

INTRODUCTION: GLOBAL COORDINATES OF INTERNET HISTORIES

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Introduction

Nearly five decades since the Internet's official launch in 1969, its historical study is finally gathering momentum. As this book appears, so too does a new scholarly journal devoted to the area entitled *Internet Histories*.¹ Other markers of development include several significant edited volumes and journal special issues, many more academic papers, and dedicated book-length studies. In the spirit of the medium, and the emergence of digital humanities and social sciences, and associated e-research, we can also point to growing digital resources, online history sites, resources, archives, and data sets.

Arguably, however, it is still the case that available Internet histories in the anglophone world have predominately focused on North American or European experiences, and then only some aspects of these. For instance, scholarly work on the early history of the Internet in the United States has been established for some time. In her *Inventing the Internet*, Janet Abbate charts the origin of the Internet, especially through the ARPANET, and how the technology developed in conjunction with its meanings (Abbate 1999). Patrice Flichy takes up the heyday of 1990s US cyberculture, best symbolized by the avidly read *Wired Magazine* (Flichy 2007). In his *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism*, Fred Turner explores the linking of military-industrial research culture with counterculture in the emergence of computer networks and digital cultures – something that developed long before the Internet appears publicly (Turner 2006: 9). William Aspray and Paul E. Ceruzzi's edited volume *The Internet and American Business* (2008) brings together perspectives on important trajectories in the design and use of the Internet by American business.

Research on Internet histories is still emerging in European countries. The Oxford Internet Institute was founded in the UK in 2001, and has been an important center supporting research into European and global Internet cultures. Elsewhere, a

pioneering European figure in Internet histories is Niels Brügger, having instigated an important case study of web history in Denmark (see Brügger, this volume) and inaugurating the area of web histories (Brügger 2010 and 2013; Burns and Brügger 2012; Brügger 2016a and 2016b; Brügger and Schroeder 2016; Brügger 2017; Brügger, Ankerson, and Milligan 2017). Other leading figures include: French researchers, such as Valérie Schafer (Schafer and Tuy 2013), Benjamin Thierry (Schafer and Thierry 2012), and Camille Paloque-Berges (Masutti and Paloque-Berges 2013) (also with chapters in this volume); researchers at the University of London, such as Jane Winters leading the Big UK Domain Data for the Arts and Humanities (BUDDAH; <http://buddah.projects.history.ac.uk/>) project which will generate a history of the UK web; and researchers from the University of Amsterdam's Digital Methods Initiative, including Anat Ben-David (2010, 2012, and 2016), Anne Helmond (Helmond 2015), and Ester Weltevrede (Weltevrede and Helmond 2012), not to mention Richard Rogers' seminal book *Digital Methods* (Rogers 2013). There is as yet, however, no comparative survey of Internet histories across the European union, although there are many local case studies.

When it comes to histories of Internet in other countries and regions, especially systematic, scholarly histories, there are few. In many countries, technical and technology expert communities strongly affiliated with the Internet, especially those actors in organizations such as the Internet Society, or governance bodies such as the Internet Corporation for Assigned Names and Numbers (ICANN), were the first to contribute participant histories, and encouraged or sponsored institutional histories. We have few published book-length accounts available that focus upon countries outside the US or Europe (China and Korea being exceptions, for instance, Zhou 2006 and Lee 2012), and even fewer, if any, multi-country, comparative studies that focus on network history. The first insights about the histories of diverse careers of the Internet internationally came from the many studies that focus upon the Internet in particular countries (for instance, many of the volumes published in Steve Jones' excellent *Digital Formations* series, published by Peter Lang). In offering accounts of the Internet in particular settings, scholars inevitably need to grapple with the specific characteristics of the local or regional Internet – even if only to relate these to the “received” histories of the global Internet. There is also a second wave of research from the various scholarly disciplines that, for some time, have had to grapple with the Internet, because it has become central to the dynamics of media, communications, culture, and technology across so many parts of the world (for instance, Bruijn and van Dijk 2012; van Dijk 2013). So the widening body of research on, for instance, countries across every region, including the “global south” has drawn our attention to the ways that Internet is developing internationally when it comes to Web 2.0, social media, mobile Internet, as well as other data technologies and infrastructures (for instance, see Donner 2015).

However, although there are some studies written in the local languages that look at the early development of the Internet in nations outside of North America and Europe, these have not been translated into English, nor are they generally referenced in English-language scholarship about the histories of the Internet in these countries. Japan is a particular case in point. Despite having a rich literature about early BBS and Internet culture in Japanese, dating back to Shumpei Kumon's groundbreaking 1988 *Nettowāku Shakai* [The Network Society], commentary in English about Japan's adoption of Internet communication throughout the 1990s was largely reliant on accounts of Americans either living in or visiting Japan who necessarily had

particular preconceptions about what networked communications should look like (see McLelland's chapter in this volume). Although from the early 2000s, especially, there was pioneering scholarship available in English on Japanese computer technology (Gottlieb 2000), cybercultures (Gottlieb and McLelland 2003), and mobile media (Ito, Okabe, and Matsuda 2005), real gaps still remain – in the research, as well as the ways in which it is acknowledged and taken up in the nascent field. In general, this lack of reference to local histories is a significant stumbling block, given the recognition of the importance of understanding communications, media, digital technology and culture, in genuinely international, global contexts. As Internet histories matures as a discipline we can expect to see existing early accounts of Internet cultures in non-Euro-American contexts substantially revised as first-hand accounts in the local languages are made more available.

Against this backdrop of burgeoning research on, and interest concerning, Internet histories, this chapter introduces the particular angle and contribution of this reference work – the imperative to grasp the *global* character of Internet histories.

Internet History as Media History

The area of Internet histories has been frustratingly slow to develop, and gain acceptance – at least, in the eyes of those of us involved in it. It can sensibly be contended that the Internet has still very much been under construction, and, like other communication and media forms, and technologies also, the grounds, warrants, and necessities of doing histories simply take time.

After all, newspaper and press histories might be relatively well-established now, but will not be exhausted for some time to come. Not only is the press itself complex and compelling – even if its demise is regularly predicted; but it holds great significance for wider histories. A good recent example of an area of histories really hitting its straps is television history. Television is a medium that has had several decades' development. The infrastructure that enables research has been slowly built up – private collections and archives, now being supplemented by popular and commercial archiving. Concepts, methods, and approaches have diversified, and programs of research are well underway.

