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Brian D. Loader & William H. Dutton

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A DECADE IN INTERNET TIME

The dynamics of the Internet and society

This introductory article provides a critical assessment of the last decade of social research on the Internet and identifies directions for research over the next. Ten years is only a moment in the span of social research, but aeons in Internet time. Has social research across the disciplines been up to the challenges? Over more than 40 years, the unfolding development of the Internet and related information and communication technologies has been one of the most dynamic areas of technological and social innovation worldwide. In the first decade of the twenty-first century, its development was even more dramatic. While innovations in such areas as search, social media, big data, and the commercialization of the Internet became prominent only over the last decade, they are already taken for granted by most Internet users. It is becoming increasingly apparent to us that this interdisciplinary field must broaden even further to better connect with fields beyond the social sciences and information, communication, media and cultural studies to include stronger collaborative ties to law, ethics, and the sciences, engineering, and computer sciences, but also across the arts and humanities. This will be an almost certain requirement for interdisciplinary research over the coming decade with technology and society moving at Internet time.

Keywords social media; research methodology; communication studies; computer-mediated-communication; ICTs

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Over more than 40 years, the unfolding development of the Internet and related information and communication technologies (ICTs) has been one of the most dynamic areas of technological and social innovation worldwide. In the first decade of the twenty-first century, its development was even more dramatic. While innovations in such areas as search, social media, big data, and the commercialization of the Internet became prominent only over the last decade, they are already taken for granted by most Internet users. These innovations, coupled with the global diffusion of the Internet, have made this technology increasingly significant in nearly every sector of society around the world.

There has always been an ample amount of utopian and dystopian rhetoric surrounding the Internet, but with the Internet's growing social and economic significance, there have been rising concerns over the real and potential implications of the Internet in reinforcing socio-economic inequalities, reducing personal privacy, and undermining such traditional institutions as the press and public diplomacy. These potentials and realities are generating moves by governments and politicians to regulate and govern the Internet and related ICTs in more significant ways, such as through content controls and bringing the Internet under national regulatory regimes. Even in academia, there has been a critical turn in discussion of the Internet with a growing prominence of scepticism and concern over the social, economic and cultural underpinnings of the Internet and its consequences for society. The Internet is no longer a futuristic innovation that might shape social and economic development, but a clearly central aspect of contemporary network societies.

The pace and nature of innovation around the Internet and related ICTs over this decade led *Information, Communication & Society (iCS)* to collaborate with the Oxford Internet Institute (OII) to convene an academic symposium on the theme of 'a decade in Internet time'. The symposium was held at the University of Oxford in September 2011. We collaborated with Victoria Nash and Barry Wellman in organizing the symposium for *iCS* and the OII.

The aim of this symposium was to critically assess the last decade of social research on the Internet and identify directions for research over the next. Ten years is only a moment in the span of social research, but aeons in Internet time. Has social research across the disciplines been up to the challenges?

The symposium drew a strong response from academics in this field, but not one challenge to its theme, as it seemed to resonate with all students of the Internet. But also the theme captured a particular moment in time for Internet Studies. At the University of Oxford, the event punctuated a celebration of the 10th anniversary of the founding of the OII, providing an opportunity to relate broader lessons for the field to the case of one of the first departments at a major university focused on the societal implications of the Internet and related ICTs.

Beyond Oxford, the timing coincided with a period of reflection and synthesis for the field of Internet Studies with the publication of two collections on Internet Studies (Hunsinger *et al.* 2010; Consalvo & Ess 2011), and another on the horizon (Dutton, forthcoming). Similarly, the editors have been involved in other workshops and symposia designed to shape and help define the field of Internet Studies. As we organized this symposium on a decade in Internet time, there was a sense in the field that a point had arrived when it was important to take stock of this burgeoning field and to give direction to future work.

The articles in this special issue of *iCS* are drawn from some of the best papers presented at the symposium and they have been fully revised in light of feedback and peer-review by the journal. Whilst it is impossible to replicate the excitement and engagement of the symposium, we do hope the articles

selected capture the growing strength and diversity of Internet Studies as we approach the next decade in Internet time. You will see that these articles convey some of the major themes and issues of the decade, including the rise of new digital research methods and the ‘big data’ associated with these methods, the diffusion of social media, the connections to collective action, and the challenges to traditional media institutions.

