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What Librarians Need to Know About EPUB3

On April 17, 2013, NISO (National Information Standards Organization) held a webinar on the EPUB3 standard, EPUB3 and the Future of Interoperable E-books: What Libraries Need to Know (niso.org/news/events/2013/virtualepub3/#agenda). I participated in the webinar, presenting on the advantages and challenges of EPUB3 adoption from a library perspective. This column expands on the webinar.

Librarians and library users face challenges with multiple ebook formats. The most common are confusion on the part of users as to what file type they need and what the file type means, as well as how to download it properly to their devices. The sheer number of vendor interfaces (particularly those that are housed in a proprietary interface) also cause technical difficulties due to format variety and instructions for use. In fact, in October 2012, *Library Journal Patron Profiles* reported that 23% of library patrons were unsuccessful in borrowing ebooks due to technical difficulties. Libraries, with their strong commitment to service, strive to provide the best user experience possible and struggle when it comes to downloading ebooks to devices.

The demand for training, troubleshooting, and personal assistance with devices is a positive side effect from this confusion. Librarians fill this void for many users, providing services to inform and teach how to efficiently use devices to access econtent. According to the January 2013 Pew Internet & American Life Project study, "Library Services in the Digital Age," library staff identified the most popular services as classes on e-borrowing and on handheld reading devices (libraries [.pewinternet.org/2013/01/22/library-services](http://pewinternet.org/2013/01/22/library-services)). Vendors are also supporting libraries and users with training videos, FAQs, and frontline technical support.

UNFAMILIARITY WITH EBOOK FORMATS

Library users, faced with a variety of ebook formats on a regular basis, are probably unaware of the format they are using. More than likely, a patron's response to "Would you like that in the EPUB3 format?" would be, "eWhat?" After all, most library patrons are not on a first-name basis with EPUB, EPUB3, MOBI, KF8, AZW, or any other ebook file format. They know what device they have, where they bought it, and what online bookstore they need to visit to purchase content. As for library content, they probably know that either they need the Kindle format or they don't.

Christopher Platt from The New York Public Library says that his library patrons prefer ebooks that sync to their device of choice without any wrangling on their part. What's important to them is that the format flow with the type of device they're using. Platt says, "I don't think they honestly know EPUB3."

WHAT IS EPUB3?

EPUB3 is a distribution and interchange format standard for ebooks developed by the International Digital Publishing Forum (IDPF). It was adopted in 2012, which was the third major release of the standard. EPUB 2.0, adopted in 2007, and



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EPUB 2.0.1, approved in 2010, preceded EPUB3. The EPUB standard is a successor to the Open eBook Publication Structure (OEBPS) format, originally developed in 1999. The EPUB format, primarily EPUB 2.0.1 at this time, has been adopted by thousands of publishers and is a major ebook format for trade materials. EPUB3 adoption is on the rise, and experts are hoping for full-scale international adoption in the near future.

To describe it simply, the EPUB3 format includes, in one standard, the book content along with style sheets, images, media, scripts, fonts, and a host of features to provide for the accessibility of content. One of the best features of the standard is that it organizes all of the content.

The standard is gaining popularity with publishers and librarians. Bill Kasdorf, vice president of Apex Content Solutions and author of the first chapter in *EPUB3 Best Practices: Optimize Your Digital Books* (Garrish, Matt and Markus Gylling, O'Reilly Media, Inc., 2013, 372 pp.) wrote about the benefits of organization in the EPUB3 format: "It's designed to enable reading systems to easily and reliably know, up front, what's contained in a given publication, where to find each thing, what to do with it, how the parts relate to each other. And it enables publishers to provide that information in one clear, consistent form that all reading systems should understand, rather than in different, proprietary ways for each recipient system."