There are many other examples of contiguous forms, not least computing. There has been a strong interest in history among those engaged in computing, information science, information technology disciplines, science and technology studies including historians. This interest has resulted in strong set of resources and supports, including dedicated scholarly and professional groups, prizes, awards, and bursaries, significant collections and archives, and evolving, distributed expertise with a widening pool of interested researchers developing the field and maintaining the momentum. It also includes significant journals, including *IEEE Annals of the History of Computing*,² and *Information & Culture: A Journal of History*.³

Not all Internet research occurs in universities alone. Rather like the Bell Labs in the heyday of the telephone, or the US Defense Advanced Research Projects Agency (DAPRA) or Japanese Nippon Telegraph and Telephone Corporation (NTT) in the histories of Internet and mobiles (Goggin, Ling, and Hjorth 2016), in contemporary Internet research, significant, high value research is being produced and circulated by researchers in leading industry research labs – notably, Microsoft Labs and Intel Corporation. Yet many aspects of the Internet are not the subject of such

industrially and commercially supported research; for instance, communities of use that developed around certain applications may differ from the ways in which the technology was intended to be deployed by its designers or sponsors (as we see in: McLelland's chapter on early computer networking in Japan; Jo's chapter on early online culture in South Korea; and Schafer and Thierry's chapter on the Minitel in France).

Histories of the telephone and telecommunications are another useful example. Here work is more dispersed, not as systematically brought together and nurtured, and, since the deregulation of telecommunications in the 1980s and 1990s, the funding and impetus from the industry has dried up. Nonetheless, important studies have been undertaken, across various disciplines, including history, economics, law, sociology, and communications (Fischer 1992; Hills 2007; Moyal 1984; Rens 2001). As yet, however, there has been little systematic work on histories of mobile communications, especially in a global context (Agar 2003), although there is a wide range of work by scholars charting the evolution of mobile communication (such as the chapter here by on mobiles in Myanmar/Burma by Rich Ling and collaborators). This work is particularly important given that it is via mobile phones (increasingly smartphones) that hundreds of millions of people around the world have their only or primary access to the Internet, something underscored by the 2015 Internet Society's report on the *Mobile Evolution and Development of the Internet* (Internet Society 2015).

What is most surprising is that the well-established area of communication and media histories have taken a while to include Internet histories on their roster of research interests. Partly this is to do with the vibrancy of the technology itself that is undergoing constant change and development with new and significant applications appearing regularly that require analysis and interpretation. As new applications and content appear at a rapid pace, existing applications and content are being revised or deleted. As Brügger points out in his chapter, the archiving of Web sources is full of challenges, not least the impossibility of capturing and preserving all the hyperlinks that comprise the dense and highly intertextual "content" of a page at any specific point in time. For example, a media historian wanting to give an account of the important role that the GeoCities web hosting service played in familiarizing the first-generation of public Internet users with the affordances of a personal home page would have difficulty in accessing all the 38 million web pages reportedly available when the service was finally closed down in 2009 (Shechmeister 2009) – despite efforts made to archive these sites.

Another issue that bedevils Internet histories – and, to an extent, constitutes a general problematic in general media history – revolves around the definition of the medium. In its relatively short lifespan, the Internet has supported a wide range of uses and applications. We wouldn't be the first to point out that the term "the Internet" is used to indicate many things. The best recurrent definition remains the technical stipulation: that the Internet revolves around a protocol at the heart of the technology as a system: that is the layers, elements, and applications pertaining to the TCP/IP (Transmission Control Protocol/Internet Protocol). What the Internet used to look like was relatively easy to determine – from a conventional view of technology history, at least – when the focus was upon its invention and launch in the context of a limited number of institutions, sectors, countries, and societal groups from the 1960s through to the mid-1980s. Here, recourse to histories of computing, and telecommunications infrastructure and governance, has been the reflex response and

often most relevant. With the Internet's popular uptake from the early-to-mid-1990s, we are confronted with trying to understand a new media form, with an increasingly decisive effect upon what we understand media to be, and do. Surely, the Internet has arrived *as* media. And so media history needs to grapple with the Internet, as a media form worthy of study alongside histories of speech, the press, cinema, radio, television, and so on.

The process of Internet histories being acknowledged as a bona fide part of media history is a work in progress. As the Internet is comparatively recent as media, and so its specialized historical study is in its infancy, so too are the particular conceptual, methodological, and archival challenges involved in its study. Here those undertaking Internet histories have an opportunity to learn from, and indeed, deploy and inter-mix other kinds of media histories. For example, when we consider the rise and rise of the Internet from the late 1980s, we are confronted with a bewildering array of technologies, applications, formats, and uses. True, the TCP/IP still can be used to rule in and out what is and is not the Internet – or so it might seem. With developments such as the Internet of things, or the hybridity of the Internet's intersections with wireless, mobile, broadcast, sensor, and other networks and technologies, however, the decision about what kinds of Internet, and what particular histories matter for these, becomes all important.

A further problem is that dominant notions of the Internet, like those of media or culture generally, are still modelled on a limited range of experiences, deployments, and conceptions of the Internet, largely based on the perspectives of Anglophone users, especially North Americans, who featured prominently among early pioneers (as well as some European nations). The cultural, linguistic, and social values of such Anglophone users have had a strong influence – even in the inscription of such values at the level of technical protocols, as in the centrality of English to domain names, for instance. At the present time, however, English is already a minority language on the Internet, with the rapid rise of Chinese, Japanese, Korean, Spanish, Russian, and other language communities figuring heavily in the development and domestication of various Internet technologies, applications, and cultures. Consequently, as the field of Internet histories constitutes itself, we argue that it must be born – or at least, rebirthed – global in scope.

Internet Histories – Born Global?

To some extent, Internet technology is different from other media forms such as the newspaper, radio, cinema, and television that originated in multiple national settings and experienced several decades of development before becoming a part of global circuits of communication. The history of film is a case in point, with independent film industries arising in England, Germany, France, and the United States around the same time at the end of the nineteenth century. The early history of the Internet is, however, very much tied up with innovations in the United States due to the role played by the US military in funding the necessary infrastructure that provided the backbone for computer networks. For many nations (but not all – Japan and France being exceptions), the beginning of computer networks involved signing up for a connection with the infrastructure already established in the US. This necessarily required those nations, as well as computer manufacturers based outside the US, to accept the protocols and terms of use already established there. Although there had been independent national computer networks set up in the early 1980s in countries

such as France (see Schafer and Thierry in this volume), Japan (see McLelland this volume), as well as the non-Internet-based computer networks of the US (Aspray and Ceruzzi 2008; Carey and Elton 2010), these systems were superseded when connections to the international Internet became available at the close of that decade. It is therefore understandable that early histories of the Internet have focused on developments in the US, and that many histories of the Internet outside of North America have emphasized these first connections with the US technological backbone in their own local histories.

