Automation , Not Just Digitalization of the Publishing Industry

Dr Geetali Tilak

Pro-Vice Chancellor
Tilak Maharashtra Vidyapeeth, Pune
prakulguru@tmv.edu.in

Abstract

We are automating the business of publication . For readers, the price of reading has dropped whereas choice has magnified dramatically. Employment in newspaper, magazine and book publication has undoubtedly suffered, although the impact on the broader employment marketplace for writers and editors has remained mostly unchanged. What we've machine-driven, in alternative words, is that the publication process - not writing or editing, which, to this point at least, stay significantly an individual's endeavor. The automation of publication leads to a fusion of human and machine processes. nowadays that fusion shows up as search engines and social media networks that harness the eye of billions of individuals to perform several of the functions once contend by the publication industry. Tomorrow, this fusion can revolutionize the gift of information by putting it more and more into the logical process power of a brand new generation of intelligent machines.

Keywords : Automation , Print Media , Digitalization, Human and Machine Processes

Introduction

The publishing sector isn't just digitizing - it's automating. It's just that digitalization is an integral aspect of automation in this particular industry. Digital information is information that

is easily handled by computing machines. It can be routed, copied, filtered, augmented, and processed in countless ways limited only by the programming ingenuity of the underlying software.

Of course, software doesn't always lead to automation; it can just as easily route digital information to humans in cases where the work is still too complex or too subtle for machines. Digital information acts as a kind of lingua franca for connecting machines and humans into increasingly integrated systems, where work moves easily between automated and manual processes. Once it's digital, information can be easily routed to either a machine or a human, depending on which is able to add the most value for the least cost. Digital formats are therefore an essential stepping-stone to automation in the publishing industry. As the software behind the publishing systems improves, more of the work will be routed away from humans and toward machines.

The Great Unbundling of Publishing
Another way of saying all this is that digitalization acts as a powerful "unbundler" - separating processes that are easily automated from those that are not. Most of the disruption now happening in the publishing sector stems from businesses that know how to automate what can be automated and build powerful networks that outsource what cannot be automated to people who will do it for free.

One way to think about all this is to look at the set of processes traditionally carried out by publishers, most of which were typically done in-house. This is the old vertical integration model, pioneered in the automotive industry and applied to the packaging of information. The amount of vertical integration and bundling varied by publishing business, of course; magazine and newspaper publishers tended to retain stables of writers, for example, while book publishers did not. Nevertheless, there are general industry patterns worth understanding.

The-Publishing-Process-Unbundled
The great unbundling of publishing is essentially a story of two related technology transformations: automated publishing tools and automated distribution and editorial selection technologies. Later, we'll briefly look at the future of automated writing.

Automated Publishing
With the web, publishing output moved increasingly from paper to screens. First, we hand-coded HTML or used funky software packages like Microsoft FrontPage, but as Content Management Systems emerged in the late 1990s, web publishing software became quite sophisticated, allowing a whole new class of organizations to publish by themselves for the first time. Blogging software then emerged in 1999, streamlining the publishing process still further. Today, a solution like WordPress powers big sites such as CNN, Tech Crunch and UPS, while

also making this same power accessible to some 75 million other WordPress websites (including this one).

Social Media is actually another step in the automation of publishing, where the ease with which we compose and publish content often obscures the fact that we are even publishing in the first place. Some people use that power simply to stay in touch with friends, while others use it as their own personal printing press. What we do everyday on Facebook, Twitter, LinkedIn and Google+ is nothing short of revolutionary when we see it in the long arc of the history of publishing.

Automated Distribution

Distribution of content used to be expensive. Now it's not. Once in a digital format, information can be seamlessly and automatically transferred from one place to another at virtually no cost: no need for delivery bikes, bookshops, newsstands or direct mailings. The Internet takes care of all of that.

Once we connected our automated publishing tools to the Internet, the challenge shifted to making things discoverable in the resulting flood of information. Now we needed filters with the kind of automation and scale to match the output of our automated publishing tools.