Our opening piece by Leah A. Lievrouw sets the scene by providing a broad review of the main features of the contemporary field of Internet studies. Drawing upon the threefold schema developed with Lievrouw and Livingstone (2006), she explores the development of new media over the last decade through the practices of users, the tools that emerged, and the concomitant social institutions that arise as a consequence of those practices and tools. Without doubt the principal feature of the Internet’s evolution during this time from the perspective of user practices has been its growing sociality. Lievrouw describes these practices as ‘relational’ to emphasize the intensity and ubiquity of their personalized interactivity through social media such *Facebook*, *YouTube*, and *Twitter*. Such interactive practices have of course been facilitated by the tools enabling relatively cheap, mobile mass-networking, information sharing and content creation. Yet the emergence of the social Web or Web 2.0, which has done so much to make the Internet an everyday aspect of social life in many parts of the world, has also become a significant lever of change in the economic, political, and cultural spheres. As a result, new social and legal arrangements have also been discussed to address the perceived risks and dangers arising from the disruptive capabilities of the Internet.

The articulation between these emergent practices, tools and social arrangements does not for Lievrouw suggest a path dependent narrative for the Internet of once hoped for creative expectations being replaced by a safe, reliable and less innovative clamp down. Instead she argues for a more open and contingent interpretation of communication technologies and their potential and the need for scholars to be equally innovative and flexible in their analyses. Three areas, corresponding to practices, tools and social arrangements, which may be of importance for future investigation are proposed. First, is the vital role played by ‘network literacies’ which enable users to practice sociability online. Second, what Lievrouw calls ‘dead media’ – the increasing cycles of obsolescence and turnover of communication technologies – raise fundamental questions not only about the vulnerability of cultural heritage dependent upon the disconnected scraps of data that survive but also about the potential benefits to cultures and individuals of forgetting. Finally, the rise of ‘commons knowledge’ projects is likely to provide fruitful avenues of inquiry as these projects challenge traditional models of authority and expertise.

It is not just the nature of the changes shaping the Internet but also the astonishing speed of these developments that informs our second article in this special issue written by David Karpf. He makes the important point that whilst there

have been plenty of references to the dramatic pace of 'Internet time' very few social science academics have seriously considered how this affects the credibility and limitations of their own research approaches. First, the continually transformative nature of the Internet frequently means that research results are often 'historical' in nature, portraying a stage of development already past. Second, this raises questions about the usefulness of traditional social scientific methodologies which take more time to be proposed, funded, designed, undertaken, analysed, published and disseminated than the actual rate of change of the online environment. Population sampling of Internet use, for example, may be of limited value for explaining contemporary or future practices. Third, Karpf argues that the current enthusiasm for new research methods may be based upon claims that have yet to be established. Instead, he suggests that we should proceed as researchers by embracing the values of what he calls 'kludginess' which recognizes the messiness of data we use and is transparent about its limitations.

Perhaps the limitations of our research tools and approaches for understanding the Internet are nowhere more evident than when confronted by the huge scale of the enormous amounts of information generated as 'Big Data'. Our third article by danah boyd and Kate Crawford provides a cogent attempt to move beyond the sometimes crude depictions of this phenomena and instead provide a more complex understanding of big data as an interaction between technology, analysis and methodology. The authors structure their investigation as six provocations which can be seen as rejoinders to the current trends in the use of online data for social research, especially those large data sets collected by *Google*, *Facebook* and *Twitter* which are accessible to a limited number of people.

Whatever the promise and challenges of big data sets to social scientific methodologies, mainstream research tools are not likely to disappear just yet. Eszter Hargittai and Eden Litt in their article use a unique longitudinal data set of 500 of diverse young American adults to investigate the factors influencing both the adoption of *Twitter* and how its uses relate to other online activities of its users. Their rich data set enables them to provide significant evidence for the importance of Internet skills as a predictor of the uptake of *Twitter* as well as prior consumption and production patterns for predicting uses of the social media platform.

Whilst variations in experiences and uses of the Internet, even among the younger 'digital' generations, are important to acknowledge, the expanding amount of time spent online has led many scholars and commentators to raise concerns about personal security and vulnerability. Megan Lindsay and Judy Krysik in their article in this issue focus upon the new risks of online harassment as a consequence of social networking. Replicating a previous study of college students undertaken in 2004, their findings suggest an increase in online harassment from 16.2 per cent in the original to 42.3 per cent in their own study. Explanations for this significant rise are related to usage variables such as time spent on social networking sites, smart phone ownership and having ever sent

text messages. Research findings such as these not only point to the necessity of policy-makers, parents, teachers, and regulators to take online harassment seriously but also the need for further empirical research in this area to inform discussions about policy and practice, seeking to deal with the issue.