We often forget that unlike early film, which was silent and able to be subtitled for diverse audiences, in the late 1980s and early 1990s, the vast majority of material available on the Internet was in the English language and hence mainly of interest to those university-based scholars and computer hobbyists who were the early adopters in non-Anglophone countries. English remained the predominant language on the Internet until the late 1990s, when its percentage of overall language use was reduced by the rapid upsurge in Japanese, Spanish, and Chinese speaking users. The preference for English was not simply an artefact of the technology's cultural antecedents in the US, but was also built into the very computer code necessary in order to input and display text. The American Standard Code for Information Exchange (ASCII) originally developed in 1963 provided only for the input and display of the Roman alphabet, and the numerals and punctuation marks associated with English. The input of specialized diacritics and the accommodation of non-Roman alphabets, and especially character-based scripts such as Chinese and Japanese, was a significant problem that took another two decades of research and innovation to overcome (see for example the discussion in Charles Ess's chapter on "ASCII imperialism"). It is still somewhat astonishing that the QWERTY keyboard – originally developed to avoid the jamming of commonly occurring letter combinations in English words (such as "th" and "st") in nineteenth century typewriters – is *still* the main human/computer interface even in countries like Japan where the Roman alphabet is not used for daily communication. The very close connection between language (including writing systems) and culture mean that certain nations were better placed than others to take advantage of early Internet networks – pointing to the fact that a technology is never neutral in its design and application. A global history of Internet technologies, then, cannot assume the neutrality of technology, but needs to address local cultural and social conditions from the beginning.

The main point of this reference work, then, is to consolidate the proposition that to understand the Internet – especially – research needs to embrace, respond to, study, and be in long, deep dialogue with, the local factors that informed the early uptake of Internet technology in diverse locations and that continue to structure and shape the Internet cultures of different nations and language communities even today. Internet histories have global coordinates that are simultaneously located in the local and particular; without understanding this diversity, we have, at best, an incomplete picture. This volume aims to guide and stimulate a radical expansion of Internet histories, across a wider range of global, international, and comparative dimensions. The reason for this is not simply because this will mean better, more accurate, and richer histories. It is also because such histories will help us gain a deeper understanding of the Internet itself. Developing a better sense of global Internet histories, our argument goes, will equip us for understanding the uses and abuses of history in understanding the Internet at the present time, and in the future. Hence this

collection continues a developing theme in Internet research: the need to understand the technology and its cultures in an international perspective.

Internationalizing Internet Studies

The interdisciplinary field of Internet studies and research is now in its third decade (Jones 1999; Consalvo and Ess, 2011; Dutton 2013). It has attracted researchers from across the world, and has been centered, especially, in North America, and, increasingly, Europe. IR1, the first conference of the Association of Internet Research (AoIR; <http://aoir.org/>), was held in Lawrence, Kansas, in 2000, under the rubric of *The State of the Interdiscipline*. With two Asia-Pacific exceptions, IR7: Internet Conferences (Brisbane, Australia 2006), and IR15 (Daegu, Korea, 2014), the venues for the 18 IR conferences between 2000-2017 have been located in: the US (7 in total); Europe (5); UK, still officially part of the EU, at time of writing (2); and Canada (2). In many ways, Internet research as a field has been open and welcoming to perspectives and research on Internet from across different countries, languages, and cultures. Yet often still, the framing – for instance, at the AoIR conferences – is centered in US, European, and anglophone perspectives (we say this, noting that Australians have loomed large in the development and identity of Internet research, not least with Matthew Allen’s founding of the first Internet studies program at Curtin University in 1999). Most of the participants in Internet research, and IR, belong to multiple scholarly communities and associations, so would bring other experiences and repertoires for exchanging internationally.

Mindful of the Anglophone bias in much early reporting on Internet cultures, in 2009 we published our volume *Internationalizing Internet Studies: Beyond Anglophone Paradigms* (Goggin and McLelland 2009), to accent and support the multicultural, multilingual, and international plurality of work in Internet research. This earlier collection built upon a body of other work on the relationship between language and technology (in relation to the Internet, notably Danet and Herring 2007), theorization of the strong links between culture and technology (by which we mean productive links, as opposed to the prevalent view in many publics that some kind of unitary and backward “culture” of non-Western others is the great obstacle blocking technology), and research on the international dimensions of Internet technology (Hunsinger, Klastrop, and Allen 2011).

The “internationalizing” turn is well-established now, and has its limitations as well as advantages. It sits alongside – uneasily at times – approaches such as “de-Westernizing”, “post-colonial”, “cosmopolitan”, and others. However, as it is approached, in recent years the genie is well and truly out of the bottle when it comes to Internet research. We could point to the complex rise of the emerging powers such as China and India, in particular; the return of Russia; the various resurgences of other parts of the world – if it’s not the “Chinese Century”, then it’s the “Asia Century”, needing a pivot towards “Asia Pacific” (for the United States); or it’s the “Latin American Century”, “Africa Rising”, the rise and waning of the “BRICS”, and the continuing pivotal importance and development of the Arab world, among other regions. Slogans aside, it is evident that there is a long, sustained process underway of geopolitical, as well as intra-regional, intra-national, sub-national, and diasporic reconfiguration. This poses many challenges as well as fabulous opportunities for Internet research.

A key challenge lies in the organization of research and universities internationally, and their economies for undertaking, valuing, and rewarding research and researchers (and building infrastructure). For some time, universities have been orienting themselves around “competing” in a global marketplace, especially for students, but also for research funding, prestige, and influence. National systems, still decisive on many, if not, most universities, have deepened their reliance on a relatively small number of research quality and esteem indicators. These tend to assume English as *the* global language of scientific diffusion and exchange. The best known journal lists are the Thomson Reuters Web of Science journal rankings, joined by Scopus, and, more recently, the Google Scholar list. In all of these, most of the journals accepted for ranking use the English language. This English-dominance is being increasingly challenged, with major scholarly associations responding to imperatives to internationalize. The International Communication Association (ICA) has sought to move beyond its North American heartland to become genuinely international, holding regional ICA conferences in Latin America, Asia, and elsewhere; and has undertaken an initiative to endorse and support two journals in Chinese and German respectively, as part of its prestigious stable of scholarly publications. For its part, the International Association of Media and Communications Research (IAMCR), as signaled by its founding association with the UN’s UNESCO, has long been committed to multi-lingual, genuinely cosmopolitan research, especially driven by its “majority world” members – though it too struggles with the practical, and material difficulties of holding conferences in its three official languages (French, Spanish, English), as well as its conference hosts, let alone the various languages of its members – many of whom do continue to operate and publish in journals and presses in languages other than the dominant European languages, little recognized outside their communities and spheres of influence. There is also rich existing practice in different areas of research (for instance, area studies, or particular tendencies such as Inter-Asia Cultural Studies, where inter- and cross-cultural approaches and frameworks, as well as multilingual, multiscript publishing efforts are common).

