

9. Networks: From Text to Hypertext, from Publishing to Sharing, from Single Author to Collaborative Production

Carlos A. Scolari

Scolari, Carlos A. (2019). Networks: From Text to Hypertext, Publishing to Sharing, and Single Author to Collaborative Production. En: A. Phillips and M. Bhaskar (eds.) *The Oxford Handbook of Publishing*. Oxford: Oxford University Press.

Abstract

Digital networks shape traditional actors (authors, readers, librarians, publishers, and other intermediaries), institutions (libraries, bookstores), processes (collaborative writing, translation, correction), and texts (hypertext, open access, wiki technology). The article deals with the main transformations in these fields from a media ecology perspective. Media Ecology is a discipline first outlined in the early 1960s by researchers like Marshall McLuhan, Neil Postman, and Walter Ong. From this perspective, the emergence of the World Wide Web in the 1990s and social media in the 2000s radically changed the conditions of the media ecosystem. In this new context the old media and actors must adapt to the new environment if they want to survive. The chapter deals with these mutations and adaptations in the specific field of book publishing.

Keywords

Media ecology, hypertext, networks, collaborative cultures, Arpanet, Internet, World Wide Web, social media, Prosumer, produser

Writing about media and technology is not easy. Any discourse on ‘new’ media or technological issues that does not go beyond the analysis of the latest available product to grasp the more *strategic* or *organic* meanings (as proposed by Antonio Gramsci) of the problem, runs the risk of becoming outdated in a few weeks.

How can we deal with such a fast, deep transformation of the media ecosystem? This text starts with a bird’s eye view of the main transformations of the media ecology since the emergence and spread of digital networks in the early 1970s. The second section analyses the most important ‘commodity’—at least for publishers—that flows through the digital networks: the texts. In the last section the analysis focuses on the changes in the processes of production, distribution, and consumption of contents. The section deals with phenomena such as collaborative production, user-generated contents, filtering processes, and the emergence of a new figure: the *hyperreader*.

The Rise of the Networks

From Arpanet to the World Wide Web (and beyond)

After a trial period, Arpanet, the first computer network funded by the state agency ARPA (Advanced Research Projects Agency) based on the transmission of data packets, was officially launched in 1972 during the sessions of the International Conference on Computer Communication (ICCC). It was originally designed for remote computing and, from a military perspective, as an intercommunication tool in case of nuclear war. However, in these first years of digital life, rather than using the network to solve complicated mathematical problems taking advantage of the computing power of a computer located on the other side of the country, many

researchers used Arpanet to exchange personal messages and simple videogames. Arpanet was used for sharing propaganda against the Vietnam War, information about the Watergate affair and the first copies of Adventure, a digital version of *Dungeons and Dragons* created by Bill Crowther and perfected by computer science students (Hafner and Lyon 1998; Berners-Lee 2000).

In the early 1970s similar networks spread in Europe, especially in Italy, the UK, Norway, and Germany. Researchers began to think about interconnecting these networks, that is, creating a ‘network of networks’ or ‘inter-network’ (‘inter-net’). There were, of course, many problems to solve, from defining the protocols so that all these systems could talk to each other (thus TCP/IP/Transmission Control Protocol—Internet Protocol was born) to creating gateways capable of directing and distributing the data packets. Between 1973 and 1975 the network grew at a rate of knots; in 1978 the TCP/IP was finally defined and adopted and is still used today as the standard for Internet connections.

As almost everyone knows, the World Wide Web was created by a group of researchers in the late 1980s. In 1990, Berners-Lee and other members of CERN (Geneva), excited about the possibilities offered by graphical interfaces, and developed the first version of a software to browse digital networks. The program, which used the object-oriented technology and the Hypertext Transfer Protocol (HTTP) for client–server communication, allowed editing and WYSIWYG (what you see is what you get) viewing of information. One year later the technology was transferred to other platforms and disseminated to various research centres, where programmers worked on these protocols to improve their performance.

In 1993 a group from the University of Illinois introduced the alpha version of Mosaic, a browser with a graphical interface that spread rapidly among Internet users. Shortly after, the

group left the university to set up the company Netscape, which, against all business logic, distributed a free program to navigate in the new digital network. From this moment on the conflictive emergence of new browsers (Internet Explorer, Firefox, Safari, Opera, Chrome, etc.), the accelerated evolution of web page contents (animated GIF images, high compression formats and quality like JPG or PNG, videos, animations, etc.) and the incorporation of multimedia and interactive features (Shockwave, Java, Flash, new versions of HTML, etc.) have never stopped. The first pages were simple containers of static information, but with the advent of new browsers the situation decisively changed: the World Wide Web transformed itself into a *metamedium*, a mega-niche inside the media ecology that generates a never-ending series of new media and communication platforms.

From the World Wide Web to Social Networks

In the early 2000s many researchers and professionals detected a series of transformations in the World Wide Web. The spread of new collaborative platforms like Wikipedia, new sharing tools like BitTorrent or Napster, and a new communication logic based on participation rather than just the publication of information, was forming a new paradigm. The ‘new’ web was called *Web 2.0* (O’Reilly 2005).

The rise of the new collaborative web evidenced the limits of the initial web of the 1990s: even if it was based on a network infrastructure, the conceptions and uses were still those of traditional broadcasting (one-to-many communication). In the specific field of media and communication, the Web 2.0 expressed a new many-to-many communication paradigm. New phenomena like the advent of narrow niches of all kinds of products along the ‘long tail’ (Anderson 2006), the explosion of big data research and services (Mayer-Schonberger and

Cukier 2013), the emergence of a collective intelligence (Lévy 1997) based on participatory cultures (Jenkins et al. 2016) and the crisis of traditional legal systems like copyright (Lessig 1999) are some of the emerging traits of this paradigmatic passing from broadcasting to networking.

The logic of the Web 2.0 reached its highest expression with the emergence of social networking platforms: LinkedIn, MySpace (2003), Facebook, Flickr (2004), Twitter, GoodReads, Wattpad (2006), Tumblr (2007), Academia.edu (2008), Foursquare (2009), Instagram (2010), and Pinterest (2011). There are several types of social networking platforms: social network sites that promote interpersonal contact; user-generated content media that support creativity and promote the exchange of contents; trading and marketing sites like Amazon or eBay; and finally, play and game sites, ludic environments designed for gaming, like FarmVille, Angry Birds, or PokemonGo.

