



2018 Year-in-Review: Technology Trends

Featuring (in order of appearance)

- **John Newton, CTO and founder, Alfresco**
 - **Cherie Hu, journalist**
- **Terry Ehling, Director for Strategic Initiatives, MIT Press**

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KENNEALLY: Throughout 2018, the phrase *digital transformation* enjoyed a remarkable run in usage, turning up in every corner of the publishing industry – from pre-publication manuscript workflow to digital reading and data gathering on sales and consumer habits.

Welcome to Copyright Clearance Center's podcast series. I'm Christopher Kenneally for Beyond the Book, looking back at the last twelve months of our programs. In this edition of our three-part review for 2018, we pick out clues on the future direction of publishing.

Not just publishing is stuck on digital transformation. Around the world, dozens of conferences on digital transformation for every field are held every month. Digital transformation usually takes two roads. We can choose to have more digital products, services, and formats, or we can become digital organizations fit for survival in the fully digital world.

Digital content straddles both product and organizational culture. CTO and founder of Alfresco, John Newton has enjoyed one of the longest and most influential careers in digital transformation and content management. Before a London Book Fair audience in April, he told publishers that the explosion in content was about more than quantity or volume.

NEWTON: The total volume of content goes up with the total capacity of storage on the planet right now, which continues to grow exponentially. What's happening, though, is that that content is getting richer, has greater context, and is just more involved in more processes. So basically, where once upon a time we had created software to manage millions of pieces of content back when we started Documentum in 1990, now you can't even find anything on your laptop, right? Your laptop is a mess. You can't find anything. That's true for any consumer of your products trying to find information. You're there in



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a morass of content that's out there, and context is as much – maybe is the queen to content as the king.

KENNEALLY: John, it's important that you can share with us your perspective from publishing but also beyond publishing, because everywhere today this notion of digital transformation and content management is having an impact on organizations – government, for example.

NEWTON: Yeah, so in content management, process management, and a lot of digital services, that's some of the area that we invented at Documentum back in 1990. Actually, some of the first companies to pick up the software were publishing companies. Anybody who had to manage huge amounts of information needed to be able to manage that information, and more importantly, publish and distribute the information as well.

Over time, that process has just gotten faster. And it isn't just the publishing industry. It's being revolutionized in so many industries. Government is a huge publisher of information, and they're doing it in such a way that that information is actually becoming more actionable as well, serving citizens more effectively. Also, financial services is streamlining entire processes of moving not just money and not just transactions, but actually all the information that clients need in order to be able to make intelligent decisions about their investments. So we're in a time that it's really transforming again at an exponential rate – taking up all that disk space, taking up all that compute, but becoming more engaging over time.

KENNEALLY: Having already turned media and retail upside down, Amazon and other Internet businesses are preparing to turn those worlds inside out as well.

Over more than two decades, Amazon has shaped the customer shopping experience – both on the Web and on the street: as an online-only e-retailer opened since 1994; then beginning in 2015, as a brick-and-mortar concern operating Amazon Books and since 2017, as owner of the national supermarket chain Whole Foods.

On a Christmas Eve visit to a crowded Amazon Books in Manhattan, award-winning, music industry journalist Cherie Hu realized that Amazon had flipped the table on the analog environment of traditional bookselling.

HU: I live a couple blocks away from the Amazon Books store, and I just noticed how crowded it was – and not only that, but a couple of days after visiting that store, I also bought a book for myself from there that day, and I started reading it. And the way that I chose that book in that physical bookstore, because of the way that store's formatted, was the same way I would choose a book on Amazon, which is looking at the user ratings.



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So what Amazon does in their bookstore is they take certain features from their website and sort of print it out on a card and place it underneath every single book. Underneath every single book, you'll see a rating out of five stars. For select books, if, say, 95% of users rated it more than four stars, you'll also see that piece of information. There's a whole shelf dedicated to books that have been reviewed more than 10,000 or 15,000 times if you're interested in tapping into what more people are talking about these days. I was fascinated by how the physical experience was sort of imitating the digital experience.

KENNEALLY: Whether playing chess or building a car, a robot today can do almost anything a human being can – and with greater speed or proficiency. Indeed, in 2018, the list of activities that remain exclusive to humans is growing short.

“Artificial intelligence” is a trendy, catch-all term for software applications and algorithms that approximate or impersonate human activities including thinking and problem solving.

