POST-DIGITAL PRINT

The Mutation of Publishing since 1894

Alessandro Ludovico

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Post-digital print: a future scenario

There is no one-way street from analogue to digital; rather, there are transitions between the two, in both directions. Digital is the paradigm for content and quantity of information; analogue is the paradigm for usability and interfacing. The recent history of video and music provides a good example, since the use of digital technology for these types of content is much more advanced than it is for publishing. In the case of video, the medium (whether VHS or DVD) is merely a carrier, since the content is always ultimately displayed on screens. The same is true for music, where cassettes, vinyl records and CDs are only intermediate carriers; the actual listening always happened through speakers (and increasingly through headphones). In both cases, the format changed without dramatically affecting the watching or listening experience. Sometimes the experience was improved by changes in the media technology (with HD video); sometimes it was almost imperceptibly worsened (with the loss of frequencies in MP3s).

Print, however, is a very different case, since the medium – the printed page – is more than just a carrier for things to be shown on some display; it is also the display itself. Changing it consequently changes people's experience, with all the (physical) habits, rituals and cultural conventions involved. E-publishing therefore still has a long way to go before it reaches the level of sophistication which printed pages have achieved over the course of a few centuries.

But as more and more content moves from print to digital, we seem to be approaching an inevitable turning point, where publishers soon will be releasing more electronic publications than printed materials. A key factor in this development is that e-publishing is gradually becoming just as simple and accessible as traditional publishing – not only for producers, but also, thanks to new interfaces, habits and conventions, for consumers as well. However, the real power of digital publishing lies not so much in its integration of multiple media, but in its superior networking capabilities. Even if it were possible to write some spectacular software to automatically transform e-books into another media standard (for instance, an animation of book or magazine pages being turned) or vice-versa, this would be far less interesting for users than

new and sophisticated forms of connectivity – not only to related content hosted elsewhere, but also to other humans willing to share their knowledge online. To this end, digital publishing will have to establish universal interoperability standards and product identities that don't lock customers into the closed worlds of one particular application or service.

Traditional print publishing, on the other hand, is increasingly presenting its products as valuable objects and collector's items, by exploiting the physical and tactile qualities of paper. It thus acts as a counterpart to the digital world, while looking for ways to cope with a gradually shrinking customer base – particularly in its traditional sectors such as newspaper production and distribution (where costs are becoming unsustainable) or paper encyclopaedias (which have already become vintage status symbols rather than practical information tools). A number of products will thus need to be re-invented in order to still make sense in print.

At the time of writing, the development towards print as a valuable object can best be observed in the contemporary do-it-yourself book and zine scene. Until the late 1990s, this scene was mostly focused on radical politics and social engagement; the contemporary scene however is more fascinated with the collection of visual-symbolic information into carefully crafted paper objects. Despite its loyalty to print, this new generation of DIY publishers has created offline networks for print production and distribution which, in their bottom-up structure and peer-to-peer ethic, very much resemble Internet communities. At the same time, the work they create is meant to remain offline and not be digitised, thus requiring a physical exchange between publisher, distributor and reader. This ethic is squarely opposed to the so-called 'go all digital' philosophy[312] which advocates a completely digital life, getting rid of as much physical belongings as possible, and relying only on a laptop and a mobile phone filled with digitised materials.

For sure, the DIY print publishing ethic is closely related to the (often dormant) bottom-up social dynamics of the Internet. But as it currently stands, it still lacks one crucial aspect (besides production and sharing): it does not include mechanisms able to initiate social or media processes which could potentially bring the printed content to another level – what I would call the 'processual' level. In the past, print activism (using pamphlets, avant-garde magazines, Punk zines, etc) was deployed for spreading new ideas meant to induce new creative, technological and – by implication – social and political processes. The future of post-digital print may also involve new processes, such as remote printing, networked real-time distribution, and on-demand

customisation of printed materials – all processes with (as of yet) unexplored social and political potential.

Conversely, digital networking technologies could make better use of print. Those who advocate and develop these new technologies should perhaps become more aware of print's cultural significance. Many readers will continue to choose print products above electronic publications, possibly leading to a demand for networked (perhaps even portable) printers allowing individuals to print materials at any location, anywhere in the world. Combined with personal binding devices (however primitive), such personal 'book machines' would allow readers to 'teleport' print publications to and from any location. Furthermore, resistance to the ubiquitous and non-stop surveillance of the Internet may well take a more radical turn: individuals and groups could make a political statement out of going completely offline and working in isolation as neo-analogue media practitioners.