How has the evolution of social networking platforms affected textual content? According to Jose van Dijck

It is instructive to recall the early promise that Web 2.0 platforms would liberate content. The production of music, films, videos, art, and texts would no longer be limited to professionals, as the tools for creative production would be yielded to amateurs and citizens. ... However, over the past decade, users and platform owners have appreciated the value of online content differently. Whereas the first regarded it as something to be created and shared, the latter increasingly defined it as something to be managed and exploited. Whereas users cared mostly about the *quality* and form of content, platform owners were preoccupied by data *quantities* and traffic volume. (van Dijck 2013: 161–2)

The evolution of the media ecology is always under construction. As van Dijck put it, social media platforms, rather than being finished products, are ‘dynamic objects that are tweaked in response to their users’ needs and their owners’ objectives, but also in reaction to competing platforms and the larger technological and economic infrastructure through which they develop’ (van Dijck 2013: 7).

Power and Conflict in the New Media Ecology

Throughout this section there has been constant mention of the (new) ‘media ecology’. The research into the emergence of the World Wide Web included an element that was not present when former ‘new media’ like cinema or radio were born: an ecological vision of the media system. Traditionally, cinema, radio, and even television were studied as a single medium and not as a part of a complex ecology of communication. Marshall McLuhan’s often polemical but always pertinent contributions have led to media research taking on a more integrated and ecological view of the communication system:

A new medium is never an addition to an old one, nor does it leave the old one in peace. It never ceases to oppress the older media until it finds new shapes and positions for them. (McLuhan 1964: 278)

In a few words: it is almost impossible to continue analysing a single medium (cinema, radio, television, press, the Internet, etc.) isolated from the rest of the media ecosystem; media research needs to abandon single-media approaches and adopt an ecological vision of the media system, paying particular attention to inter-media relationships. In the same context, it is almost impossible to continue talking about ‘new media’. Is television a ‘new media’? It used to be a new media in the 1950s. The same may be said for radio in the 1920s or cinema at the beginning

of the twentieth century. In other words: all media were once new media (Gitelman and Pingree 2003; Gitelman 2006; Zielinski 2006). Typewriters, optical telegraphs, vinyl record albums, eight-track tapes, and walkmans are (today) old media, but ‘they were not always old, and studying them in terms that allow us to understand what it meant for them to be new is a timely and culturally important task’ (Gitelman and Pingree 2003: xi). Therefore, ‘new media’ is a relative concept: in twenty or thirty years time blogs, eBooks, and online journals will be considered ‘old media’.

If we want to understand the transformations that publishing has undergone since the emergence of digital networks, we must start from the changes of the whole media ecology. Since the diffusion of personal computing in the 1980s and the expansion of the web in the 1990s, digital technology has been a catalyst for social change in contemporary societies. From economy to politics, from education to culture, practically all aspects of human life have been transformed due to the different ways of developing and using ICT. As we have seen, the media ecology is undergoing a metamorphosis from the traditional broadcasting system to the networking paradigm, where the old ‘media species’ (radio, cinema, television, books, etc.) must compete with the new ones (YouTube, Twitter, Facebook, PokemonGo, etc.) and adapt in order to survive (Scolari 2012, 2013).

A couple of final reflections on networks, power, and hegemony. The networks are not a paradise of democracy and transparency as some utopians thought they would be in the early 1990s: corporate media, grassroots activists, social movements, and hundreds of social actors have found in the networks a new battleground for confrontation. In the networks we live, learn, share, discuss, and dispute power at different levels. According to Manuel Castells, one of the most lucid analysts of these metamorphoses,

the structures of power are rooted in the structure of society. However, these power structures are reproduced and challenged by cultural battles that are fought to a large extent in the communication realm. And it is plausible to think that the capacity of social actors to set up autonomously their political agenda is greater in the networks of mass self-communication than in the corporate world of the mass media. (Castells 2007: 257)

Three of the most critical issues regarding networks are the increasing loss of privacy, the extensive exploitation of personal data by a small group of companies and the creation of algorithm-based filter bubbles around subjects. In 2011 Eli Pariser warned: ‘the digital world is fundamentally changing. What was once an anonymous medium where anyone could be anyone ... is now a tool for soliciting and analysing our personal data’ (2011: 6). Pariser introduced the concept of *filter bubble* to describe the new situation:

The new generation of Internet filters look at the things you seem to like—the actual things you’ve done, or the people you like—and tries to extrapolate. They are prediction engines, constantly creating and refining a theory of who you are and what you’ll do and want next. Together, these engines create a unique universe of information for each one of us ... which fundamentally alters the way we encounter ideas and information. (Pariser 2011: 9)

The bubble reduces serendipity; it creates a comfortable niche where we grow up and interact with people, watch videos, and read books already selected (or at least recommended) by a digital engine. According to Pariser the bubble is invisible and we are alone in it; and neither do we choose to get in it. Is the filter bubble an upgraded and sophisticated version of Foucault’s panopticon?

The transformation process we have been describing in this section is less than 10,000 days old. In the context of the long-term evolution of Homo sapiens, that is almost the last nanosecond of a human life. The big transformation and its conflicts have just begun.

The New Textualities

In this section we will analyse the emergence of new textual structures and narratives as a consequence of the spread of digital networks in the media ecology. Digital textualities made of millions of binary units of minimal information are especially suited to network circulation: they flow like liquid, they are easy to modify and share, and they adapt to different interactive devices, from smartphones to tablets, personal computers, and digital television screens. Digitalization processes have also introduced other changes into traditional media contents: hypertextuality, multimediality, and interactivity seem to be the basic features of this transformation. Their origins can be condensed into a single concept: hypertext.

Every field of knowledge has its founding fathers, the apostles, and their mythical characters. In the 1930s a new utopia took shape in the imagination of some scientists operating in the field of information retrieval: How can we manage huge amounts of scientific data? What began in the immediate post-war period as a utopia, led to the project of building a vast digital network to interconnect all documents produced by our culture.