In the media world today, “AI” can compose music as well as generate reports on financial results and baseball games. While these may sound or look much the same as similar works by humans, the media AI is able to produce in 2018 is distinguished by an absence of expression or intention.

Put another way, the robot song lacks soul – and this has important legal implications, notes **David Davis** of Copyright Clearance Center.

DAVIS: Copyright was set up in the waybacks, say, from 1690, 1790, for creators to take possession of the rights in their work. So it has a human person in mind. Now, a program does not have an intent. I think that was the essential thing I started to noodle around with when I was writing this post is that you set it up and let it go. You wind it up like a toy, and it marches around the room, but it's not trying to express anything. It is functioning. It is not expressing.

So while now we might say this screenplay or these works of music are the property – the intellectual property of the people that wrote the program, or maybe even the people that are using the program, if the artificial intelligence was aware of itself and was trying to express a point, at that juncture, we would have to say the copyright goes to the AI. We're a long way off from that, but it's interesting to think about.

KENNEALLY: This notion of intention, this isn't just a philosophical point. This is a legal point, and it's actually in the code. You identified a piece of Section 102 of the Copyright Act which goes at original creation and defines things in such a way that supports your argument.



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DAVIS: Yes, I think that's right. The real problem of self-aware AI generating original content with intent – emphasis on intent. It just hasn't arrived yet.

KENNEALLY: Two very different laboratories, two very different experiments, separated by two centuries. They share a common DNA.

Frankenstein is a novel whose composition resembles the famous creature itself – a stitched-together assemblage of Gothic horror, Romantic philosophical reflection, and science fiction published in 1818 by 20-year-old prodigy Mary Shelley.

Frankenbook, launched online in January 2018 as part of Arizona State University's celebration of the novel's 200th anniversary, is a collection of contemporary scientific, technological, political, and ethical responses to the original *Frankenstein* text.

The innovative publishing platform that hosts *Frankenbook* is PubPub, among the first experiments to escape the lab at the Knowledge Futures Group, a collaboration of the MIT Press and the MIT Media Lab. The stated KFG mission is to transform research publishing by incubating and deploying open source technologies meant to build a new information ecosystem, according to Terry Ehling, Director for Strategic Initiatives with MIT Press.

EHLING: Yeah, I think the idea is to really bring up a new program – and clearly being joint with the Media Lab is important for us. We would like to serve as a test kitchen, an incubator, and a staging platform for the development and launch of open source publishing technologies and aligned open access publications. And we are jointly staffed by the Press and the Media Lab.

The open source approach not only reduces the precarious dependency that most nonprofit academic publishers have on costly outsourced technologies and a limited network of commercial vendors, but it also provides a foundation for greater insourced experimentation and innovation. And I think this is really a way for us to control our future in many ways, which has been increasingly dominated by for-profit multinationals. We are no longer technology-informed, we are technology-driven. Much of that technology resides outside of our control.

KENNEALLY: In 1995, MIT Press published what is called one of the first open access books, *City of Bits* by William Mitchell. He was very prescient in observing the ways that online communication was a powerful and liberating force. So, Terry Ehling, to wrap this up, do you feel that you've taken an important new step by establishing the Knowledge Futures Group in realizing the potential of this new and liberating force?

EHLING: Oh, yes. Absolutely. I'm really thrilled to be part of this. An earlier version of the Knowledge Futures Lab did come up about the same time that we published *City of Bits*, so we've been operating in this space for over 20 years now.



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When I was here back in the '90s, City of Bits was by all accounts the very first book to be online full-text – not just snippets, not just a chapter here or a chapter there. That was really quite a breakthrough. There was a lot of concern that going an open access route would actually destroy the sales of the print edition, and it did not. At the time, it actually amplified them. We sold about three times the number of copies of the print edition. So I consider this very much an extension of that very early work that we did in the mid-'90s, which was a very heady time for us as well as here at the institute.

KENNEALLY: The digital disdain for boundaries is a powerful change agent. Barriers in the physical world may be easily crossed or broken down in the online space. Whether universities go into publishing, Amazon opens a bookstore, or robots compose music, identities shift and blur. Uncertainty shed some of its peril and becomes an opening and an opportunity.

I'm Christopher Kenneally, looking back at 2018 for Copyright Clearance Center's Beyond the Book. Our co-producer and recording engineer is Jeremy Brieske of Burst Marketing.

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