Concerns over online harassment might be seen as one, albeit highly important, aspect of a growing range of anxieties about what might be described as the 'dark side' of the Internet. Fear of cybercrime, copyright infringements, and insurgents, for example, have led governments around the world to engage in battles over the control of the Internet. Whilst much attention has typically focused upon institutions as the means to lever control and regulation of information flows, Laura DeNardis in her presentation at the symposium, which captured the attention of the last plenary, and her resulting article, argues for the need to also recognize the central role of the technical architecture of the Internet and the policy decisions of private industry that shape it as important factors influencing Internet governance. Central to her claim is that the nature of Internet infrastructure prefigures the extent of free expression. In the face of a declining ability of nation states to directly control information flows, DeNardis suggests that a new strategy of control by proxy can be identified through battles of infrastructure. Three examples are highlighted as evidence for this development: the increasing enforcement of intellectual property rights through the Internet's domain name system and infrastructure access technologies; the clamp down of information flows by governments using the 'kill-switch'; and, shut down of web service provision and financial donation services for *Wikileaks*. The article concludes with the author outlining some of the key implications for infrastructure-mediated governance for free expression on the Internet.

Perhaps one of the most prominent manifestations of the use of the Internet for free expression has been in the political domain of protests and social movements. Whether it has been the Arab Spring, Occupy movements or los Indignados, observers have been quick to foreground the role of social media in these large-scale demonstrations. Yet such views are often sensationalized in the popular media as 'twitter revolutions' and cautiously challenged by many scholars as technological exaggerations when more traditional explanations need to be factored into these interpretations. What then, if anything, is new about these political demonstrations? Our penultimate article, by Alexandra Segerberg and Lance W. Bennett, provides an original and compelling invitation to regard these political acts as manifestations of a new logic of 'connective action'. Whilst not replacing collective action forms of organization based upon membership and collective identities, this emerging form of connective action is more conducive to personalized contentious politics based upon loose networks facilitated through technology platforms and applications. Segerberg and Bennett's typology of social movements presented in the article provides a rich basis for further research to both test their contention and the implications for democratic politics which arise from it.

Our final article in this special issue provides a good example of the 'critical turn' in Internet studies stimulated in large part by the current crisis of the global informational economy. Astrid Mager investigates how the 'new spirit of capitalism' becomes inscribed through search algorithms as a consequence of contemporary social practices. Adopting a social construction of technology approach, the author explores how search engines shape and stabilize social practices and power relations.

There were many other strong contributions to the symposium that will appear in other issues, and in other journals. We also cannot bring to you all of the keynotes by leading figures in the field, including Christine Borgman, Manuel Castells, Vint Cerf, Andrew Graham, Lisa Nakamura, and Barry Wellman. However, the articles presented here provide a sense of the vibrancy and maturity of this field, which is growing more rapidly than almost any other interdisciplinary research area, certainly within the social sciences.

Have the social sciences across the disciplines lived up to the challenges? This symposium illustrates the strength of this field, but also points to the wide range of issues and questions yet to be adequately addressed. In founding *iCS* in 1998, we realized the need for a multi-disciplinary journal that could address the problems and challenges posed by ICTs across all sectors of society. It is becoming increasingly apparent to us that this interdisciplinary field must broaden even further to better connect with fields beyond the social sciences and information, communication, media, and cultural studies to include stronger collaborative ties to law, ethics, and the sciences, engineering, and computer sciences, but also across the arts and humanities. This will be an almost certain requirement for interdisciplinary research over the coming decade with technology and society moving at Internet time.

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Brian D. Loader is Associate Director of the Science and Technology Studies Unit (SATSU) at the Department of Sociology, University of York, UK. Address: Department of Sociology, University of York, Heslington, York YO10 5DD, UK. [email: brian.loader@york.ac.uk]

William H. Dutton is Professor of Internet Studies at the University of Oxford's Internet Institute, where he was founding director, and a Professorial Fellow at Balliol College. He is a Professor Emeritus at the University of Southern California, USA. *Address:* Oxford Internet Institute, 1 St Giles, Oxford OX1 3JS, UK. [email: william.dutton@oii.ox.ac.uk]