The Founding Father: Vannevar Bush

The problem of managing a large mass of data is not recent:

Complaints about information overload, usually couched in terms of the overabundance of books, have a long history—reaching back to Ecclesiastes 12:12 (‘of making books there is no end’, probably from the 4th or 3rd century BC). The ancient moralist Seneca complained that ‘the abundance of books is a distraction’ in the 1st century AD, and there have been other info-booms from time to time—the building of the Library of Alexandria in the 3rd century BC, or the development of newspapers starting in the 18th century. (Blair 2010)

Despite these warnings the number of texts has continued to increase at a relentless pace. The introduction of the mechanical reproduction of images and sound in the nineteenth century, and the arrival of electronic supports in the twentieth century, contributed to the growth of textual production.

But this textual abundance did not only come from the cultural industry: the mass of scientific texts also grew incessantly, creating imbalances in the production, distribution, and consumption of specialized knowledge. The management of these text masses of scientific information particularly concerned Vannevar Bush, an American engineer who in the 1930s had worked in the design of a Rapid Selector of information for the US Navy. For Bush it was perfectly clear that textual production expanded at a greater rate than people’s ability to understand and control it. How can information be selected? Is it possible to mechanize this process?

In *As We May Think* (1945) Bush analysed the main forms of organization and selection of information: linear and hierarchical. However, for Bush

The human mind does not work that way. It operates by association. With one item in its grasp, it snaps instantly to the next that is suggested by the association

of thoughts, in accordance with some intricate web of trails carried by the cells of the brain. It has other characteristics, of course; trails that are not frequently followed are prone to fade, items are not fully permanent, memory is transitory. Yet the speed of action, the intricacy of trails, the detail of mental pictures, is awe-inspiring beyond all else in nature. Even if we cannot hope fully to duplicate this mental process artificially. ... Selection by association, rather than indexing, may yet be mechanised. (Bush 1945)

To mechanize this associative mental process was Bush's objective. In that classic article published by *The Atlantic Monthly* in 1945 he described an imaginary machine—the *Memex* (Memory + Extension)—a sort of mechanized private file and library that stored books, records, and communications, which could be consulted with exceeding speed and flexibility. The main feature of the Memex was the creation of personal links and trails between documents that any other user could navigate later: 'Wholly new forms of encyclopedias will appear, ready made with a mesh of associative trails running through them, ready to be dropped into the Memex and there amplified' (Bush 1945). The idea of a flexible and open textual network, crossed by links and navigation trails, was born.

The Myth: Douglas Engelbart

On 24 May 1962, the engineer Douglas Engelbart wrote to Vannevar Bush and asked him for permission to quote a few paragraphs from his article on the Memex. Working in the Stanford Research Institute, Engelbart was developing one of the first digital systems of collective production (groupware). The Augment project, which allowed a group of workers to share

information within a network of computers, constituted a fundamental stage in the evolution of digital networks.

The aim of Engelbart's research programme was to significantly increase the effectiveness of human problem solvers and develop new techniques, procedures, and systems to support this change. According to Engelbart, Bush's trails 'provide a beautiful example of a new capability in symbol structuring that derives from new artefact-process capability, and that provides new ways to develop and portray concept structures' (Engelbart 1962). The philosophy that animated this research was summarized three decades later by the cyberphilosopher Pierre Lévy with these words: 'different concatenations of media, intellectual technologies, languages and working methods available at a particular time, mainly determine the mode of thinking and working in groups of a society' (1992: 61). According to Lévy, people like Engelbart are 'politicians of a special type' distinguished by working on the 'molecular scale interfaces', an area where the passages between different systems are organized, representations are retranslated, and the sense of human-device relationships is constructed. Douglas Engelbart foreshadowed in the 1960s a world of direct access to information and a new way of working in groups. Today, we live in that world.

The Apostle: Ted Nelson

In 1965 Nelson published 'A File Structure for the Complex, the Changing, and the Indeterminant', an article where he introduced for the first time the concept of *hypertext*:

Let me introduce the word 'hypertext' to mean a body of written or pictorial material interconnected in such a complex way that it could not conveniently be presented or represented on paper. (Nelson 1965)

In 1974 he expanded the concept to *hypermedia*:

Hypermedia are branching or performing presentations which respond to user actions, systems of prearranged words and pictures, for example, which may be explored freely or queried in stylised ways. ... Like ordinary prose and pictures, they will be media; and because they are in some sense 'multidimensional,' we may call them hypermedia, following the mathematical use of the term 'hyper'.

(Nelson 1974)

Nelson's main initiative, the Xanadu system—a digital platform to store, link, and navigate through an open network of interconnected documents—integrated in a single environment the utopian vision of Vannevar Bush and the cognitive dimension of Douglas Engelbart's Augment Project. In a poster presented in 1987 Nelson described the Xanadu storage system as

A new form of software with potentially revolutionary implications ... for personal computing, word processing, file management, the office of the future and its software, teleconferencing, electronic mail, electronic publishing, libraries of the future, and tomorrow's education. He saw it as offering 'a plan for a world wide network, intended to generate hundreds of millions of users simultaneously for the corpus of the world's stored writings, graphics and data. ... It is a design for a new literature, a system of order to make such a network understandable, usable, and readily expandible to any degree. ... The Xanadu system provides a universal data structure to which all other data structures will be mapped'. (cited by Boyd Rayward 1994)

Nelson's conception was a source of inspiration for a couple of generations of programmers, visionaries, writers, and literature scholars. Thanks to his ideas and the diffusion of software

such as HyperCard, hypertext fiction became popular in the late 1980s. According to Daniel M. Russell, a veteran researcher at Google,

Hypertext is a large and hugely successful idea. Such ground cracking ideas always have many fathers. But everyone recognises that Nelson's book provided a huge amount of the vision and evangelism to motivate the masses. At the time, nobody was writing about hypertext with the depth and clarity of *Computer Lib/Dream Machines*. (Russell 2008: 16)

Also around that time, in March 1989, Tim Berners-Lee submitted a proposal for an information management system to his boss, Mike Sendall. 'Vague, but exciting', were the words that Sendall wrote on the proposal, allowing Berners-Lee to continue. In *Information Management: A proposal* Berners-Lee (1989) explained the following:

