A popular meme in discussions of innovation in scholarly publishing is that if Henry Ford had listened to his customers, he would have learned to breed faster horses rather than invent the automobile. Putting aside the fact that Ford almost certainly never said it, the argument goes that it’s better to lead the market by understanding the customer’s real needs and pain points, creating potential solutions, and then testing them, rather than asking them what they would like you to invent. Put simply, people don’t know what they want until you show it to them.

It is true that there are plenty of examples of technologies that consumers didn’t understand until they got their hands on them. These include the oft-cited iPhone and iPad, cloud storage, and streaming video services, and older examples like television, electricity, and of course, the automobile.

The problem that we face in STM publishing is that researcher needs are challenging to predict and meet. Many publishers struggle to find new ways to encourage various end users such as academic and industry researchers, physicians, students, and members of the interested public to better engage with their content. Publishers have invested significant sums and effort to improve user experience on their platforms, only to see users continue to go directly to the PDF download button. Despite our best efforts, we still need to do more work on understanding what the real needs of our end users are, so that we can better serve them online.

Many publishers already engage in outreach to the academic community, particularly on the editorial side. Author training days are one example, where editorial staff help early-career-stage researchers understand how to select an appropriate journal for their work and write in ways that will get their work reviewed, accepted, and cited. Some publishers, such as Nature Publishing Group, conduct online journal clubs through Google Hangouts, and visit researchers on their campuses to learn more about their issues and needs. While this approach has much to recommend it, it remains challenging to translate those reported needs into new products and services that end users will value.

An alternative approach is to harness the inventiveness of the end users themselves. After all, our users include scientists, engineers, inventors, informaticians, and a whole range of thinkers and doers from every academic discipline. Not only do they understand their own problems, but they’re very well placed to solve them and some of them have an inclination to do so. Some publishers have tried to tap this resource. Elsevier, for example, has organized hackathons to challenge gifted young people to come up with solutions to problems in scholarly communication, which can then be integrated into the company’s SciVerse platform.

The company that I work for, Digital Science, has taken this approach even further and has put these researcher/entrepreneurs firmly in the innovation driving seat (although—at the risk of wearing out the metaphor— we go along for the ride, helping with route planning and navigation). Through a series of grants and investments, Digital Science incubates small companies founded by former researchers. What the companies have in common is that they have all developed technologies that aim to accelerate the progress of science by supporting publishers, institutions, librarians, or the researchers themselves (Figure 1).

Altmetric (www.altmetric.com), figshare (www.figshare.com), and ReadCube (www.readcube.com) are three examples of Digital Science portfolio companies. Each one was founded by former researchers who grew so frustrated with an aspect of scholarly communication, they started com-
Innovative Ideas in Scholarly Publishing

Figure 1. Digital Science has invested in a portfolio of companies and developed software tools to solve problems at every stage of the research cycle.

Figure 1. Digital Science has invested in a portfolio of companies and developed software tools to solve problems at every stage of the research cycle. Many journals have tried to cater to this by hosting and allowing readers to download limited types of supplementary information files. figshare provides a solution that visualizes not only figures, videos, and large data sets, but virtually any research output from software code to chemical structures, all without any need for publishers to create expensive infrastructure. Originally an open science portal, figshare now also offers a viewer that works to visualize data either in front of or behind a publisher’s paywall, with an optional publicly accessible, publisher-branded portal that drives traffic to the publisher’s platform through search engine optimization.

The last example is ReadCube, which started off life as a tool for organizing research literature. The central idea that inspired the technology was to make it easy for users to find, consume and organize their own personal libraries. A key part of the ReadCube concept is to incorporate the benefits of full-text HTML pages—clickable reference and author names, recommended articles, a figure viewer, and tabbed supplementary information—into the typeset reading environment of the PDF. The approach has proven incredibly popular with researchers, with over 10 million pages read in ReadCube every month. ReadCube has built on that connection with readers to offer a suite of publisher products that keep end users online and allow publishers to maintain engagement onto the desktop and mobile environments. This engagement can be harnessed in ways that satisfy real business needs, for instance, to make content more discoverable, learn more about user’s behaviours and preferences, support sales efforts, and generate new revenue streams.

What all these products have in common is that the core technologies and products were designed by researchers themselves, to solve problems that they themselves faced. In collaboration with Digital Science, these products have been refined to meet the needs of the scholarly communication marketplace. Finally, to satisfy our publishing customers and for continued success, Digital Science believes rather than merely consulting the academic community, we must directly involve them in publishing innovation.