business every year (*Source: Joseph Rowntree Foundation*) and the costs to the business is £160k per person (*Source: Employers Forum on Disability*)

Learning Environment at BT

Learning and development (L&D) at British Telecom is directed by a learning council, comprised of senior employees responsible for learning. The council's membership includes one to three people from each line of business, for a total number of 12. The enterprise has been offering e-learning courses targeting a range of necessary skills, for many years. Training courses and blended solutions were provided by a variety of external vendors, as well as being produced in-house specific to particular departments. These departments used PC-based authoring tools and produced content of varying levels of quality. Typically, these in-house initiatives dealt with smaller, rapid e-learning projects. To complete internally developed projects, the business units employed whatever tools and skills were at their disposal. In some cases, technically savvy individuals employed traditional authoring tools (like Adobe® Flash™ or Authorware™) to create courses, while other, less-advanced authors produced materials using simpler tools (such as Camtasia Studio™, Microsoft® PowerPoint® and TechSmith®). The resulting training content was delivered by whatever method was the most expedient, including CD-ROM, Network server or Internal web server.

Training records for these courses were typically captured and managed with simple spreadsheets. While this approach provided a quick fix for selected training needs, BT found that custom applications created in-house were hard to maintain. In addition, backups did not occur, source files were misplaced and personnel with the skills to update applications moved on to other job opportunities. British Telecom had a library of more than 2,500 learning programs, many of which were stored in a closet filled to overflowing with CD-ROMs and other media. For some projects the business units needed a faster and cheaper way to create online learning.

Selecting a Solution

L&D personnel took the lead to find a solution for the business units, but included representatives from each of the stakeholders. A small team was assembled who then defined the requirements for a content authoring tool that would meet the needs of the lines of business, as well as the requirements of the L&D group. The team was then assigned to evaluate solutions and submit a recommendation to the BT learning council. The team evaluated 16 different authoring tools – including tools already in use within BT, as well as new tools available in the marketplace – against the checklist of BT requirements. Each evaluation also included a product demonstration, most of which were conducted online. Based upon the company's requirements, the evaluation team selected a collaborative authoring system from Atlantic Link which provided an integrated suite of tools for creating, managing and tracking learning content.

Users access all of the components of the system by using a web browser to log in to a centralised application server. The design of the software suite provided by Atlantic Link is one of server based architecture, which offers many features and benefits, including:

- Collaborative authoring;
- Centralised content management; and,
- An integrated learning management system (LMS).

The collaborative authoring system contains features designed to simplify and accelerate the authoring process, including authoring wizards, Flash-based templates and a PowerPoint importer.

Content Point within the Atlantic Link authoring environment has Accessibility features built in to automate content development to W3CAA and section 508 standards, and the time required to make a course accessible is trivial. There is now no excuse for creating courses that are not accessible to learners who cannot use a mouse or make use of accessible technologies.

Implementation – Process & Challenges

After obtaining buy-in from the business units, the L&D team acquired and began to implement the system. The first step was to install a development server to support an initial group of end-users and before they were allowed to access the system, the L&D team required that they complete a two-day training course on the authoring system, as well as a series of four courses on designing information for delivery online to meet BT's publishing standards. From the very beginning, demand for the training was high, as existing BT content developers were keen to develop their skills with the new system. Once the end-users were trained to use the system, the L&D team faced a new set of challenges, which included:

- How to provide end-users with ongoing support; and,
- How to test and quality-assure the courses they produced (with Atlantic Link's integrated LMS) prior to uploading them to BT's enterprise LMS, Route2Learn.

A few ways in which the L&D team implemented quality control was to establish a system portal and publish the rules with which all system users must comply.

These rules included prerequisite training for authors and the requirement that all courses meet WC3 AA guidelines. The rules also specified a means of enforcement

– any author not complying with the rules could have his / her access to the system revoked. The L&D team's testing of courses takes two forms. First, every course submitted for publishing undergoes mandatory testing for compliance with accessibility standards. Second, random sections of each course are assessed for overall quality. If a course fails either test, then it is returned to the author for improvement. If an author submits courses that consistently fail to meet quality standards, then the L&D department provides coaching to improve that author's work. If the author's courses continue to fail to meet the company's quality standards, the team may revoke that author's system access.

The implementation of any enterprise application is a significant task – and the implementation of the BT collaborative authoring system was no exception. For BT's L&D team, the following four challenges stand out:

1. Providing the appropriate IT infrastructure to ensure that the necessary server was in place, with adequate capacity, as well as to configure it to provide maximum flexibility. Since the collaborative authoring system stores files on a centralised BT server and provides easy-to-use authoring capabilities, BT groups can update course content quickly and easily by themselves.
2. Training end-users on how to utilise the system. By leveraging existing BT and vendor courses, the company was able to train new authors on the collaborative authoring system and teach them to create usable, accessible content.
3. Providing post-implementation support and to address this need, the L&D group created a portal through which it published links to training courses, authoring rules and guidelines, information on support resources, and frequently asked questions (FAQs). BT's HR learning and development manager quickly discovered that an important part of supporting end-users involved responding to requests for new features and capabilities. The L&D team strove to avoid nonstandard uses of system templates and, whenever possible, to address end-user requests with existing features. When this was not possible (and when the requested feature had broad applicability), the L&D team worked with the vendor to develop and release a template providing the requested capability.
4. Quality assuring and testing finished courseware created with the collaborative authoring system. The L&D team addressed this challenge by training users before providing them with system access, but also by establishing and communicating rules, standards and processes for quality control.