This backdrop is largely taken-for-granted. There are many who would argue universities have been eminently cosmopolitan, global institutions, where research – especially in the age of the Internet – is undertaken, circulated, and draw upon by teams and communities distributed around the world, using whatever languages come to hand. We’d agree with this vision, but there are many little-noticed or discussed gaps, losses, labor, and terms of agreement at play here. When it comes to the Internet in particular, lack of acknowledgement and working through of the global coordinates of Internet histories means we have a highly impoverished, or at least partial sense of what the Internet has meant, and what it might become.

What we seek to do through this *Global Internet Histories Companion* is provide a challenge to the conception of “the Internet” as a “deterritorialized” technology, via chapters that offer detailed, comparative histories of how the Internet has actually developed in strategically important nations and regions. As Ito points out, technologies are not universal; rather, it is necessary to attend to “the heterogeneous co-constitution of technology across a transnational stage” (Ito 2005: 7). Thus the Internet should, in fact, be understood in relation to different cultures of use, which are very much influenced by language, culture, and geographical location. Our hypothesis is that once such a detailed, variegated picture of the Internet is assembled, it will be possible to achieve a deeper appreciation of the technology’s

global or international character, via what might be called its “glocal” (or global/local) imaginaries. As this Companion illustrates, “global Internet histories” is a handy term for enriching, expanding, integrating, and catalyzing a wide range of resources, inquiries, concepts, and conversations about the Internet.

We often fail to acknowledge and appreciate that Internet histories that have been written, are circulated, and put into use in framing and imagining the Internet. Strangely, people have done, and are doing Internet histories, not just in the English language! So, a foundational task, across Internet, media, communications, culture, and technology research is translation of such “missing narratives” (Campbell-Kelly and Swartz 2013). In this volume, although our lack of resources has meant we have only been able to arrange translation of one chapter, we have sought out where possible scholars who work in the language of the country or area they specialize in. These authors draw on, present, and translate scholarship in languages other than English, helping make available the vocabularies and worldviews of groups, communities, and publics not figuring prominently, if at all, in existing Internet histories research.

Overview of the Volume

One advantage of the Companion model is the scope that it provides for gathering together a comparatively large number of specific area studies and for getting the chapters in conversation with each other. To encourage the reading of specific chapters alongside other cognate chapters we have organized the contents across seven broad thematic areas. (See table of contents below).

Chapters in the Part 1, *Framing Concepts and Approaches*, explore some of the problems, methods, biases, and ethical issues that arise when researching the diverse histories of the Internet. Authors deploy a high degree of methodological and epistemological self-consciousness in elucidating the points of contact and divergence that arise when Internet applications are taken up and integrated into specific local contexts. **Robin Mansell** for instance considers how different “social imaginaries” surrounding what the Internet means or signifies affect key government or industry players whose decisions impact on the roll-out and governance of the technology. Yet an Internet history that focuses solely on these key players overlooks the multiple ways in which technology is reimagined by its various stakeholders; instead, she encourages us to account for how individuals imagine themselves as active agents and not simply as users of a technology. Also drawing attention to the manner in which cultural framings of technology are important are key to the ways Internet is appropriated and understood, **Charles Ess** in his chapter looks at how Internet research has been framed in the CATaC (Cultural Attitudes towards Technology and Communication) conference series since 1998. Pointing to a tendency, particularly in studies based in the United States, that tend to rely on information available in a single language (English), he notes how holding the first CATaC conference in Oslo, Norway, forced the US participants to consider aspects of Internet configuration that proved a problem for local participants. This included the fact that three common Norwegian vowel sounds (ø, æ, å) were not available in the ASCII script of the time, requiring Norwegians to transliterate their own names in order to become visible on Internet search engines.

Nishant Shah provides a panorama of Internet histories in India, drawing on the landmark project he led, supported by the Bangalore-based Centre for Internet & Society. Reflecting upon a number of these histories, Shah offers provocative and rich reflections concerning Internet historiographies. Shah proposes three entry points for approaching the history of Internets in India, which are also extremely productive for thinking about Internets globally: body, affect, and the state in transition. Shah observes that to “write the history of the Internet in India is to write the history of India,” a lapidary formula that resonates across the striations of global Internet histories. **Niels Brügger**, in his chapter, looks at the difficulties of content archiving on the Internet, taking as his example efforts in Denmark to archive the entire national .dk web domain. As he points out, web pages are entirely unlike traditional media such as books or films, because they are made up of hyperlinks that result in a dense “strata” rather than a single medium. Yet, as he argues, the establishment of such archives is necessary not just for understanding past web developments, but for gaining an enhanced understanding of what is happening on the web today.

Section two, *Rethinking Internet Evolution*, offers a set of perspectives on how we approach and understand the unfolding of the Internet, drawing our attention to the need to construe and situate narratives of the technology’s development with precision and care. **Valérie Schafer and Benjamin G. Thierry** take up the fabled case of the French Minitel system, often presented as the alternative to North American commercial visions of computer networking. Schafer and Thierry offer a fascinating discussion of the parallel, entwined, and yet distinct ways in which the French development of the Internet threaded its ways in and out of the kinds of technical systems, ecosystems, business models, and uses that were associated with Minitel. Charting the “multiple reversals” at play in visions of Minitel and Internet respectively, they conclude, inter alia, that time “will tell whether this Internet Minitelisation is only a fleeting moment in the evolution of digital economies, or a lasting model initiated by the Minitel and brilliantly promoted by Apple some years after”. **Nicholas John** follows on with a detailed study of the emergence of the Internet Service Provider (ISP) in Israel, a very interesting case given the country’s reputation as a high-tech pioneer. John discusses the ways in which particular actors in this process had very different ideas concerning the Internet, as well as distinctive ideas about the “Israeliness” of the Israel context. Drawing on the work of Pierre Bourdieu, John argues that this period was exemplified by overlapping elements: the shift from “technological capital” to purely “economic capital”; the productive tension between the “local habitus” and “global field”, as investment came in from overseas interests and members of Israel’s economic elite. In dialogue with accounts of the Brazilian Internet (see Davis et al.’s chapter), John contends that we cannot “take the arrival of the Internet to new countries for granted, thereby resisting a simple deterministic narrative ... and second, we recognize the place of struggles between different institutional bodies in shaping the Internet”. Invoking Mansell’s notion of imaginaries (see her chapter in this volume), John argues that “the range of possible imaginaries available to social actors (and, indeed, researchers) is a function of their social and cultural positioning”. This point is borne out in **Fernando Gutiérrez’s** chapter on the evolution of the Internet in Mexico. As Gutiérrez shows, universities were pivotal in early connection, but a crucial moment came with one of the most famous and best-known examples of Internet appropriation anywhere – that of the Zapatista National Liberation Army (EZLN), taking its struggles online on 1 January 1994, including a website while hosted in a US university achieved great notoriety and visibility in Mexico. Mexico’s “Year of the Internet” in 1995, saw the