Stakeholder Networks

The first steps in this direction was the search engine. Google's breakthrough was mapping websites against various topics and then ranking them based on the number and importance of links pointing to them from other sites. Remember - one of the things automation is good at is unbundling processes that are easily automated from those that are not. Assessing content quality is difficult for software (for now), so Google built a massive-scale platform for harnessing the collective wisdom of millions of people, and used people's decisions about what was worth linking to as a proxy for quality content.

Once we started sharing and liking things on social networks, audiences became distributors, and the filtering algorithms of the social networks joined Google's search algorithms as a kind of collective attention-focusing system. Google, Facebook and the other social networks meet our information filtering needs by automating what they can and farming out what they can't to millions of volunteers who aren't paid a dime. These powerful, automated platforms are designed to engage end users with as little employee intervention as possible. Like all automation, they lower labor costs and improve quality, but in this case, their most important contribution is the massive scale of engagement they enable.

The Impacts of Automated Publishing

Automation shapes each industry it touches with subtle differences; wear patterns of efficiency, carved by currents of technological change.Destructive Creation For the producers of published works, the story is of automation is fairly complicated. Automation has wreaked havoc on certain segments of the publishing business, but it has also created opportunities for new publishers and countless new writers. In short, automation has brought pain and suffering to publishers, while also generating an outpouring of new forms of creative expression. Joseph Schumpeter described this phenomenon as "creative destruction," the incessant cycles of death and birth, driven by technological innovation, in a market economy.

The impact of automation on publishing customers, which is to say, on readers, has been largely positive. This should come as no surprise, as automation is frequently much kinder to consumers than it is to producers. Automation generally improves quality and expands our choices, even offering us a kind of personalization unseen since the early days of craftsmen. One of the biggest impacts is automation's ability to cut costs and lower prices.

So there does appear to be some price drop at work here, but the question is how much of it is related to automation's impact? Here, it's very hard to compare aggregate prices of print versus online magazines and newspapers.

One-to-one pricing analogies start to break down. In the old publishing model, readers paid a base-level subscription fee or a higher newsstand rate to get access to published material. This price was heavily subsidized by advertising, of course. Today, since most of this material is freely available online, and easily discoverable through search and social media, readers have become used to not paying anything for most online content. The Impact on Publishers Automation isn't the only force affecting the publishing sector. Financial markets, changing customer preferences and numerous other factors are clearly at play. But automation acts as a behind-the-scenes magnetic force, disrupting the economics of publishing by unbundling processes, and revenue streams, once held exclusively by publishers.

The most dramatic case of publisher unbundling is the newspaper industry. This was an industry that was extremely lucrative at one point because many papers held what were essentially local monopolies.

Not long afterwards, in the mid-nineties, many of the most lucrative advertising buckets once dominated by local papers started slipping into the hands of more focused and technologically savvy web-based, e-commerce businesses.

Publishing Employment
Without advertising to support it, book publishing never really achieved

the same scale of revenues as these other two publishing sectors. When advertising moved online, magazines and papers had the most to lose. As form factors, magazines and newspapers also lent themselves to easier methods of automated publishing, which in turn stimulated the supply of new online writers and website owners and increased their overall competition.

Automating Writing?

As with many forms of automation, the first places to look for successful examples of writing automation are within fields where information and processes are already highly structured. That's precisely the niche that Narrative Science targets with its "automated narrative generation platform" called Quill. Quill translates data into stories; it takes company performance metrics and sports statistics and automatically translates them into written reports. Narrative Science relies on "meta writers" to customize the platform for new topic areas, such as generating summaries of baseball games or restaurant reviews - even using the system to mimic the writing style of specific sports writers.

Transforming Human Knowledge Attention Filters

Automating publishing has dramatically increased the supply of information. Barring Matrix-style downloading of knowledge into our minds, we run across a bottleneck in our information-processing throughput that turns our attention into a precious commodity.Our current solution to this problem is filtering, and here our algorithms have replaced manual editorial selection processes as a more scalable means of staying up with the overwhelming sea of information made possible through automation in the first place. These information filters aren't completely technological and neither are they completely human. They're a hybrid, a fusion, uniquely suited to an Information Age.