Most systems available today use a single database. This is accessed by many users by using a distributed file system. There are few products which take Ted Nelson's idea of a wide 'docuverse' literally by allowing links between nodes in different databases. In order to do this, some standardisation would be necessary. However, at the standardisation workshop, the emphasis was on standardisation of the format for exchangeable media, nor for networking. This is prompted by the strong push toward publishing of hypermedia information, for example on optical disk. There seems to be a general consensus about the abstract data model which a hypertext system should use. (Berners-Lee 1989)

The standardization proposed by Tim Berners-Lee included an application protocol for distributed, collaborative, hypermedia information systems (Hypertext Transfer Protocol/HTTP), a language to create 'web pages' (HyperText Markup Language/HTML), and a Uniform

Resource Locator (URL) for identifying each ‘web address’. A particular experience—to create links and to navigate in a textual network following trails—imagined in the 1940s and first developed in the 1960s in the labs of California, was finally available for millions of users with no specific knowledge of programming or computer science.

2.4 New Textual Species

The World Wide Web did not only generate new ‘media species’: new ‘textual species’ were also created inside this environment. If we focus on the new interactive and collaborative textualities, the development of new formats has run parallel to the expansion of digital networks since the 1970s. In 1975 *Colossal Cave Adventure* was created, the first widely used adventure game for computers. Three years later a student from Essex University developed a multi-user adventure game called MUD (Multi-User Dungeon). MUDs were one of the favourite hobbies on US and UK campuses in the 1980s and early 1990s. These online text-based role-playing games attracted the interest of researchers like Sherry Turkle (2004), who detected the complexity behind these interactive environments:

For many, computer programming is experienced as creating a world apart. Some create worlds that are highly predictable and use their experiences in them to develop a sense of themselves as capable of exerting firm control. Others have different needs, different desires, and create worlds whose complexity is always on the verge of getting out of hand, worlds where they can feel themselves to be wizards of brinkmanship. (Turkle 2004: 21)

In the late 1970s, with the production of games like *Adventureland* or the *Zork* saga, interactive fiction entered a commercial era that would last until the 1990s. All of these text-based role-

playing games were progressively substituted by immersive videogames that exploit the possibilities of 3D high-resolution environments and real-time interaction with other players.

Any map of the new textual species born in the digital environment should include a reference to hypertextual fiction. Works like *Afternoon, A story* by Michael Joyce (1990) have been objects of theoretical reflection for over twenty years and have entered the canon of digital literature. Although hyperfiction is not as popular as videogames or mobile apps, it is a very active field and generates a seamless flow of new creations every year. At the same time, many novels, like Mark Z. Danielewski's *House of Leaves* (2000), have been greatly influenced by hypertextual fiction. What was born in literature (Cortazar's *Hopscotch*) stays in literature (Danielewski's *House of Leaves*).

Many of the new textual species that emerge from the new media ecology share a common trait: they have very short, ephemeral contents perfectly adapted to the digital networks where they are born, reproduce, and circulate. Tweets, trailers, recaps, sneak peeks, micro fiction, information capsules, breaking news, webisodes, mobisodes, and other expressions are born of the *snack culture* (Miller 2007). As representative data to exemplify the idea: the duration of the average online content video in 2014 was 4.7 minutes, while the average online video ad was 0.4 minutes (comScore 2014).

Nancy Miller, in her *Minifesto for a New Age* published by *Wired* magazine, focused on these short media formats:

Music, television, games, movies, fashion: We now devour our pop culture the same way we enjoy candy and chips—in conveniently packaged bite-size nuggets made to be munched easily with increased frequency and maximum speed. This is snack culture—and boy, is it tasty (not to mention addictive). (Miller 2007)

In recent years *microfiction* (also known as *flash fiction*) has flourished, and not only in English (beyond societies with a centennial tradition in very short stories like China and Japan, the activity in this field in Spanish-speaking countries is remarkable). The spread of the World Wide Web in the 1990s and social networking platforms in the next decade enhanced an awareness of flash fiction, inspired the creation of new stories and online publications (like *SmokeLong Quarterly*, *wigleaf*, *NANO Fiction*, *Flash Fiction Online*, and *Flash Fiction Magazine*) and promoted research (the scientific journal *Short Fiction in Theory and Practice* was launched in 2011).

As can be seen, the new textual formats and narrative structures that emerged from the digital networks have a strong relationship with literary expressions in traditional supports. All texts, digital or analogue, and all narrative structures, linear or hypertextual, coexist in the same environment and are subject to the laws of remediation, translation, and hybridization.

3. New Actors and Processes

In this section we will see the transformation of old media actors, the emergence of new ones, and the changes of relationships and processes in the specific area of publishing as a consequence of the transformations in the media ecology. Just to order the description, we will start with the changes in the production process, continue with the transformations of distribution and then conclude with the new reading practices.

Content Production in the New Media Ecology

Digital networks have transformed the way textual contents are created. This change includes the spreading of innovative production logics and the appearance of new professional routines and profiles. We will focus in particular on the main transformations in these two fields.

The World Wide Web spread new forms of collaborative writing, a practice that expanded with the arrival of the Web 2.0 in the early 2000s. Obviously, Wikipedia is the most visible and important initiative of collective writing of the new century. The statistics are impressive (June 2016): the English Wikipedia includes more than 5.2 million articles and has involved more than 28.7 million users since it was launched on 15 January 2001; more than 111,000 users can be considered active users (that is, registered users who have performed an action in the last 30 days). The whole Wikipedia is available in 292 languages, mobilizes more than 62 million users (260,000 active) and includes more than 40 million articles (Wikipedia:Statistics). Nevertheless, in the last two decades there have been many experiences of collective writing in different countries at the crossroads of literature and digital networks; these kinds of projects increased with the spread of social media such as Twitter (for example the experimental interactive novel *Twovel* started by Neil Gaiman in 2009 and continued by users).