prestigious *La Jornada* newspaper establish itself on the web, and a boom underway that also engaged Mexican governments and civil society in the project of building infrastructure and extending access. Drawing on data from the World Internet Survey, Gutiérrez discusses the paradoxes of connection and connectivity in a country riven by notable inequalities, where such uneven patterns of knowledge, capacity, and use sit alongside deepening diffusion, innovation, and significance of Internet in a dynamic, redefinition of Mexican media and culture.

Stuart Davis, Joe Straubhaar, Martha Fuentes-Batista, and Jeremiah Spence provide another Latin American case study, drawn from the contrasting case of Brazil. Davis et al. dissect the social shaping of the Brazilian Internet, arguing that here “ICT diffusion was largely driven by creative innovations in diffusion from below by NGOs who sought to create new forms of access to the Internet to fulfill demand by users”. However, as they point out “these efforts were heavily influenced by national policies regarding public access, liberalization of regulations governing the national telecommunications market, as well as attempts by private corporations vying for consumer access”. In the final chapter in section 2, we shift to Eastern Europe, with **Katarzyna Kamińska-Korolczuk and Barbara Kijewska’s** fascinating comparative account of the evolution of Internet in Poland and Estonia, in the period when both countries gained independence from the Soviet Union and sought to re-establish free media systems. They note that: “[y]oung generations are today rooted in the network that they use in their private, social, and professional lives”, however that it is “difficult to predict whether the increase in the number of users will translate into the increase in trust in the use of the Internet in the process of strengthening of civil society”. Here, distinct approaches can be discerned between Poland, where caution concerning the Internet’s societal role is especially a concern, and Estonia, where Kamińska-Korolczuk and Kijewska note that “Estonians saw in the development of innovative technologies the chance to strengthen their sovereignty”.

In section three, *Early Computer Networks, Technology and Culture*, chapters consider specific case studies of pre-Internet and early Internet computer mediated communications systems in order to shed light on how the experience of these early adopters helped shape mainstream roll-out of Internet technologies in specific locations. Given that “the Internet” is so often spoken of as a “global” and “deterritorialized” technology, it might be supposed that specific cultures of use can be replicated anywhere that has Internet connectivity. Yet as the case of BBS reveals, this is often not so. What Internet technologies are available and preferred depends upon cultural factors, including language use, as well as market and policy factors such as government regulation, competition, and pricing.

Camille Paloque-Berges looks at a revealing and little-known part of the French Internet story, the development from 1983 onwards of Fnet, an informal infrastructure, dedicated to supporting the open Unix-based communication networks. As Paloque-Berges notes, Fnet was a kind of “shadow infrastructure” – “an informal, experimental, and unacknowledged network of machines annexed to the existing telecom network, as well as a network of peers using and rerouting public resources from the academic world”. As such it elicited many of qualities attributed later to the guiding spirits of the Internet, such as qualities of being “[o]pen, decentralized, collaborative, heterogeneous, and worldwide.” In his chapter, **Mark McLelland** looks at the social and cultural shifts that had to take place in Japan before the use of computers for the input, display and communication of the Japanese language could

be widely accepted. Japan's highly complicated and hybrid writing system initially proved difficult to input and transmit via CMC. The fact that early BBS systems were pioneered by different computer companies (and not the government) meant that different companies offering "personal computer communication" developed their own protocols. This led to a series of proprietary "intranets" where up to a million Japanese users first gained exposure to the affordances of CMC in their native language. In the early 1990s, the preponderance of English on the Internet, the fact that some familiarity with English was necessary to connect with overseas servers and high dial-up charges meant that accessing the Internet was seen as having little application for most users in Japan. In addition, the relatively low penetration rate of personal computers meant that Internet use in Japan did not accelerate rapidly until the release of Internet-enabled cell phones in the late 1990s. In their chapter **Li Sha Liang, Lin Yi-Ren and Arthur Hou-Ming Huang** also stress the importance of an early BBS phase for the development of Internet cultures in Taiwan. Similar to the situation in Japan, early CMC networks were not supported by government initiatives but developed by small groups of computer hobbyists and early adopters on university campuses. Unlike the slow dial-up options offered in Japan, however, from 1992 Taiwanese university connections were offered using a TCP/IP model that allowed many more users to access the system at the same time and at faster speeds. The fact that Taiwanese universities offered students free access to these services via their campus dormitories and recruited administrative staff from among the student body enabled the BBS networks to expand rapidly among the student body. The large scale of student participation in these networks encouraged the use of the BBS system for social activism, a characteristic that remains constant today. **Dongwon Jo's** chapter investigates the first public e-mail service in Korea, H-mail, provided in 1987 by the Korea Data Communications Corporation (DACOM), and examines how the contentious relations between the technology provider and its users set the stage for early online activism, prefiguring features of Korea's present-day Internet culture that see high levels of user activism even in the face of state surveillance. From East Asian studies, we move to Turkey, where **Ivo Furman** provides an engrossing study of the vibrant Bulletin Board System (BBS) ecology centered around the *Hi! Türkiye Network* (known colloquially as Hitnet), which had its heyday between 1992-1996. Spanning the nation, Hitnet was based on Fidonet network protocols, and as Furman explains: "Although BBS communication networks rapidly disappeared with the arrival of the Internet, early BBS users were the first in Turkey to engage in networked publications and experienced long-distance collaboration via electronic communication". Furman's account shows how such BBS pioneers and user played a key and enduring role in shaping local Internet communication ecologies in Turkey.

