The mobile world: one non-profit publisher’s journey

Introduction

Annual Reviews, the non-profit publisher that synthesizes critical research literature, launched its first mobile platform for its 40 journals in October 2010. This represented a key milestone in a journey of innovation and experimentation that had begun some two years earlier. Mobile development is not unlike web development, in that the process is never complete, but the market – particularly for smartphones and tablets – is more fragmented, and evolves more quickly. New devices, new operating systems and new user expectations create a complex matrix of features and functionality; publishers have to keep up with – or second-guess – which configuration of that matrix will become dominant. “Just a year ago, the highest usage of our mobile content was on iPhones”, explains Paul Calvi, Director of Technology at Annual Reviews. “Recently, the iPad has seen dramatic growth, as have Android and BlackBerry.” In this shifting landscape, how can a publisher best plan and develop its mobile platform to predict and serve its users’ needs?

Why? Maintaining visibility, offering choice, strengthening value

Despite the more than ten-year history of the mobile web, and the game-changing improvements in usability enabled by the introduction of smartphones, usage of scholarly content on mobile devices remains low. However, analyst predictions about the growth in mobile web traffic (set to overtake desktop web traffic within two years1) indicate that future generations will expect – even prefer – a mobile interface. For Annual Reviews, this anticipated demand was a strong incentive to begin experimenting with mobile content delivery. Moreover, mobile was a natural, and necessary, means of serving existing organizational goals. “Researchers are increasingly doing their reading on the move, wherever they are”, explains Jenni Rankin, Marketing Manager at Annual Reviews. “Expanding the range of ways in which they could reach and use our content was an obvious fit with our overall mission of helping overcome information overload.” Professor Joseph LaCasce, of the Department of Geosciences at the University of Oslo, elaborates on this point: “Mobile content is easier to consult outside of work – on the subway,
or at home. Often, I think of something over the weekend, and check an old paper on my iPod Touch. Also, I’m more likely to browse journals in this mobile format, [whereas] at work I’m usually after specific articles.”

Mobile also fitted with “the evolution of our discoverability strategy”, continues Jenni Rankin. “From our early work with PubMed, through Google Scholar, via social media, and now into mobile – it’s all about going where the user is, and making sure they can find our content wherever they start looking.”

Finally, offering an additional content delivery format strengthens the value of an Annual Reviews subscription; Stephen Francoeur, User Experience Librarian and Assistant Professor at Baruch College in New York, comments: “The more options we give our users to access our licensed content, the more likely we’ll get more value out of the subscription costs. Adding mobile is a great idea and makes any content more attractive to us as we reconsider subscriptions. Those vendors that don’t yet offer mobile access to databases are increasingly looking like dinosaurs to us. As time goes on and demand for mobile access grows, that perception of ours is likely to change to real frustration if the vendors still haven’t come up with decent mobile options. I don’t think it’s fully on the radar screen of our users yet but will be in the coming years as most students and faculty have devices fully able to access the mobile web.”

When? Defining the right moment

Despite widespread agreement within the organization that a mobile platform should be developed, Annual Reviews was careful to explore a range of ideas and options before launching. “No one yet knows how the future of mobile will evolve, so we needed to familiarize ourselves with lots of different routes to market”, explains Steve Castro, Chief Financial Officer and Director of Sales and Marketing at Annual Reviews. “Our strategy was one of experimentation”, adds Paul Calvi, “to build an evidence base for future decision making.” The catalyst for moving beyond the experimental stage was the arrival and popularity of tablet computers. “The iPad is particularly appropriate for the kind of long-form content that we publish”, continues Calvi. “That convinced us to move forward with various initiatives that had long been under discussion.”

What? Understanding the market

“We started by researching broadly what people wanted from mobile, in focus groups”, explains Jenni Rankin. However, the outcomes from this research phase were not definitive; the lack of existing mobile sites for scholarly content meant research participants did not have experience of using scholarly content on a mobile device, and therefore did not have a frame of reference in which to articulate preferences and expectations around which a site could be developed. “It’s a chicken and egg problem”, comments Paul Calvi. Site License Manager Nick Niemeyer adds: “People weren’t looking for a different way of using content. They were only looking for delivery in a convenient format.” The solution for Annual Reviews – made possible by the support of its Board – was to fund various experiments and test these initial developments with further focus groups. The investment was ‘significant’, says Steve Castro, not only in development costs, but also in internal resourcing, management and direct costs of research. However, in return, Annual Reviews gained valuable, actionable intelligence to inform the development of its mobile strategy going forward.