If print increasingly becomes a valuable or collectable object, and digital publishing indeed continues to grow as expected, the two will nevertheless cross paths frequently, potentially generating new hybrid forms. Currently, the main constraint on the development of such hybrids is the publishing industry's focus on entertainment. What we see, as a result, are up-to-date printable PDF files on one hand, and on the other hand online news aggregators (such as Flipboard[313] and Pulse[314]) which gather various sources within one application with a slick unified interface and layout. But these are merely the products of 'industrial' customisation – the consumer product 'choice' of combining existing features and extras, where the actual customising is almost irrelevant. Currently, the industry's main post-digital print entertainment effort is the QR code – those black-and-white pixellated square images which, when read with the proper mobile phone app, give the reader access to some sort of content (almost always a video or web page). This kind of technology could be used much more creatively, as a means of enriching the process of content generation. For example, printed books and magazines could include such codes as a means of providing new updates each time they are scanned – and these updates could in turn be made printable or otherwise preservable. Digital publications might then send customised updates to personal printers, using information from different sources closely related to the publication's content. This could potentially open up new cultural pathways and create unexpected juxtapositions.

Martin Fuchs and Peter Bichsel's book *Written Images* is an example of the first 'baby steps' of such a hybrid post-digital print publishing strategy. Though it's still a traditional book, each copy is individually

computer-generated, thus disrupting the fixed 'serial' nature of print. Furthermore, the project was financed through a networked model (using Kickstarter, a very successful 'crowdfunding' platform), speculating on the enthusiasm of its future customers (and in this case, collectors). In other words, this book is a comprehensive example of post-digital print, through a combination of several elements: print as a limited-edition object; networked crowdfunding; computer-processed information; hybridisation of print and digital – all in one single medium, a traditional book. On the other hand, this hybrid is still limited in several respects: its process is complete as soon as it has been acquired by the reader; there is no further community process or networked activity involved; once purchased, it will remain forever a traditional book on a shelf. And so, there is still plenty of room for exploration in developing future hybrid publishing projects.

When we are no longer able to categorise publications as either a 'print publication' or an 'e-publication' (or a print publication with some electronic enhancement), then the first true hybrids will have arrived. It may be worth envisioning a kind of 'print sampling', comparable to sampling in music and video, where customised content (either anthologies or new works) can be created from past works. Such a 'remix' publishing strategy could create new cultural opportunities, and open up new 'processual' publishing practices. We can already see this happening to some extent, in contemporary zine and DIY art book publishing, as well as underground e-book websites.

Since software is a prerequisite for any digital technology (and is also being used for the creation of most analogue works today), its 'processual' nature should be reflected in the structure and dynamics of future publishing: enabling local and remote participation, and also connecting publishing to real-life actions. The younger 'digital native' generation has no compunction in irreverently sampling, remixing and 'mashing up' traditional and social media (as several adventurous small organisations, born out of the current financial crisis and the 'Occupy' movement, have already demonstrated). Print is, unsurprisingly, an important component of this 'mashup', because of its acknowledged historical importance as well as its particular material characteristics. And so this new generation of publishers, able to make use of various new and old media without the burden of ideological affiliation to any particular one of them, will surely be in a position to develop new and truly hybrid publications, by creatively combining the best standards and interfaces of both digital and print.

Afterword

BY FLORIAN CRAMER

The American composer Kim Cascone, writing in the winter 2000 issue of *Computer Music Journal*, coined the term 'post-digital' to describe a certain type of electronic music which made playful use of technical digital glitches and was cheaply produced on laptop computers.[I] But what does 'post-digital' really mean in an age of digitisation – and as a description of a music which had in fact been digitally produced? Though Cascone's article confused media with tools, and promoted a false conflation of 'digital' with 'high tech', his main argument for a 'post-digital' media age still holds: "Because the revolutionary period of the digital information age has surely passed. The tendrils of digital technology have in some way touched everyone".[II] In a post-digital age, the question of whether or not something is digital is no longer really important – just as the ubiquity of print, soon after Gutenberg, rendered obsolete all debates (besides historical ones) about the 'print revolution'.