Chapters in section four, *Imagining Community via the Internet*, look at how the Internet and its affordances have allowed users to imagine community in the context of specific language and national communities. The case studies point to how the paths of Internet adoption have been multiple and divergent – China being a relatively early adopter in Asia where users made a switch from PC-based to mobile devices whereas in Bhutan and Papua New Guinea where the Internet was introduced much later, the majority of those accessing Internet applications has been via mobile devices. Understanding the state of existing communications systems in a society prior to the adoption of Internet technology is vital in accounting for the meanings given to this emergent technology among users as well as across local media including government reports, science journalism, popular journalism, and advertising.

The section opens with **Anissa Daodi**'s reflections on the rise of e-Arabic. Daodi's chapter is significant since she her description of how Arabic works reveals a situation unfamiliar to most native English speakers, wherein two distinct varieties of the same language exist within the same language community but are used for different purposes. Known as diglossia, there are high status (grammatically more complex and often used in writing) and colloquial versions of Arabic (in addition to local dialects). Hence, alongside coding differences for the input and display of the distinctive script, the use of Arabic as a means of informal written communication via computers was not a straightforward proposition. Daodi outlines the gradual development of a third linguistic form that she terms e-Arabic that involves both orthographic as well as hybrid dialect transformations, including borrowings from other languages. This has led to tensions between largely younger, online users and older cultural gatekeepers who see this new dialect as incorrect and uncanonical. Daodi argues that this "new" language form which is not constrained by canonical language practices has been instrumental in young people developing a voice and expressing their ideas and concerns. **Haiqing Yu**, in her chapter affirms that more can be learned about the Internet in China through a focus on how it has come to be conceived and understood by its everyday users than by a timeline of infrastructure, governance measures and software roll-outs. Contrary to much negative reporting about the social and political situation in China, particularly a stress on the "Great Firewall", Yu points out how there is much optimism among Chinese people themselves about the future. She explains how narratives about the Internet and its capacity to break down hierarchical boundaries, share information and build connection between people is a key part of this optimism, suggesting that impediments such as online censorship are evaluated differently by those inside and outside the People's Republic.

Rhys Jones' chapter on how the early days of the Internet were represented in Welsh-language media takes us back to a time when there were strong fears that Internet technology, still very much associated with the United States, would further enhance the hegemony of the English language, especially at the expense of minority languages such as Welsh. Yet at the same time there was push-back against this claim by users who saw a great opportunity for CMC to connect Welsh speakers globally and thus enhance the use of the language – as was seen in the early translation into Welsh of key computer and Internet terms, a process also notable in the early days of Korean Internet use (see Jo's chapter in this volume). The Internet's impact on language practices is also a key issue picked up on in **Bunty Avieson**'s chapter on Bhutan. She notes that the introduction of the Internet in that country took place at a time when widespread democratizing changes were impacting on the media more generally. While access to print media is limited due to the fact that many local vernaculars do not have a written form, the introduction of CMC, usually via mobile devices has opened up new ways of connecting via voice – an illiterate farmer only needs to learn how to navigate apps via a few basic icons in order to connect up with other users. The affordances for text communication, too, have served as an incentive for users to familiarize themselves with Roman script which they use to transliterate and communicate in the local language.

Sarah Logan and **Joseph Suwamaru** in their chapter on Papua New Guinea (PNG) point out that although slow dial-up connections were available between some PNG educational institutions and university networks in Australia it was not until deregulation of the mobile phone market in 2005 that accessibility rose from 3 percent

to 80 percent of the population across the ensuing decade. As the authors point out, PNG is a largely oral society and the affordances of mobile Internet, particularly status updates via Facebook, have proven extremely popular. Facebook also provides a platform for the sharing of news in a media context lacking in any truly national outlets. Like PNG, Myanmar (Burma) is also a case where Internet has only arrived very recently, and then preceded, paralleled, and, in important ways, interwoven with the mobile phone and mobile communication – and is the subject of **Rich Ling, Chitra Panchapakesan, Rajiv Aricat, Elisa Oreglia, and May O. Lwin**'s chapter. Ling et al. draw on study of the adoption of mobile phones and digital access among the Myanmar people, to point to a highly significant phenomenon of the “digital imagination,” in shaping images, meanings, knowledge, and potential uses of Internet, even before people have an opportunity to experience it directly. Discussing the adoption and impact of mobiles amongst a range of business sectors and social groups – trishaw operators, rag pickers and scrap handlers, brick makers, an Indian Tamil enclave, and farmers – Ling et al. invoke digital imagination as a concept that “helps us to see how the adoption process draws on a set of insights, folklores, second-hand techniques, and cultural appropriations in their imagining of digital access”.

Section five, *Histories of Social Internets*, provides historical perspectives on one of the defining characteristics of early twenty-first century developments – the global penetration of social networking systems and the emergence of social media. Chapters explore a range of local-language and fan and community based networking systems. In addition, to grasp the significance of an application's take-up requires an acknowledgement of the kind of already existing media cultures influential upon users, as well as the industry, policy, and social contexts, and the ways that imported – and local – technologies are domesticated. Takanori Tamura takes a historical perspective on human interaction in how Internet comes to be imagined. Specifically, he explores the striking phenomenon of *self-narratives* (that is, talking about ourselves) via computer mediated communication (CMC) in Japan, that take shape in the pre-Internet era. Tamura makes the case that communication on self-narratives on the pre-Internet domestic networks provided a context for later web and social media developments. In particular, such narratives, and the earlier models of CMC, helped develop a defining sense of intimate citizenship that made possible the social movements that have emerged in the recent crises in Japan after the earthquake and nuclear power disasters in 2011. **Tim Highfield** provides an indispensable history of blogging, which as he remarks, now seems very old-hat: “blogging's moment as an innovative and popular social medium – before ‘social media’ became a thing – seems, in Internet time, like the distant past”. In his “brief sketch of the history of blogging, as platform, genre, and influence”, Highfield argues that “the blogosphere was never just a space for talking about politics or celebrity gossip, or acting as an online version of personal diaries.” Rather, he suggests that the “history of blogging is part of the wider development of the mediasphere, for bloggers were not just bloggers, posting their own thoughts: they were readers of other blogs and media sources, commenting, linking to, and sharing other content, and using other platforms in addition to their own blogs.” For their part, Jaakko Suominen, Petri Saarikoski, Riikka Turtiainen, and Sari Östman's chapter also opens up perspectives on histories of the present and future, with their archaeology of the various, largely forgotten national Finnish social media services and platforms such as IRC-Galleria (a photo gallery whose majority of users were teenagers), Jaiku and Qaiku (microblogging services), and Vuodatus (a blog platform). Actually national and regional social media platforms are very well alive and well in the complex global-local mix of