Scott Wasinger, vice president of sales, ebooks, and audiobooks at EBSCO Publishing, said this about the EBSCO ebook collection: "By the end of 2013, we expect over 50% of newly added titles to be in EPUB format rising to over 70% in 2014." Jamie LaRue, director of the Douglas County (Colorado) Libraries (DCL), told me in an email that almost none of the 900-plus publishers he collaborates with report either surprise or difficulty in providing the EPUB format. In fact, many of the smaller publishers are asking if DCL can handle EPUB3. Both these examples demonstrate a strong interest in EPUB from publishers, one likely to transfer to EPUB3.

ADVANTAGES OF EPUB3

Two primary advantages of EPUB3 are openness and flowability. EPUB3 is an open standard that can be consumed on multiple devices—computers, laptops, tablets, dedicated e-readers, and smartphones—from multiple vendors. Since "BYOD" (bring your own device) is a fact of life in libraries and schools, having a format that meets the needs of multiple devices is extremely advantageous. EPUB3 is also reflowable: It allows the content to adapt to whatever screen size the user has, unlike a static PDF.

EPUB3 greatly enhances the interactive ability of ebooks as well. The format can include embedded multimedia, such as audio and video files. Media overlays can also be used to synchronize audio clips with text in the content document using SMIL markup. Quizzes and other interactive features can be added (a huge bonus for textbooks, children's materials, and reference). EPUB3 also supports MathML (Mathematical Markup Language). This application of XML describes mathematical notations and displays them visually or through text



EPUB3 presents a greater opportunity for creativity with content than EPUB2, which was a close replica of the print.

to speech. Publishers also have the ability to present content in multicolumn layouts. Language support in EPUB3 provides for non-Roman scripts, which is one of the keys to international adoption of the standard.

The EPUB3 standard was written with accessibility at its forefront. By incorporating the DAISY (Digital Accessible Information System) format into EPUB3, support for full ebook accessibility is now mainstream. In order for this to be fully successful, however, publishers will need to integrate these features into content production. Section 4 of the EPUB3 code (facilitate content accessibility) highlights the many accessible features of the standard including navigation, semantic markup, dynamic layouts, aural renditions and media overlays, fallbacks, and scripting.

Accessibility is extremely important in libraries, which are being encouraged to purchase fully accessible ebooks. For example, the American Library Association's (ALA) Digital Content Working Group (DCWG) produced the Ebook Scorecard earlier this year. The scorecard provides 15 evaluative questions for libraries to ask about ebook publishers and content providers. Libraries are encouraged to rate these vendors on a scale of 1 to 5 for their ability to meet the criteria described in the scorecard. One of these relates to accessibility and states, "Rank the publisher's provision of accessible ebook content in which 1 indicates no commitment to accessibility and 5 indicates all ebook content offered is in fully implemented DAISY or PUB3 format."

CHALLENGES FOR FULL ADOPTION

Despite its many advantages, the EPUB3 format faces a variety of challenges for full-scale adoption. First and foremost is Amazon.

According to the Pew Research Center's Internet & American Life Project study "The Rise of E-Reading" (April 2012), Amazon holds a 62% market share for e-readers. The Kindle Fire stood at 14% (second to the iPad) in market share for tablet devices (libraries.pewinternet.org/2012/04/04/the-rise-of-e-reading). Amazon's devices are compatible with their own proprietary ebook format—AZW (KF8 for the Kindle Fire). They are not

compatible with the EPUB format, so users must convert the EPUB files to a Kindle-compatible .mobi format in order to read them.

Kindle Fire owners can add EPUB reading apps from the Android app store to their device, providing a much easier way to read EPUB content on Amazon devices. If you own a Kindle Fire, try it yourself. Download the OverDrive Media Console, connect to a library collection, and download and read EPUB files on your Fire. You will have to register your device with Adobe Digital Editions to accommodate the Adobe DRM system found on most of the downloadable library content.

PDF STANDARD

Another challenge for EPUB3 adoption is PDF. The PDF has been around since the early 1990s and is a standard in libraries of all types. Most full-text journal articles are in PDF as well as many ebooks. This format is simple to implement in libraries because it is familiar to users. Most personal computers and library public computers have the Adobe Acrobat Reader installed, which easily and automatically opens these files. We know the software, recognize the icon, and understand how to consume the content.