However, for many (if not most) people, the 'digital information age' did not become a fact of their everyday life until it moved from office computers to their smartphones. As an electronic musician, Cascone was about a decade ahead of his time. Music – with its historical (even ancient) ties to mathematics and computation, and its pioneering use of electronic media (from radio to MP3) – has always been the first art form to adapt to new information technologies. For the world of book and magazine publishing, however, the old-school 'revolutionary period' of the 'digital information age' is not yet over – in fact, it has only just begun. And so were are stuck, at the time of writing, in fruitless debates about the Web, e-readers and tablet computers – and the perceived or real threat of these technologies to the field of book, magazine and newspaper publishing.

One reason why this debate is so difficult to penetrate, is that it has become heavily ideological. In one camp, we have the usual web, network-culture and new-media evangelists; on the other side, people (usually from a fine-art or graphic-design background) who feel passionately about the tangible, material qualities of print. In reality, we are seeing a boom in zines, artists' books and artists' bookshops, quite comparable to the contemporary boom in Internet communities. And it would be wrong to dismiss this development as merely another

'retro' trend.[III] The zine and artists' book communities themselves are networked via blogs and Internet forums. Perhaps more significantly, they use print as a form of social networking which is not controlled by Google, Twitter or Facebook. These communities are thus an avant-garde of a new post-digital print culture – a culture in which the false dichotomy of 'print' versus 'electronic' (which has haunted us since McLuhan) is suspended.

This false opposition has been further amplified through the common conflations of 'print', 'book' and 'writing'. In his 1975 manifesto *The New Art of Making Books*, the Mexican-Dutch intermedia artist Ulises Carrión clarified that a "writer, contrary to the popular opinion, does not write books. A writer writes texts".[IV] Against a narrowly literary notion of the book, he comprehensively defined it as "a space-time sequence" that may "contain any (written) language, not only literary language, or even any other system of signs".[V] Carrión of course was making his case for the post-Fluxus medium of non-literary artists' books – or, to use his own, and much better, term, 'bookworks' – which he sold in his bookshop 'Other Books & So' on Amsterdam's Herengracht. His notion of books was abstract rather than material – a definition consistent with the early 20th century philosopher Ernst Cassirer's concept of the 'symbolic form'. And it is precisely such a symbolic form which is able to migrate, more or less painlessly, to an electronic medium (such as the e-book) – just as the 'symbolic form' of the music track or album has migrated back and forth between vinyl, cassette, CD, MP3, and Internet streaming.

Print, however, is not a symbolic form, but a medium in the most literal sense of the word; a physical carrier of information. Today's artists' books differ from those of Carrión's time in their shift from the linguistic to the tangible, from the symbolic form to the core medium,[VI] or from bookworks to printworks. This is the definition of print which we have been using for the purposes of the present book.

Besides being a rich account of the history of experimental publishing in parallel to that of modern art, this book also is a (covert) piece of personal storytelling. For more than twenty years, Alessandro Ludovico has been working at the cutting edge (and the outer fringes) of both print publishing and Internet community activism. Neural, the magazine which he edits, publishes and distributes, began as an Italian-language popular cultural glossy magazine focusing on cyberpunk culture, but gradually morphed into the major international news and information source on critical, counter-cultural and activist new-media arts which it is today. *Neural* has participated in collaborative efforts such as the *Documenta 12 Magazines* project (see chapter 6.3).

Still – and despite its subject matter and reader demographic – *Neural* magazine has never become an electronic publication, which is something of a statement in itself.

Since the early 20th century, Italy has been a real-life test laboratory for social and political developments which sooner or later hit the rest of the Western world. During Neural magazine's first two decades, Prime Minister Silvio Berlusconi personally embodied an unprecedented monopoly complex of mass media, publishing and politics, resulting in a sharp dichotomy between corporate and independent media. For Italy's artists, there is a similar gap between the contemporary-art-friendly but extremely commercial North of the country, and the conservative South where the official art system is all about cultural heritage. There, contemporary arts – including media experimentalism – have always been counter-cultural more or less by definition and, without any supporting institutions, have resorted to exhibiting and performing in squatted 'social centres'. In such a cultural climate, print and the Internet could be equally embraced as independent do-it-yourself media. They did not stand (as was the case in Northern Europe and North America) for two separate cultures and art communities.