contemporary Internets, and Finland, it should be remembered, played an important role in global Internet culture, as well as mobile phone cultures, with such technology experiments. Our three main examples show that there has been a need for national social media services, meaning Finnish developed platforms for Finnish users, in a relatively small country as well. Yet the trajectories, significance, and experience of the great diversity of social media platforms globally is something we still know little about it. Suominen et al. suggest, for instance, that in their case study “what is difficult to estimate, is that the unique something ‘Finnish’ in these case services, and their life-cycles are not greatly comparable to large states or populated states such as China, Russia, South Korea, or Japan”. As such their call for “more comparative studies between similar types of national cases” is a point well made. **Baohua Zhou, Shihui Gui, Fumitoshi Kato, Kana Ohashi, and Larissa Hjorth** in their chapter explore the very much alive and scaled-up cases of social media in two of the world’s biggest markets, Japan and China. With special attention to convergent mobile messaging platforms, WeChat and LINE, Zhou et al. contrast two very different histories of the rise of the Internet, and its transformation into the smartphone phase. They suggest that the “development of Internet in China took place in a rather staged way – from Web 1.0 ... to Web 2.0”, compared to Japan where “access to the Internet from both PC and mobile phones converged early thanks to the existence of *keitai*”; add to which the different roles that government played in incubating and promoting such Internet technology. Also focusing on the Chinese Internet, **Ling Yang** provides an account of the history, practices, and issues associated with Chinese online fan communities. Yang starts with the evolution of Internet platforms and technologies that have facilitated the formation and development of networked fan communities, such as bulletin board systems (BBS), Baidu Post Bar, Sina Weibo, and Tencent QQ, then discusses dwells on fansubbing (foreign-language media subtitled by fans) and shipping (“*peidui*” in Chinese, meaning “pairing” or “coupling” of celebrities or media characters in original stories), two web-based practices that have far-reaching impacts on Chinese fan cultures and society at large. Yang argues that while such online fandoms provide agency, identity, and belonging, they also constitute a site of fierce contestations, often caused by gender-related issues and government censorship.

Section six, *Internets and New Media Forms*, opens with **Christina Spurgeon**’s chapter providing a lucid and admirably concise overview of the main currents and dynamics of the global development of online advertising. In an area of particular need of extensive international research, Spurgeon issues a call for research to pay “greater attention to the influence of advertising in accounting for Internet history”. With **Hayes Mawindi Mabweazara**’s chapter, we move to the African region, and the case of the evolution of Internet-based digital journalism and its associated research. Mabweazara’s comprehensive and illuminating account offers an alternative understanding of how digital journalism and its research has taken shape and flourished quite apart from the dominant body of knowledge emerging from Western scholarship. In doing so, he shows that “the history of Internet-based journalism, as well as research into the connections between the Internet and journalism in Africa, has in many ways, taken the path of research in other contexts outside journalism itself, which is largely characterized by mixed, and occasionally contradictory, opinions on the opportunities and challenges offered by the Internet in Africa”. **Alisa Freedman**’s chapter looks at another media form, digital literature, as represented by the celebrated emergence of mobile phones and Internet novels in Japan. For Freedman, such Internet-based digital literature “reaffirmed, rather than

undermined, the cultural significance of the print book in Japan and provided models for the commercialization of fan-produced culture worldwide”. Moreover, what is evident in cell phone and Internet novels is the way that capture and are driven by nascent “conventions of Japanese Internet use, including access patterns, visual languages, user identifications, and corporate tie-ins.” Also pivotal is the way in which such Internet cultural developments “encouraged discussions about groups on the fringes of Japanese society, particularly delinquent girls and male *otaku* (avid fans of hobbies)”. **César Albarrán-Torres** offers a rare study of online gambling, with its complex locations and meanings, stretching from the global south to the global north. With a focus on the important case of Costa Rica, where online casinos were established in the early 2000s, Albarrán-Torres shows how gambling via the Internet needs to be understood as an instance where “longstanding cultural practices and industries adapted to online spaces, traversing spatial and jurisdictional borders.” He pays close attention to these processes of adaptation, drawing our attention to the legal and labor issues that emerged from the expansion of online gambling practices in developed countries and the hosting of casino servers in developing nations – something he puts on the research agenda for the first time. With **Andrew Whelan’s** chapter, we take up the vastly popular realm of music and Internet. Rather than a remix of the usual themes, Whelan explicitly eschews “a standard sequential history of the emergence of digital music, or of the antecedent cultures of music production, distribution, and consumption on the Internet”. Instead, Whelan’s chapter works “around” some of the central dynamics and processes of music online – aiming to “highlight how the standard histories work to legitimate or obscure particular sets of concerns”. In particular, Whelan focusses on two key dynamics: “configurations of practice around music sharing as a mediated social activity ... longstanding, durable, and open to encounters with new distributive forms and formats”; “the sociability of digital audio [whereby] ‘music online talks to itself’, largely because, from its emergence, digital music has by design and affordance been miniature and open to manipulation and reassembly”. In the final chapter in section six, **Teodor Mitew and Christopher Moore** also take up an enormous area of Internet histories – games and play. Similarly to Whelan, they focus their efforts in a historiography and theoretical vein, focussing on game spaces, game techniques, and game modalities” as a “prism through which the historicity of Internet play is to be approached”. They address the “contention that the Internet has simultaneously facilitated the dematerialization of the physical copy associated with accessing games, and rematerialized play as investment in the new global market in a mix of official and unofficial channels of consumption, from licensed merchandising to fan-produced cosplay and other expressions of participatory media culture”. Mitew and Moore note that the “degree to which the technologies of the Internet, especially the diffusion of high-speed broadband Internet connections, have made new game spaces possible, including those for the reconfigurations of the modalities of play, is matched only by their enclosure within the formalized modes of industrial production, as beta-testers, mod-creators, community leaders, and so on.”