How? Developing a business model

As a non-profit organization, Annual Reviews’ entry into the mobile space was primarily to meet channel demand, rather than to generate new revenues. “Our main concerns were to protect the intermediary role of libraries, to maximize usage, and to avoid cannibalizing other business”, says Steve Castro. “It was too early to anticipate where potential revenue streams might come from, and we wanted to align our mobile strategy with our web strategy rather than apply a new business model to the same content.” Tentative ideas for a pay-per-view app met with a cool reception from the Annual Reviews Board. “They loved the app itself – the features, the design – but they did not want to separate individuals from their institutional access rights”, says Paul Calvi.
How? Architecture and engineering

Mobile access to Annual Reviews’ full journal list was developed by web-hosting partner Atypon, which advised development of a device-independent mobile website designed to look and function like a mobile app, but usable on any device’s mobile browser (see Figure 1). The major benefit of this approach is that it delivers the sophisticated, intuitive environment familiar to (and expected by) app users, without requiring development of separate apps in different programming languages for each device ‘family’ (Apple, BlackBerry, Android and so forth) (see Figure 2). Potential disadvantages include slower response and less rich user interface elements than apps, and users must be online in order to access content through a web app. Yet, in the context of long-form, illustrated content, that also saves considerable download time.

The web app approach meets with approval in the library community, where there is a sense that product-specific apps are unnecessarily fragmenting a market in which content can be displayed sufficiently well via the mobile web. “In general, the mobile version should look just like a scaled down version of the full web version; not something completely different”, says Stephen Francoeur. “The best option for mobile development is to develop for the mobile web, not some app.”

“Our focus in these early stages has been to develop for the most commonly used devices”, explains Jenni Rankin. “Right now, that means iPhone, BlackBerry and Android phones, and the iPad. We will continue to monitor broader mobile trends, and expand our support in line with the market’s expectations – for example, if Microsoft’s mobile initiatives gain greater traction, we’ll look at how best to support that.” The Annual Reviews mobile journals website is built in HTML5 in order to minimize unnecessary expenditure, reduce time to market and standardize the user experience across different devices. The browser engine used to render the HTML, WebKit, provides the high performance and stability necessary to compete in the mobile market, where a browser crash is less accepted than in the desktop environment.

Considerable restructuring and optimization of Annual Reviews’ journal content was required to ensure readability on mobile devices. “Even with XML at the core of production workflows, the PDF is still the dominant output format, which creates layout problems”, explains Kevin Cohn, Vice President of Operations at Annual Reviews’ technology partner, Atypon. “Smartphones can support zooming and panning around a PDF, but it’s not optimal, and leads to ‘multi-touch fatigue’.” Atypon’s solution, launched initially for Annual Reviews, was to analyze all PDFs and identify ‘regions’ within each article that can be reflowed at an optimized size, for continuous

Figure 1. Left: The first page users see when visiting annualreviews.org on a mobile device (in this case, an iPhone): note the simplified layout and navigation (reflecting a native iPhone app design), and the option to switch to the full (regular) website; centre and right: users can customize the list of journals they see on entering the app.
reading. Figures, equations and other non-body text content is realigned appropriately (Figure 3). “This makes even archive content readable without the cost of recreating it as XML”, says Cohn. The inclusion of full text within the mobile version is valued by academics: “Many journals are still switching over to having (often incomplete) digital editions online”, says Joseph LaCasce. “Annual Reviews is certainly in front among the journals I read in terms of mobile content.”

**Who? Institutional authentication**

“There are two main types of mobile site – those focused on content, and those focused on features”, explains Paul Calvi. “A feature app can be fun, and popular, but is easiest to develop for an active, decision-making audience environment; as a review literature publisher, we have to think harder about what kinds of features we can usefully provide. Meanwhile, a content site sounds easier in concept – simply making our content available in mobile – but a key challenge has been enabling authentication against institutionally-held subscriptions.”

Kevin Cohn expands on this: “Institutional authentication is important because it allows the mobile platform to integrate with existing library software, such as proxy servers and link resolvers. It also, critically, means you can track mobile usage and include it in the institution’s COUNTER stats. All together, it means libraries continue to have
a vital role in providing content to users, and librarians continue to have access to all the information they need to make collection management decisions.”

In its first release, the Annual Reviews mobile website (web app) was accompanied by a separate native app, described as a ‘pairing’ app, which did not contain content; its sole function was to enable institutional authentication, by linking individual devices with institutional access rights to allow off-campus access. Following initial user feedback, and changes to the terms and conditions by which apps could be offered through Apple’s App Store, the pairing process was streamlined and now takes place within the mobile site (rather than through a separate app; see figure 4). The pairing period has also been extended in the latest release. “Initially, we experimented with a pairing period of one month”, explains Jennifer Jongmsma, Director of Production at Annual Reviews. “But for those people who only accessed the site when a new issue came out, their pairing would expire between each visit, causing frustration.” Users now only need to visit their library and re-pair their device every six months. “It’s a matter of keeping out of people’s way,” concludes Nick Niemeyer.