In this book, Alessandro Ludovico re-reads the history of the avant-garde arts as a prehistory of cutting through these dichotomies. He shows how contemporary forms of networked publishing – using whichever medium or technology – were in fact prefigured by 20th and 21st century artists and their media experiments. Thus, his conclusion that 'print is liberating' is not a question of pitching one medium against another. His concept of media as a liberating force is also strongly informed by computer-hacker culture. In 2008, a collaboration with a group of artists (including the young hacker-artist Paolo Cirio and the Austrian artist couple Ubermorgen) resulted in the project *Amazon Noir – The Big Book Crime* (see chapter 5.4), a small software application that took advantage of Amazon.com's 'Search Inside the Book' feature in order to extract complete copyrighted books from the website. *Amazon Noir* is about communality, very much in the same way as print and paper are. In one case, file sharing; in the other case, the physical social sharing of paper between people in one room. But either of these notions of sharing would be reductive when considered separately from the other: file sharing would then boil down to cybernetic feedback loops; paper sharing would mean no more than a romanticism of local physical exchange. Separately, each of these two paradigms sums up the limitations and frustrations one can experience when spending time either at a hacktivist event or in an artists' bookshop.

In his 1980 article *Bookworks Revisited*, Ulises Carrión described two extremes in contemporary artists' books, which anticipated similar extremes for file sharing and printmaking: the de-materialised book aesthetics of conceptual art versus the material overkill of sculptural book objects such as Dieter Rot's *Literaturwurst* ('Literature Sausage'), a mass of torn-out magazine pages stuffed into a transparent plastic foil casing. Neither of them qualified, from Carrión's critical perspective, as a 'bookwork'. Rot dissolved the symbolic form of the book and made it extrinsic to the object, turning it into something which no longer lent itself to reading – and which did not qualify as an object "in which the book form is intrinsic to the work", the definition of bookworks which Carrión had taken over (and twisted) from the curator and MOMA librarian Clive Phillpot.[VII] Conceptual art books, on the other hand, lacked artistic engagement with the book form itself: "A comic book", writes Carrión, "or a newspaper, creates richer and more varied and changing conditions for reading than Art & Language publications". He thus considered them "plain book[s]" just like conventional novels and non-fiction.[VIII]

If we projected Carrión's notion of the bookwork upon the concept of post-digital print, then neither purely visual-tactile printmaking, nor a mere website or text file would 'qualify'. In positive terms, post-digital print would need to include networked community sharing which is both local/tangible and global/digital; the union of the two opposites of formation and in-formation. Alessandro's 2006-2008 project Mag.net, a network of 'electronic cultural publishers', sought to combine these two modes of sharing through hybrid electronic and print-on-demand publishing.

The present book is another such hybrid. It will be published partly as a traditional offset print book, partly through print on demand, and partly as an e-book distributed through various underground and over-ground publishing channels – including pirate electronic libraries such as AAAAARG.ORG, and artist-run bookshops.

This book was developed and written as part of a practice-oriented research project at the Hogeschool Rotterdam called 'Communication in a Digital Age', featuring conferences and research papers, bringing together (graduate) students with professionals in the arts, design and media, and organising various events and activities within as well as outside the school. All of which is deeply connected to the narrative of this book – we at the Hogeschool are, in other words, also working to develop non-traditional, hybrid practices of research and education, similar to those which Alessandro develops in the publishing world.

The book's references feature extensive web links, some of which I

fear may already have expired by the time you are reading these words. I believe this shouldn't be seen as a deficiency, but rather as an invitation to use this book as a resource, and to complement it with your own findings.

And so, an experimental hypothesis for this publication might be: if print is indeed liberating, then start by sharing this book.

[I] Kim Cascone, 'The Aesthetics of Failure: "Post-Digital" Tendencies in Contemporary Computer Music', in *Computer Music Journal*, 24:4, 2000, pp. 12-18

[II] ibid.

[III] An exemplary critique of contemporary retro culture focusing on pop music: Simon Reynolds, *Retromania. Pop Culture's Addiction to Its Own Past*, Faber & Faber, 2011

[IV] Facsimile reprint in: Guy Schraenen (ed.), Ulises Carrión, *We have won! Haven't we?*, Museum Fodor & Museum Weserburg, 1992, p. 53

[V] ibid.

[VI] and thus from metaphysics to ontology.

[VII] Ulises Carrión, 'Bookworks Revisited', reprinted in: James Langdon (ed.), *Book*, Eastside Projects, 2010, no pagination

[VIII] ibid.

Appendix

Print vs. electrons

100 differences and similarities
between paper and pixel.