Part Seven, *Publics, Politics, and Digital Societies*, the volume concludes with a set of chapters that register and evaluate issues about the health of body politic that are highly prominent in debates and research on the Internet, yet where the understanding of how these are shaped by Internet histories is still largely absent. **Ithem Allagui’s** chapter provides an overview and retrospective of the histories and roles of Internet and associated digital media in the Arab region, where much recent attention has focused, especially in relation to democratic struggles. Allagui dissects

the highlights of Internet history in the Arab region in relation to its social and political transformations, arguing that the celebrated uprisings are a construct of several *actors* and not *technologies*. Allagui notes that such “insurrections were the work of activists online and offline; those who survived and others who martyred themselves for their countries”. Declaring that “people trusted that the ‘revolutions’ would carry on for themselves”, Allagui observes that “They did not. The technology is *enabling* and leading to collective actions in inconsistent ways. It enabled popular movements to overthrow authoritarian regimes, and is also now enabling the Mujahidin of the Islamic State (IS) to expand their troops and achieve the objectives of their socio-political agendas”. In her chapter, **Endah Triastuti** charts the emergence of Indonesia as a “digital nation”. Triastuti examines the various factors that contributed to the ongoing development of Internet in Indonesia. She especially draws our attention to the “circulations of power through media culture after the collapse of the authoritarian regime [of former President Suharto] especially in the era of ICTs”. For Triastuti, “engagement with the Internet in Indonesia involves struggle, forms of appropriation, oppression, and resistance to the former regime’s effort to impose the idea of the nation using traditional media such as radio and television”. **Susana Salgado**’s chapter explores the Internet and political communication in the especially interesting and telling cases of the countries of Lusophone Africa: Angola, Cape Verde, Mozambique, and Sao Tome and Principe. With common language, historical background of Portuguese colonization, and varying claims to be “new democracies”, Salgado’s starting point is that these “four countries also share the particular feature of having started their democratization processes simultaneously with the worldwide expansion of the Internet”. Salgado chapter provides a very suggestive discussion of such online political communication opportunities in countries experiencing democratization processes, addressing the role of independent online news media outlets and blogs, as well as the use of the Internet in citizens’ participation and political change.

Kwang-Suk Lee’s chapter aims to provide an “integrative historical approach” to digital or e-resistance in South Korea, yoking together analysis of the “top-down historical engines driving technological futures – such as information technology (IT) policies, governmentality, market activities, and other power conditions influencing digital technologies” as well as the “evolving phases of digital culture autonomously constructed by Internet users from below”. Drawing attention to the subcultural histories of Internet and activism in Korea, Lee explores Korean digital activism, highlight how “political tension has existed between the codification of power and social influences”. The Companion concludes with **Hu Yong**’s chapter on tracing the shift from *yulun* [public opinion] to *yuqing* [public sentiment] in the development of the Chinese Internet, and information management. In a powerful critique, Yong contends that the “operations of the *yuqing* monitoring system reflect the paradox of China’s Internet management regime: there is more information available to average Internet users, but less authenticity on the real sentiments of the masses.” He suggests that the “change of lexicon and practice from *yulun* to *yuqing* is a result of the change in China’s information governance and social management.” As much as *yuqing* signifies a move by the Chinese Party-State to keep up with the zeitgeist of good governance, it also serves as a handy tool to control the masses – rather than contemplating any fundamental democratic and political transformation.

Conclusion: The Futures of Internet Histories

In the introduction to their 2015 special issue on “Histories of the Internet” Thomas Haigh et al. note:

Looking at both scholarly histories and popular myths, we suggest that the expanding scope of the Internet has created a demand for different kinds of history that capture the development of the many technological and social practices that converged to create today’s Internet-based online world (Haigh, Russell, and Dutton 2015).

As Internet histories develops as a field it will increasingly need to take account of how the Internet actually developed in particular places and among certain groups; explore dominant narratives, myths, and metaphors; pay attention to “minor” and alternative histories of Internet; investigate histories of Internet across different language and cultural groups; histories of Internet across different demographics (“old” people as well as “young” people; excluded and marginalized groups, and minorities, as well as majorities); histories of Internet in global south as well as global north; cross-fertilization of Internet technologies and cultures across regions; and Internet circuits and exchanges in unexpected trajectories, locally, translocally, and internationally. As we shall see, and has been well established in theories of global and international media, this can often mean a renewed, intense, and focused attention on local spaces and places, specific subcultures, one particular platform or technology from a teeming Internet media and communication ecology.

What has become clear to us after engaging with the 36 different national, regional and thematic case studies presented in this Companion is that although “the Internet” is now a technology with “global” range and impact, it is not the case that specific cultures of use, particularly those which might be most familiar to users resident in the anglophone west, can be replicated anywhere that has Internet connectivity. What Internet technologies are available and preferred depends upon many factors including geography and resulting infrastructure, as well as market and policy factors such as government regulation, competition between providers, and pricing. As important as these considerations are, there are also many complex cultural factors that are much more difficult for outsiders to discern – especially if they have no access to accounts of Internet culture in local languages. These less tangible influences include local understandings governing what communication means, what constitutes information and how it should be used and shared, issues around privacy and security and most important literacy. By “literacy” we don’t just mean the ability to read and decipher a conventional written text – but the whole range of “new literacies” that are involved in the effective use of today’s convergent media devices.

An aspect of this need for enhanced literacy requires us to step outside of our own culturally coded set of assumptions about what the Internet is or means, and to recognize the significance of alternative Internet histories and cultures of use. Rather than view other localities as engaged in a process of “catch up” with current western models, we need to appreciate how local instances of Internet culture enhance our understanding of the technology and its affordances as a whole. We hope that the chapters offered here will be useful in moving this ongoing conversation and much needed research forward.

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¹ *Internet Histories: Digital Technology, Culture & Society* is published by Taylor & Francis from 2017. Its remit is “research on the cultural, social, political and technological histories of the Internet and associated digital cultures”. A key aim of the journal is “its desire to publish and catalyse research and scholarly debate on the development, forms, and histories of the Internet internationally, across the full global range of countries, regions, cultures, and communities.” Founding editors of *Internet Histories* are Niels Brügger, Megan Ankersen, Gerard Goggin, and Valérie Schafer.

² *Annals of the History of Computing* is a longstanding journal, published by the IEEE (Institute of Electrical and Electronics Engineers), an association of 420,000 professionals across engineering, computing, and technology information. The *Annals*:

... covers the breadth of computer history. Featuring scholarly articles by leading computer scientists and historians, as well as firsthand accounts by computer pioneers, the *Annals* is the primary publication for recording, analyzing, and debating the history of computing. The *Annals* also serves as a focal point for people interested in uncovering and preserving the records of this exciting field.

(<https://www.computer.org/web/computingnow/annals/about>)

³ *Information & Culture* is a journal, based at the University of Texas Austin. It was established in 1966 as *The Journal of Library History*: “The journal honors its (45+ year) heritage by continuing to publish in the areas of library, archival, museum, conservation, and information science history. However, the journal’s scope has been broadened significantly beyond these areas to include the historical study of any topic that would fall under the purview of any of the modern interdisciplinary schools of information” <http://www.infoculturejournal.org/about>.