Publishing to Virtual Personal Assistants

What comes next extends this fusion of technology and humanity in ways that are unlike anything we've quite seen to-date. This new fusion will grow out of what we today call the publishing industry, and result in a reinvention of the way we experience human knowledge.

Google is experimenting with methods of teaching its algorithms how to extract facts from millions of websites, then assess the accuracy of those facts by comparing them to other websites and to its Knowledge Graph. It's not just building a knowledge base, but the systems to continually feed that knowledge base with the latest outputs of our automated information publishing.

The result is likely to be some kind of artificial intelligence in the form of a virtual personal assistant, building

from what Google Now does today. We will simply ask our questions using natural language and a computer will answer us .In other words, computer code, in the form of something like a virtual personal assistant, is about to form a new publishing medium. It will wrap our knowledge in code, code that we will converse with in order to answer our questions. This is the next generation of publishing, made possible by the massive automation of publishing that has already preceded it.

It's hard to convey just how big a change something like this will be for humanity. Think back to the wonder you may have felt after first using Google Search. Millions of valuable, but largely inaccessible, sources of information suddenly materialized out of thin air. In this next phase, we will simply ask what we want to know and receive a highly customized response - just as though we'd asked a knowledgeable expert. This new layer of logic will enable machines to understand the meaning of our information. It will map our questions against massive pools of information, assessing various answers and even providing us with levels of confidence for each answer's accuracy.

Conclusion

We live in a time when automation is creeping from one industry to another. Each time it does, its signature is a little different. In publishing, the impact is complex. If you come from the publishing world, the effects have been quite painful. For most of us though, automation has largely been a good thing. Our access to written material has exploded. We now have far more information and knowledge at our fingertips than at any time in history.The fact that writers and editors have experienced no widespread downturn in employment suggests that the footprints before us in the snow are that of a different creature than what I had assumed. I had envisioned a voracious beast, devouring everything in its path. But instead, what I've seen is something much more selective in its appetite for our work. It is a creature capable of bringing about much creativity in our company, but for those of us who once specialized in the manual processes of selecting and filtering as well as preparing and distributing written material, this creature has brought economic destruction.Whatever you call it, we are entering a new phase in human intelligence, where more and more of our cognitive capacity is embedded in machines - a great big, collective brain in the cloud. Wikipedia and other sites are its vast stores of knowledge, Google Search our primary method for information recall. The streams of information flowing through news outlets and social media services could similarly be said to constitute a kind of collective stream of consciousness; the filtering algorithms of Facebook and other social networks our methods for

focusing attention within that stream. Once we are able to layer these pools and streams of information with the kind of machine understanding outlined above, we will unleash a huge boon to humanity. Where there is light, there is also darkness, however, and so we should expect these same systems to also bring us many new problems. The one I will close with relates to how much of our humanity remains in the future of our automated publishing and knowledge systems. The question that therefore arises is what happens when the publisher and the writer are no longer human. Surely, there will continue to be fields where humans will retain their role not merely as consumers but as generators of knowledge. Just how prevalent that will be is hard to say right now, and in this question lies a huge question about the future importance of humanity in the continued discovery of new knowledge.

References

[1] K, Helmut: Handbook of Print Media. Springer-Verlag, ISBN 3-540-67326-1, Berlin, 2001

[2] G. Deanna: Digital Workflow Survey, GAIN, 2004

[3] Szentgyörgyvölgyi, R.: Process and Workflow Management in Graphic Arts Industry. 3rd GRID Symposium, Novi Sad, 2006, pp. 36-43

[4] C. Gehman: Print Production Workflow. NAPL, ISBN 1-929734-35-2, New Jersey, 2003

[5] The Automation of the Publishing Industry , Gideon Rosenblatt April 1, 2015

✳✳✳