	PRODUCTION	
1	Screen colour consistency	Cross-browser consistency
2	300 dpi	72 dpi
3	A(x), (e.g. A4)	(x)GA (e.g. XVGA)
4	Snap to grid	CSS constraints
5	Postscript I/O error	Error 404
6	Ethernet	Wi-Fi
7	Glowing ink	Flash (Adobe)
8	Image not found	Can't connect to server
9	Magnifying glass	Magnifying icon
10	Moiré	Excessive JPEG compression
11	nth colour	Custom programming
12	Pantone	Optimised palette
13	Stock photography	Google images
14	Proofreading	Debugging
15	Test print	Draft version
16	Higher resolution	Anti-aliasing
17	Page layout software	Content management system
18	Spines	Partial browser incompatibility
19	Optimising for print	Optimising for search
20	Cutting	Screen format
21	Recycled paper	White text on black screen
22	Hollow punch	Layers
23	PDF logo	JPEG logo
24	Advertising space	Banner
25	Paid promotional flyer	Pop-up window
26	Ink	Brilliance
27	Full-colour insert	Picture gallery
28	Imposition	Sorting with tags
29	Binding	Website structure

	STRUCTURE (INTERNAL)	
30	Colour addition	Colour subtraction
31	Centerfold	Background image
32	Contrast	Brightness
33	Dot	Pixel
34	TIFF	JPEG
35	PDF (fixed layout)	EPUB (reflowability)
36	vector graphics	Bitmap
37	front cover	Home page
38	externally illuminated	Backlit
39	local link	Remote link
40	paper weight	Download time
41	Plastification	Use of 3D/shadows
42	RAM	kbps
43	Best viewed in bright light	Best viewed in dim light
44	Fire damage	File corruption
45	Fibres	Waves
46	Turns yellow	Reveals its pixel matrix
47	Consumed in local time	Consumed in global time
48	Slow replication	Instant replication
49	Hardcover	Paid access
50	Paperback	Free access
51	Static	Cinematic
	STRUCTURE (EXTERNAL)	
52	Printer	Sysadmin
53	Barcode	WHOIS
54	ISSN	Online ISSN
55	Local storage backup	Remote server backup
56	Back catalogue	Internal search engines/archive.org
57	Optimised distribution	Optimised server configuration
58	Stocks	Link on the home page
59	Second (nth) edition	Database rebuilt
60	Headquarters	Hosting
61	Shipping strike	No connection
	EVALUATION	
62	Readership	Unique visits
63	Certified distribution	Guaranteed bandwidth
64	Distributor list	Access logs
65	Referenced by other media	Incoming links
66	Low copy/user ratio	High copy/user ratio
67	Promotional copies	RSS

	REAL AND VIRTUAL SPACE	
68	Bookshelf	Database
69	Shelf space	Web host storage space
	CONVENTIONS	
70	Table of contents	Menu
71	Promotional T-shirt	Textual link
72	Handwritten font	Pixel font
73	Captions	Alt text tag
74	News department	Blog
75	Page format	Scrolling
76	Print	Save
77	Bibliography	Hyperlinks
78	Name	Domain name
79	Paper bookmark	Browser bookmark
80	Page numbering	Posting date
81	Clippings	Cache
82	Import dialogue window	Online form
	CONSUMPTION	
83	Reader	User
84	Subscriber	Registered user
85	Subscription	Push technology
86	Reproduction prohibited	Digital rights management
87	Syndication	Creative commons
88	Freebie	Free download
89	Shipping	Spamming
90	Cover price	Password-protected access
91	Dust	Dust
	GESTURES	
92	Flipping through	Clicking
93	Smell of ink	Sound of mouse clicks
94	Photocopying	Copy/paste
95	Annotating	Comments
96	Underlining	Underlining
97	Fingerprint on coating	Fingerprint on screen
98	Folding	Scaling
99	Locally read	Remotely read
100	Handing over	Forwarding

Onomatopee 77: Cabinet Project
Post-Digital Print – *The Mutation of Publishing since 1894*
ISBN: 978-90-78454-87-8

Text: Alessandro Ludovico

Afterword by: Florian Cramer

Design: Eric de Haas (TheNewStudio)

Heavy editing: Joe Monk, Monastic Language, Rotterdam

Made possible by:
Kenniscentrum Creating 010, Hogeschool Rotterdam
Piet Zwart Institute, Willem de Kooning Academy, Rotterdam

Printer: Lecturis, Eindhoven

Project manager:
Florian Cramer
Ellen Zoete

Edition: 1000

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