Any map of the transformations of textual production should include an area dedicated to fanfiction and user-generated content. Even if fanfiction is as old as mass culture, the arrival of the World Wide Web and the spread of social networking platforms took user-generated content to a new dimension. Now any fan can be a content creator and share any kind of production at a global level. In Fanfiction.net alone there are more than 720,000 stories about Harry Potter written by fans around the world (June, 2016). For Shirky, user-generated content is not just the output of ordinary people with access to creative tools such as word processors and drawing programs: it 'requires access to-*re*-creative tools as well, tools like Flickr and Wikipedia and

weblogs that provide those same people with the ability to distribute their creations to others' (Shirky 2008: 83).

According to Henry Jenkins (2003, 2006a, 2006b), transmedia storytelling is a practice that emerges from the convergence of the media industry and collaborative cultures. Transmedia stories 'are stories told across multiple media. At the present time, the most significant stories tend to flow across multiple media platforms' (Jenkins et al. 2009: 86). User-generated contents are a basic component of any transmedia narrative world. Blogs, social media, wikis, and fanfiction platforms should be considered open-source story-creation machines that allow users to enrich a narrative world.

Beyond the emergence of collaborative forms of creative production, digital networks also promote new forms of editing. Phenomena like collaborative translations or comic scanlations are part of the same open and participatory process. In many non-English speaking countries the fans of Harry Potter did not have to wait for the publication of the official translations into their mother tongue: the network of fans in Germany, France, Venezuela, Sri Lanka, and China translated the text in a few hours through online translation processes. All of these translations were considered a violation of copyright and the translators were persecuted and in many cases arrested.

Comic scanlation is a more complex process that involves many steps and a highly organized collaborative structure. Scanlation (scan + translation) is the scanning, translation, and editing of comics by fans from one language into another language. The process goes far beyond the simple translation, for example, the lettering of the new text reproduces the style of the original text. In the USA the term *scanlation* refers to the translation of Japanese manga into English, but in other countries such as Brazil it is used for the translation of American superhero

comics into Portuguese (Lee 2009, 2011; Silva 2014). It is not easy to delimit the scanlation practices. As Manovich, Douglass, and Huber put it

The creative activity of scanlation groups is neither ‘authorship’ nor ‘remix.’ It also cannot be adequately described using a well-known distinction by Michel de Certeau between ‘strategies’ and ‘tactics’ (because in contrast to the unconscious tactics described by de Certeau, scanlation groups add new pages to manga series they publish quite consciously.) Similarly, scanlations are neither ‘remediations’ (Jay David Bolter and Richard Grusin) nor ‘transmedia’ (Henry Jenkins). In short, we currently lack proper terms to describe them—and this is already an important reason why we should study them. (Manovich et al. 2011: 193)

All of these collective writing practices should be placed under the wide umbrella of the open-source movement and participatory cultures. For Steven Weber, the open source is an ‘experiment in building a political economy—that is, a system of sustainable value creation and a set of governance mechanisms’ (2004: 1) based on the right to distribute a product freely. These experiences challenge ‘some conventional theories about the organisation of production, and how it affects and is affected by society’ (2004: 8). Many digital journalists, bloggers, and free information partisans have adopted this philosophy and adapted it to digital content (Gillmor 2004). As the old world dies (or, at least, as it changes deeply), and the new world struggles to be born, tensions and conflicts emerge and challenge its main actors. For example, many of these new ‘experiments’ are situated on the borderline or directly outside the legal system; new forms of protection of rights beyond traditional copyright (like the Creative Commons licences) try to set new rules for these innovative and valuable creation practices.

Regarding participatory cultures, according to Jenkins and collaborators

A participatory culture is a culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing creations, and some type of informal mentorship whereby experienced participants pass along knowledge to novices. In a participatory culture, members also believe their contributions matter and feel some degree of social connection with one another (at the least, members care about others' opinions of what they have created). (Jenkins et al. 2009: xi)

Weblogs, social networking platforms like Wattpad, or web portals like Fanfiction.net are based on the free distribution of textual contents. Wiki technology, in this context, empowers user modification and the sharing of digital texts. This combination of open-source philosophy and many-to-many distribution is one of the most important challenges for the established publishing production logic.

A new production logic needs a new workforce and productive routines. Publishing was one of the first professional fields hit by the digital wave in the early 1980s. Desktop Publishing (DTP) radically changed the production process of printed publications, a revolution that later expanded to photography, music, and video production in the 1990s. New professional profiles and actors emerged in a couple of decades, from interaction designers to web content managers, online marketing experts, and vbloggers. In the specific field of textual content production, traditional profiles like the archivist have become almost extinct as they are replaced by digital content management systems. Figures like the bookseller or the production manager have been forced to redefine their skills and adapt to the new conditions of the media ecology.

Now that we have described the new production logic, it is time to talk about the distribution of these textual contents.

Content Distribution in the New Media Ecology

The transformations of text distribution as a consequence of the changes in the media ecology include practices like digital print on demand, online publication, open repositories, Creative Commons licences, etc. In this section we will focus on just one of these: the inversion of the traditional professional publication logic in the context of the increasing spread of disintermediation and re-intermediation processes. In the new media ecology, content is published and distributed based on a single law: *first publish, then filter*. According to Clay Shirky

The media landscape is transformed because personal communication and publishing, previously separate functions, now shade into one another. One result is to break the older pattern of professional filtering of the good from the mediocre before publication; now such filtering is increasingly social, and happens after the fact. (Shirky 2008: 81)

This inversion of the publishing–filtering sequence is a consequence of the emergence of digital networks and the explosion of digital contents. The old system—first filter, then publish—rested on the scarcity of media content. In the old media ecology, the textual production was in the hands of professionals (authors, editors, artists, illustrators, musicians) and filtering was supported by social institutions (newspapers, publishers, radio and television stations, etc.). The multiplication of digital content thanks to user-generated production and the emergence of the long tail of little niches has made that scarcity part of the past. The expansion of social networking platforms ‘means that the only working system is publish-then-filter’ and, in the same movement, we have ‘lost the clean distinctions between communications media and broadcast media’ (Shirky 2008: 98).