Library Journal's annual survey of ebook use in libraries asks librarians, "In what format do users generally prefer ebooks?" PDF has been the most requested format in academic libraries for the past 3 years. While the use has declined over the years, it still reigns king of formats with a 60% preference (EPUB was 30%). Use of PDFs in public and school libraries has also declined over the past 3 years and is significantly less popular than in the academic library, coming in at less than 20%.

STYLE ISSUES

One reason the EPUB format may not be as highly requested in academic libraries concerns style, specifically the lack of page numbers. Academics have a difficult, if not impossible, chore to properly cite the contents of an ebook in EPUB format. Kasdorf said in an email to me, "The main reason it's impossible to cite EPUBs by page number is simply because print page numbers haven't been captured in the EPUB. It has nothing to do with the EPUB standard—it is perfectly easy to capture the page break information in an EPUB and in fact, it is considered essential for accessibility. It's just that most publishers don't do it."

The style guides have made accommodations for lack of page numbers in digital content. The Modern Language Association's (MLA) Handbook, section 6.4.1, states, "If the work lacks any kind of stable section numbering, the work has to be cited as a whole (6.4.1)" (mla.org/style/handbook_faq/cite_an_ebook).

The Chicago Manual of Style allows for a more granular citation. It says, "Stable page numbers are not always available in electronic formats; therefore, you may, instead, include the number of chapter, section, or other easily recognizable locator" (owl.english.purdue.edu/owl/resource/717/05).

DEVICE SUPPORT

Another challenge for the EPUB3 format is support from all mainstream e-reading devices. Because many devices can't support the new format, publishers are reluctant to produce the content. The Book Industry Study Group (BISG) closely follows the compatibility of devices, software, and other e-reading systems with EPUB3. It maintains a support grid with frequent updates (bisg.org/what-we-do-12-152-epub-30-support-grid.php).

Publishers face many challenges with the adoption of EPUB3. Margaret Harrison, ebook global supply chain manager at Oxford University Press, shed some light on the challenges publishers face. According to Harrison, "As long as EPUB3 is seen as a sort of EPUB-plus format—a format that's separate from EPUB2 rather than simply a new version with backwards-compatibility (albeit not perfect compatibility)—the industry will resist it." Harrison thinks an industry-wide adoption would be accelerated if the IDPF led an industry-wide migration from EPUB2 to EPUB3, announcing a date when publishers and conversion partners should stop producing EPUB2. This would require close collaboration with retailers to ensure they will accept the new version. Slow retail adoption, says Harrison, is another challenge for EPUB3.

Publishers are also a little overwhelmed by the possibilities in EPUB3. EPUB3 presents a greater opportunity for creativity with content than EPUB2, which was a close replica of the print. According to Harrison, "Suddenly ebooks can behave a little more like apps—and everyone who has worked on an app knows what a meticulous and resource-intensive undertaking it can be."

This demands the consideration of each individual EPUB as its own project, which comes with a large price tag for publishers. Harrison believes the larger trade publishing houses, such as Random House and Hachette, are well-equipped to take advantage of the features in EPUB3, as their content-creation processes have already evolved to consider ebooks as a separate content output rather than a copy of the print book. The majority of the publishing world, however, has yet to undergo this transition.

NEXT STEPS

The NISO webinar was an excellent introduction to the EPUB3 format—its advantages, challenges, and specific makeup. While it has much to overcome for full-scale international adoption, it brings plenty of advantages for publishers, libraries, and users.

One key to full-scale adoption is education. Publishers, libraries, and everyone involved in the industry need to be fully educated on the standard. As librarians, if we understand the value of EPUB3, we can begin to request (or demand) the format from publishers, ushering in an open, reflowable, and accessible format for our users.

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