Benefits from Expanding the Scope of e-Learning

Deploying a new authoring system and putting development capabilities into the hands of end-users has redefined BT employee roles and processes for creating content in several ways.

1. The system has empowered SMEs to create their own training.
2. It has expanded the use of e-learning to new applications.
3. It has decreased the cost and increased the timeliness with which the business units can deploy certain types of training.

For the lines of business, an easy-to-use authoring system has empowered in-house personnel and SMEs to produce training content on their own, bypassing external

vendors. The ability of the business units to create training relatively quickly and inexpensively has changed the cost equation, making new courses economically viable to create. For example, a short tutorial that formerly would have required both an SME and a content developer to produce, and would have cost £3,000 can now be developed with internal resources for approximately one-third the cost.

Finally, instead of relying on external vendors to update and maintain the organisation's courseware, the new system has allowed the business units to perform these tasks in-house. For example, the lines of business can manage changes to textual content, graphics or questions in-house – decreasing the cost, and increasing the efficacy and timeliness of training materials.

While BT expects to continue to employ external vendors for large-scale projects (such as company-wide compliance training), the collaborative authoring system has allowed the organisation to respond with greater agility to smaller projects requiring rapid turnaround.

Lessons Learned – A Checklist for Success

Reflecting on British Telecom's experience in selecting and deploying a collaborative authoring system, BT's Group HR L&D manager Peter Kelly, offered recommendations to anyone planning to undertake a similar initiative.

1. **Involve All Stakeholders** – Do this from the project's outset and give them real opportunities to provide input. At BT, the learning council offered a readymade vehicle for involving the business units and soliciting their input. If no similar body exists within your organisation, consider creating one. A learning council might serve as a permanent body for facilitating training plans in the organisation or as a temporary body assembled expressly to provide input for a single initiative.
2. **Collaborate with IT** – Since a collaborative authoring system is a server-based system, it is important to engage the IT organisation early on in the project. Also, secure the necessary server capacity, and establish plans and resources to provide ongoing systems administration.
3. **Provide Training** – As part of the system rollout, train users on how to use the system. In addition, investigate the possibility of leveraging courses provided by the vendor, as well as training that may exist within the organisation. You should not stop at training users on how to use the system but, rather, find or create ways to educate and support users in creating effective content.
4. **Provide Post-Implementation Support** – Once you have trained users on how to use the system, be prepared to support their ongoing use of the tool with training resources and clear authoring guidelines. For example, British Telecom's L&D group created a portal to consolidate support resources. Looking ahead, the BT Group's HR learning and development manager hopes to foster a user community through the implementation of support resources, such as blogs, a wiki, an online community and a newsletter to keep users abreast of system enhancements that include a feature on "tips and tricks."

5. **Accommodate New Users** – To avoid frustrating end-users, establish a simple, quick process that allows new users to acquire a license quickly and easily. The system should support the tracking and management of these licenses after they are deployed. For instance, at BT demand for access to the system grew rapidly after its initial deployment. The opinion of BT's group HR learning and development manager is that agility in response to user demand has been important to its early success.
6. **Practice Quality Control** – Because a system that allows you to develop rapid e-learning can be used to create bad content fast (and lots of it!), it is important to establish a system of quality control. At BT, the L&D group established guidelines, standards and processes to guarantee minimum quality standards for any course created.
7. **Manage Requests for Enhancements** – Prepare for user requests for enhancements by defining and implementing a process for managing them. The L&D team at British Telecom found that no sooner had the system been rolled out than users were pressing for new templates and features. Also, strive to avoid non-standard implementations, and make sure that enhancements address a commonly requested or critical user need before committing to them.
8. **Manage Change** – As with any significant rollout, change management is important. Consider dedicating a project manager to handle the systems implementation, and manage communications with the business and system end-users.
9. **Manage the Vendor** – Unlike PC-based authoring tools, a collaborative authoring system is server-based and, therefore, an enterprise-class solution. This architecture enables a single point of contact between the client and vendor, which can support the development of a mutually beneficial business relationship. For example, in response to BT's need to produce accessible content, the vendor agreed to add this capability to its product.
10. **Consider the needs of the learners** – Flat text and pictures are no longer enough. Think about the training needs of those people with poor vision, who rely heavily on audio for their learning or may need to magnify text on screen. Consider those people who cannot use a mouse and rely on a keyboard to control their training courses. Learners who experience dyslexia may prefer to change the colour background of courses. Choose a content development tool which enables your content authors to develop courses available to all of your employees where possible.

Summary

For the company, the introduction of a collaborative authoring system does not signal the end of working with external vendors. The organisation will still rely on vendor expertise to address more advanced and formalized training needs. However, the system is affecting change in when, where and how e-learning is deployed within the company. With its ease of use and centralized, server-based architecture, the collaborative authoring system is empowering the lines of business to create their

own e-learning more quickly and cost effectively – it is also increasing e-learning use by engaging new authors and making new applications commercially viable to create.

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