These changes in textual distribution may be framed into the transformations of traditional intermediation processes. What is disintermediation? In short, it can be defined as ‘cutting out the middleman’ in the production/distribution/consumption chain. Traditional professions like real estate agents, publishers, and journalists, as well as service providers in areas like travel agencies and video rental, have already faced this dilemma (Scolari et al. 2013). In the 1990s the potential of the World Wide Web as a revolutionary distribution channel was evident for most professionals. The Web potentially offered providers the opportunity to participate in a market in which distribution costs or cost-of-sales shrank to zero, especially in certain sectors like publishing, information services, and digital product categories. Introducing the appropriate information technology allowed the manufacturer to leap over all intermediaries and reduce the cost of the entire process (Hoffman et al. 1995). According to Sarkar et al. (1995), reducing costs and internalizing activities are the main arguments for cutting out intermediaries. On the web, buyers and sellers can find and contact each other directly, thus eliminating some of the marketing costs and constraints imposed by these interactions in the real world. In this context, it is not surprising that new distribution processes and actors like Amazon Kindle, Fanfiction, Scribd, Wattpad, and Academia, which challenge traditional publishing intermediaries, have emerged.

But the reader may ask: are publishing platforms like Amazon or Scribd—so different from each other—a good example of disintermediation? Or are they proposing a new type of intermediation? It is in this context we can talk about *cyberintermediation* or *distributed intermediation*. In these platforms the traditional middlemen (the publisher or the book seller) has been substituted by an interface based on algorithms, databases, and fulfilment of data centres around the world and, last but not least, the information provided by millions of user

interactions. In this context the original disintermediation proposal—based on the so called ‘killer-car salesman’ idea—derived into a mixed clicks-and-bricks economy. The emergence of cyberintermediaries or distributed intermediaries can be expected in a context where the organizational forms perfected for industrial production have been replaced with structures optimized for textual content abundance, big data, and digital networks.

Content Consumption in the New Media Ecology

Digital networks are making researchers reflect on their traditional conception of mass media interaction. It seems clear that the user experience in digital interactive media is not the same as flicking through TV channels or turning a page: the sense of immersion and the consequences of interaction are radically different in digital environments. Traditional concepts like ‘audience’ should be revisited from an ‘interactive’ point of view (Burnett and Marshall 2003; Marshall 2004).

Another important issue of textual consumption in digital networks is political: many hypertext theoreticians agree that the division between author and reader (producer–consumer) should be erased. George Landow suggested that ‘hypertext blurs the boundaries between reader and writer’ (1991: 5). If first generation hypertexts transferred power from the author to the reader, current forms of digital communication in social networks and media collaborative platforms are definitely socializing the production and distribution of contents.

In 2009 Néstor García Canclini published a small volume entitled *Lectores, Espectadores e Internautas (Readers, Spectators and Internauts)* that included a draft map of these transformations of the cultural consumer sphere:

The concept of *reader* worked within the framework of a theory of fields, either in a restricted way as a literature reader (Iser, Jauss) or, in a more sociological sense, as a receiver of the editorial system (Chartier, Eco). ... The notion of *spectator*, although it is more popular, was defined in relation to specific fields like the cinema, television or music spectator. ... If we talk about *internauts*, however, we refer to a multimodal actor who reads, sees, listens and combines various materials from reading and entertainment. (García Canclini 2009: 31–2)

García Canclini concluded that ‘to be an internaut increased, for millions of people, the possibilities of being readers and spectators’ (2009: 78). This expansion of reading practices is one of the key traits of the new media ecology. However, the changes in reading practices are not precisely a new thing: over the past 6,000 years (at least since something called ‘writing’ was invented) reading practices have been changing. After many centuries, reading evolved from an oral and group practice to a silent and individual exercise. For Marshall McLuhan (1962) that change was the consequence of the introduction of printing; other researchers, such as Ivan Illich (1996), have argued that silent, individual reading was born at least a couple of centuries before Gutenberg. In any case, it is clear that a specific kind of practice that until recently was regarded as ‘normal’ (the silent reading of a book) is now expanding to include a broad spectrum of textual consumption experiences. Once again, what is surprising and what makes contemporary transformations so disruptive, is the speed of the change. The move from group and oral to individual and silent reading took several centuries; the transformation of traditional readers into spectators and internauts took a few decades.

How does reading mutate in the new media ecology? The space that used to be occupied by extensive and intensive reading practices is now the territory of *weak* or *precarious readers*

(García Canclini 2009). As early as 1997 Nicholas C. Burbules had already introduced the term *hyperreader* and *hyperreading* to describe how reading in a digital textual network ‘involves the reader making connections within and across texts, sometimes in ways that are structured by the designer/author (for example, following footnotes or quotations), but often in ways determined by the reader’. Now readers have gone beyond that practice: they write and edit, either by cutting, moving, changing the order or just introducing their own text. Vicente Luis Mora, in *El Lectoespectador (The Lecto-Spectator)*, delves into this line of thought and wonders: How does the *lecto-spectator* read? They read the page ‘like an electronic surface emission, a landscape or a painting. ... Turning the pages, looking at them without reading them, the *lecto-spectator* can identify textual and page treatments aimed to a literature closer to his imagination than the nineteenth century’s one’ (2012: 109–18).

All of these new forms of reading are situated far beyond the figure of the ‘critical reader’ that hermeneutics and Cultural Studies have vindicated since the 1980s or even earlier: in the contemporary media ecology, there emerges a *hyperreader* identified by the high-level interpretative skills necessary for navigating in a textual network. At the same time, this skilled *hyperreader* is also a *prosumer* (textual producer + consumer), a concept introduced by the futurist Alvin Toffler (1980) and popularized in recent years. New generation interactive media researchers like Bruns (2008) have proposed an even more radical concept: *produser* (producer + user). In short: readers are no longer where they used to be: alone, locked in the reading bubble, immersed in a printed volume.

The Barbarians Are Coming

In *The Barbarians. An Essay on the Mutation of Culture* (2013) Alessandro Baricco wrote the following:

If I had to summarise, I would say this: there's a sense of incomprehensible apocalypse in the air—we all feel it—and there's a rumour going around: the barbarians are coming. I see subtle minds with eyes glued to the television, scanning its horizon for the imminent invasion. From their university chairs, clever professors survey, in their student's silences, the ruins left behind by a horde that nobody actually manages to see. And over what is written or imagined hovers the bewildered gaze of exegetes who tell in dismay of an earth sacked by predators with no culture or history. (Baricco 2013: 2)

It is not only readers who are no longer where they used to be. All traditional actors in the media ecology have been displaced: authors, publishers, translators, distributors, agents, librarians, booksellers, and, obviously, readers. At the same time the emergence of novel actors—like booktubers, maybe the most powerful book prescribers in the second decade of the twenty-first century together with Amazon top reviewers—has introduced new conflicts and tensions into the publishing niche. The Barbarians are here. Will the armoured fortresses resist?