**How? Overcoming challenges**

The development of a mobile platform is not without challenges. These can range from building the business case, securing budget and obtaining executive buy-in (particularly to more radical ideas), to finding and co-ordinating the right technology partners, integrating or facilitating access to multiple data sets, and updating back-file content to enable delivery via mobile. The images in Annual Review articles represented one challenge that required considerable thought and effort to explore and overcome. “We add considerable value to our content during the production process, and we had to be careful not to lose that quality”, says Jennifer Jongmsma. (See Figure 5 for an example.) Although Annual Reviews’ content is structured XML, which supports considerable
flexibility in mobile delivery, the tagging within that content was not sufficiently granular to enable, for example, algorithmic identification of complex images for which a high-resolution file would be required. “High-quality images are important, because they give the best user experience, and partners such as Apple will therefore reject content with low-quality images,” explains Paul Calvi. “But for offline content, such as the volumes we have created for e-book readers, we can’t make all the images high resolution, as the file size would then be too big for download. So we need to be able to insert high-resolution images only where necessary.” The solution for Annual Reviews is to amend its production processes; its professional illustrators will now mark up those images that are likely to lose clarity when ‘downsampled’, in order that these can be algorithmically identified at the point of mobile delivery.
Not all challenges can be overcome. “There were grey areas”, says Jennifer Jongsma, “where we couldn’t recreate some of the web functionality – for example, the contextual snippets that we provide alongside our web content.” In such cases, “we went back to first principles: what does the user actually need or want to do in the mobile space? Not all functionality needs replicating. Our focus has been on getting the essential elements right: ensuring our navigation is simple and intuitive, and that our graphics retain their elegance and ease of interpretation.”

Who? Usage

Usage of mobile platforms has not yet transitioned significantly from web to mobile; “User behaviour hasn’t yet caught up with the technology”, says Nick Niemeyer. “Academics still tend to plan reading lists, and download content, from desk- or laptops.” Jenni Rankin acknowledges that “we didn’t know what to expect; we were early to the game, and expected to learn as we went.” Although usage is now growing ‘exponentially’, says Paul Calvi, “increasing by up to 200% each month”, it’s still too soon to identify trends, or draw meaningful comparisons between mobile and non-mobile usage. In terms of devices, usage to date has been fairly equally divided across Android, iPad and iPhone, with a small but significant number of users on iPod Touch. A key challenge has been integrating institutional statistics across different platforms and partners in order to ensure accurate representation of mobile usage in COUNTER statistics.

What next?

The next generation of tablets and e-book readers will ensure continued growth in adoption and usage of mobile platforms. Capturing data and analyzing trends about early adopters – from their geographic location, to their device, to the frequency with which they update their authentication pairing – will be combined with qualitative feedback from ongoing focus groups to understand how preferences and workflows are evolving as mobile becomes more widely used. This intelligence will inform future developments, both to the existing mobile platform and to apps still in the pipeline. Geolocation, interdisciplinarity and serendipity are all areas in which Annual Reviews continues to explore mobile opportunities, and additional functionality from the website is likely to be replicated in the mobile environment as users’ expectations become clearer. Meanwhile, technology partner Atypon continues to develop the mobile journals site.

In conclusion

Annual Reviews undertook experiments with various ideas and partners, not all of which reached fruition, due to changing business objectives and the evolving market environment; “That’s the nature of innovation”, says Paul Calvi. The process has been more expensive and time-consuming than expected, with more internal effort and new skills required. However, Annual Reviews’ content, staff and partners are now better prepared for ongoing mobile development than would have been the case had the organization waited for the outcomes of experimentation by others. In product terms, the primary lesson learned is to “keep things seamless, simple and intelligent”, says Jennifer Jongsma. In project terms, “communications are key”, says Steve Castro. “Any other organization starting out on this journey should identify and manage coherently the multiple stakeholders, both within and outside of the organization. Mobile development impacts all departments, so it’s important to clarify staff roles internally, and involve the right people in decision making”. For organizations that have not traditionally been innovators, “there will be an impact on your structure, culture and internal processes”, continues Castro. He uses Tuckman’s team development phases as an analogy for Annual Reviews’ mobile journey; with a second platform release under its belt, the organization has passed through ‘forming’ and ‘storming’ to ‘norming’. After two years, the ‘performing’ can now begin.
References and notes


2. Early in 2011, Apple strengthened its terms and conditions in relation to content revenues associated with apps distributed through the iTunes App Store; although it remains a grey area, Apple’s position can be interpreted to mean that subscription revenues for publications are liable to Apple’s 30% ‘shelf fee’ if an app enabling access to those publications is distributed through the app store – even if the app itself is free.

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