In the last two decades we have also seen how consolidated oppositions that used to organize our interpretation of society (i.e. professional–amateur, private–public, paid–free, closed–open, etc.) have been radically transformed. The dislocation of these oppositions adds another level of complexity, in this case at an interpretative level: how can we make sense of publishing when pirated versions of books are awaiting their readers on a server in the deep dark Web and any teenager can transform themselves into a book prescriber after uploading a couple of videos to YouTube? At the same time the *Publisher's Dictionary* has also been enriched with

new concepts: Creative Commons, DRM, fandom, filter bubbles, long tail, open-access, produser, prosumer, scanlation, transmedia ... New words for a new media environment.

At first Baricco thought of titling his book *Mutation*. This is another key concept: the media ecology is going through a deep mutation whose outputs are impossible to predict. As it is a complex system, it is very difficult to forecast the future evolution of the media ecology. However, we can learn a lot from its previous transformations. In this chapter we have mapped some of these mutations. In many cases it was the creative combination of technologies, actors, and processes that generated deep transformations in the media system. In other words, the future of the media ecology and the publishing subsystem lies in the new combinations generated by the different human and technological actors in the media ecology. As Alan Kay put it, ‘the best way to predict the future is to invent it’.

References

Anderson, C. (2006). *The Long Tail: Why the Future of Business is Selling Less of More*, New York: Hyperion.

Baricco, A. (2013). *The Barbarians. An Essay on the Mutation of Culture*, New York: Rizzoli Ex Libris.

Berners-Lee, T. (1989). *Information Management: A proposal*, CERN, Geneva, Switzerland. Available from: <https://www.w3.org/History/1989/proposal.html> [Accessed 1 March 2018].

Berners-Lee, T. (2000). *Weaving the Web: The Original Design and Ultimate Destiny of the World Wide Web by its Inventor*, New York: Harper Collins.

Blair, A. (2010). ‘Information overload, the early years’, *Boston.com*, 28 November. Available from:

http://archive.boston.com/bostonglobe/ideas/articles/2010/11/28/information_overload_the_early_years [Accessed 1 March 2018].

Boyd Rayward, W. (1994). 'Visions of Xanadu: Paul Otlet (1868–1944) and Hypertext', *Journal of the American Society for Information Science*, 45(4), pp. 235–50. Available from: http://polaris.gseis.ucla.edu/gleazer/260_readings/Rayward.pdf [Accessed 1 March 2018].

Bruns, A. (2008). *Blogs, Wikipedia, Second Life, and Beyond: From Production to Producersage*, New York: Peter Lang.

Burbules, N. C. (1997). 'Rhetorics of the Web: Hyperreading and Critical Literacy' in *Page to Screen: Taking Literacy Into the Electronic Era*. Edited by I. Snyder. New South Wales: Allen and Unwin, pp. 102–22.. Available from: <http://faculty.education.illinois.edu/burbules/papers/rhetorics.html> [Accessed 1 March 2018].

Burnett, R. and D. Marshall (2003). *Web Theory. An Introduction*, London: Routledge.

Bush, V. (1945). 'As we may think', *The Atlantic Monthly*, August 1945. Available from: <http://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/> [Accessed 1 March 2018].

Castells, M. (2007). 'Communication, Power and Counter-power in the Network Society', *International Journal of Communication*, 1, pp. 238–66. doi: 1932-8036/20070238. Available from: <http://ijoc.org/index.php/ijoc/article/viewFile/46/35> [Accessed 1 March 2018].

comScore (2014). *comScore Releases January 2014 U.S. Online Video Rankings*, 21 February. Available from: <http://www.comscore.com/Insights/Press-Releases/2014/2/comScore-Releases-January-2014-US-Online-Video-Rankings> [Accessed 1 March 2018].

Danielewski, M. Z. (2000). *House of Leaves*, New York: Pantheon Books.

Engelbart, D. (1962). *Augmenting Human Intellect: A Conceptual Framework*, Menlo Park, CA: Stanford Research Institute. Available from:
https://web.stanford.edu/dept/SUL/library/extra4/sloan/MouseSite/EngelbartPapers/B5_F18_ConceptFrameworkPt3.html [Accessed 1 March 2018].

García Canclini, N. (2009). *Lectores, espectadores e internautas*, Barcelona: Gedisa.

Gillmor, D. (2004). *We the Media. Grassroots Journalism by the People, for the People*, Sebastopol, CA: O'Reilly. Available from: <http://www.oreilly.com/openbook/wemedia/book/> [Accessed 1 March 2018].

Gitelman, L. 2006, *Always Already New Media, History, and the Data of Culture*, Cambridge, MA: MIT Press.

Gitelman, L. and G. Pingree, eds (2003). *New Media, 1740–1915*, Cambridge, MA: MIT Press.

Hafner, K. and M. Lyon, (1998). *Where Wizards Stay Up Late: The Origins of the Internet*, New York: Touchstone.

Hoffman, D., T. Novak, and P. Chatterjee (1995). 'Commercial Scenarios for the Web: Opportunities and Challenges', *Journal of Computer-Mediated Communication*, 1(3). Available from: <http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.1995.tb00165.x/full> [Accessed 1 March 2018].

Illich, I. (1996). *In the Vineyard of the Text: A Commentary to Hugh's Didascalicon*, Chicago: University of Chicago Press.

Jenkins, H. (2003). 'Transmedia storytelling. Moving characters from books to films to video games can make them stronger and more compelling', *Technology Review*, 15 January. Available from: <http://www.technologyreview.com/biotech/13052/> [Accessed 1 March 2018].

Jenkins, H. (2006a). *Fans, Bloggers, and Gamers: Exploring Participatory Culture*, New York: New York University Press.

Jenkins, H. (2006b). *Convergence Culture: Where Old and New Media Collide*, New York: New York University Press .

Jenkins, H., R. Purushotma, M. Weigel, K. Clinton, and A. J. Robison (2009). *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*, Cambridge, MA: The MIT Press.

Jenkins, H., M. Ito, and d. boyd (2016). *Participatory Culture in a Networked Era: A Conversation on Youth, Learning, Commerce, and Politics*, Cambridge: Polity Press.

Joyce, M. (1990). *Afternoon, A story*, Watertown, MA: Eastgate Systems(floppy disc).

Landow, G. (1991). *Hypertext: The Convergence of Contemporary Critical Theory and Technology*, Baltimore, MD: Johns Hopkins University Press.

Lee, H.-K. (2009). 'Between fan culture and copyright infringement: manga scanlation', *Media Culture and Society*, 31(6), pp. 1011–22. doi: 10.1177/0163443709344251.

Lee, H.-K. (2011). 'Participatory media fandom: a case study of anime fansubbing', *Media Culture and Society*, 33(8), pp. 1131–47. doi: 10.1177/0163443711418271.

Lessig, L. (1999). *Code and Other Laws of Cyberspace*, New York: Basic Books.

Lévy, P. (1992). *Le Technologie dell'Intelligenza*, Bologna (Italy): ES/Synergon (orig. edition: *Les Technologies de l'intelligence. L'avenir de la pensée à l'ère informatique*, Paris: La Découverte, 1990).

Lévy, P. (1997). *Collective Intelligence: Mankind's Emerging World in Cyberspace*, New York: Basic Books.

McLuhan, M. (1962). *The Gutenberg Galaxy: The Making of Typographic Man*, Toronto: University of Toronto Press.

McLuhan, M. (1964). *Understanding Media: The Extensions of Man*, New York: McGraw Hill.

Manovich, L., J. Douglass, and J. Huber (2011). 'Understanding scanlation: how to read one million fan-translated manga pages', *Image and Narrative*, 12(1), pp. 190–227. Available from: <http://www.imageandnarrative.be/index.php/imagenarrative/article/view/133> [Accessed 1 March 2018].

Marshall, D. (2004). *New Media Cultures*, London: Arnold.

Mayer-Schonberger, V. and K. Cukier (2013). *Big Data: A Revolution That Will Transform How We Live, Work and Think*. London: John Murray.

Miller, N. (2007). 'Minifesto for a New Age', *Wired*, March 2007. Available from: <http://www.wired.com/2007/03/snackminifesto/> [Accessed 1 March 2018].

Mora, V. L. (2012). *El Lectoespectador*. Barcelona: Seix Barral.

Nelson, T. H. (1965). 'A File Structure for The Complex, The Changing and the Indeterminate', *Proceedings of ACM 20th National Conference*, pp. 84–100. Available from: <http://csis.pace.edu/~marchese/CS835/Lec3/nelson.pdf> [Accessed 1 March 2018].

Nelson, T. H. (1974 [1987]). *Computer Lib/Dream Machines*. Self-published. 2nd edition, Redmond, WA: Tempus Books/Microsoft Press.

O'Reilly, T. (2005). *What Is Web 2.0. Design Patterns and Business Models for the Next Generation of Software*, 9 September. Available from: <http://www.oreilly.com/pub/a/web2/archive/what-is-web-20.html> [Accessed 1 March 2018].

Pariser, E. (2011). *The Filter Bubble. What the Internet is Hiding from You*, New York: The Penguin Press.

Russell, D. M. (2008). 'Deeply Intertwined: The Unexpected Legacy of Ted Nelson's Computer Lib/Dream Machines' in *HCI Remixed. Essays on Works That Have Influenced the HCI Community*. Edited by T. Erickson and D. W. McDonald, Cambridge, MA: MIT Press, pp. 13–18.

Sarkar, M. B., B. Butler, and C. Steinfield (1995). 'Intermediaries and Cybermediaries: A Continuing Role for Mediating Players in the Electronic Marketplace', *Journal of Computer-Mediated Communication*, 1(3). Available from: <http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.1995.tb00167.x/full> [Accessed 1 March 2018].

Scolari, C. A. (2012). 'Media Ecology: Exploring the Metaphor to Expand the Theory', *Communication Theory*, 22(2), pp. 204–25. doi: 10.1111/j.1468-2885.2012.01404.x

Scolari, C. A. (2013). 'Media Evolution: Emergence, Dominance, Survival, and Extinction in the Media Ecology', *International Journal of Communication*, 7, pp. 1418–41. doi: 1932-8036/20130005.

Scolari, C. A., C. Cobo Romani, and H. Pardo (2013). 'Should We Take Disintermediation In Higher Education Seriously? Expertise, Knowledge Brokering, and Knowledge Translation in the Age of Disintermediation', in *Social Software and the Evolution of User Expertise: Future Trends in Knowledge Creation and Dissemination* Edited by T. Takševa, Hershey, PA: IGI Global, pp. 73–92.

Shirky, C. (2008). *Here Comes Everybody: How Change Happens when People Come Together*, New York: Penguin.

Silva, A. H. da (2014). 'Shared Values in Social Media and Comics Scan Communities as New Belonging-Marks', in *Handbook of Research on the Impact of Culture and Society on the Entertainment Industry*. Edited by R. Gulay Ozturk, Hershey, PA: Information Science Reference/IGI Global, pp. 558–77.

Toffler, A. (1980). *The Third Wave*, New York: Morrow.

Turkle, S. (2004). *The Second Self: Computers and the Human Spirit*, Cambridge, MA: MIT Press.

van Dijck, J. (2013). *Culture of Connectivity. A Critical Story of Social Media*. New York: Oxford University Press.

Weber, S. (2004). *The Success of Open Source*, Cambridge, MA: Harvard University Press.

Wikipedia:Statistics. Available from: <https://en.wikipedia.org/wiki/Wikipedia:Statistics>
[Accessed 1 March].

Zielinski, S. (2006). *Deep Time of the Media: Toward an Archaeology of Hearing and Seeing by Technical Means*, Cambridge, MA: MIT Press.