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Imaginarities, Values and Trajectories:
A Critical Reflection on the Internet

by

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Introduction

The history of the internet is in urgent need of critical reflection. Most historical accounts suggest that there has been, and will continue to be, a relatively homogeneous trajectory of innovation. Examples are the widely cited accounts provided by (Abbate, 2000; Flichy, 2007; J. E. Katz et al., 2001; Leiner et al., 1998; Leiner et al., 1997; Murphy, 2002). These neglect the heterogeneity of choices taken by decision makers around the world. It is these choices which have shaped what the internet is, notwithstanding a common set of technical protocols. Some scholars have examined the ‘localization’ of the internet (Figueroa & Hugo, 2007; Miller & Slater, 2000; Postill, 2011), but their accounts tend to focus on user appropriation of the internet, and less so on its development. Postill notes that many analysts regard the ‘rest of the world’, beyond the United States, simply as being impacted by ‘the Internet’.

A South Korean doctoral thesis by a student in the United Kingdom brought the importance of diverse trajectories of internet innovation to my attention in the early 2000s. He had worked in the telecommunications industry in a senior capacity and participated in discussions about how the internet should be deployed in his country. His research drew attention to the way the internet was implemented in South Korea and his account departed from those originating in the United States (Kim, 2005). He argued that those accounts persistently focused on a relatively small number of actors, assuming that their remarkably homogeneous cultural values would extend unproblematically to other regions of the world. He further suggested that these accounts favored a particular vision of the internet, making implicit claims to universal accuracy. These accounts should not be generalized, he said, because the way the internet (and other digital technologies) actually came to be embedded beyond the United States was substantially different.

Over time the word ‘Internet’ has come to be treated as a proper noun, that is, as a term designating something unique and singular. This usage limits inquiry into the variety of possible trajectories of technological innovation. The designation of ‘the Internet’ as unique, timeless and placeless is especially effective in deflecting attention away from contests over the socio-technical relationships that are fostered

through its development. This notion of a unique configuration of technical and social relations, propagated through a largely US-centric historical record, is very effective in diminishing the visibility of the variegated character of the innovation process.

I reflect in this chapter on how the scholarly community might contribute to a much more variegated history of the internet. I start in the next section by considering the prevailing social imaginaries that have been in contention from the earliest days of the internet. The following section turns to additional narratives that are indicative of a broader range of social imaginaries that underpin studies of technological innovation generally. These perspectives are taken as a starting point for considering an approach to developing alternative histories of the internet that are more likely to acknowledge the diverse or variegated nature of the innovation process in different parts of the world. In the final section I conclude that critical reflection on the internet's history Many encourage new social imaginaries to emerge. This might encompass a more variegated set of guiding principles that is consistent with governance arrangements that are not indifferent to people's rights to access information, to experience some semblance of individual privacy, and to be relatively safe from intrusive surveillance.

Contending Social Imaginaries

One alternative to conventional individually-oriented accounts of the internet's history is to start with reflections on the configuration of the social imaginaries that influence technological innovation and its governance. Taylor's (2004) notion of social imaginaries can be applied to problematize widely cited internet histories so that the variety that characterizes its development trajectory in different geographical places is acknowledged.

For Taylor, social imaginaries are 'deeper normative notions and images', referring to the expectations or common understandings that people have about how collective practice in a given society is, or should be, organized and governed. He suggests that social imaginaries are what enable people to make sense of practices at the individual and institutional levels. Social imaginaries include people's expectations about governance arrangements, the locus of authority, and how it is, or should be, constituted institutionally. Taylor emphasizes that there are always multiple

conflicting social imaginaries in play. These are articulated in the form of narratives or stories that people can tell about any feature of human endeavor. Thus, for example, if the prevailing narrative about the internet insists that the technology's design favors individual rights and freedoms, then this is likely to become a taken-for-granted assumption that is very widely held.

Although Taylor's construct of social imaginaries is concerned with how people imagine that authority operates, or should operate, in a given context, he makes no *a priori* claims about the specific arrangements for governance that constitute a just or moral order (Mansell, 2012). Applying the construct of social imaginaries as a basis for reflecting on narratives about the internet's history, it becomes clear that multiple narratives have been in play, notwithstanding the fact that only a very few of these are reflected in the most frequently cited accounts. This approach can sensitize researchers and other stakeholders to the existence of diverse narratives. This is essential when investigation of the internet's history is extended beyond the individuals and institutions that played a formative role in the United States.

Approaching a critical reflection on the internet's history in this way immediately yields insight into a prevailing narrative account (Mansell, 2012). This account is underpinned by a social imaginary that informs many received histories of the internet. It privileges technological innovation and the diffusion of digital technologies on a world scale. The imaginary is of exogenous impacts of technological innovation, guided by key individuals who value progressively more intense connectivity via networks, specifically supported by the internet's technical protocols. This social imaginary is consistent with a notion of autonomous technology and it privileges increasing quantities of information over the messy world of situated meaning construction. This narrative is principally concerned with the impacts of technological innovation and massive increases in capacities to produce, process, distribute, and store digital information. The main focus is on how society adjusts to the shock of rapid technological innovation. The narrative emphasizes outcome assessment to calibrate the effects of shocks such as measures of the rate of investment in internet-related infrastructure. Scholarship is preoccupied with tracking transformations in computational capacity or with indicators of the intensity of use of the internet (R. Katz et al., 2014).

In this narrative, the historical account focuses on individual behaviors in response to technological change with little attention to their distinctive features in different societies. As mathematician/philosopher Norbert Wiener argued, any activity involving digital information involves a complex interactive process: ‘information is a name for the content of what is exchanged with the outer world as we adjust to it, and make our adjustment felt upon it’ (Wiener, 1950: 17). This narrative acknowledges that technological and human systems interact, but it is presumed that there is some ‘higher authority’ that controls the outcomes. It is an easy step from here to a universal account of the trajectory of the internet’s development. This social imaginary arguably underpins programmatic visions of scientific research, engineering and mathematics that focus on feedback systems and automation as control systems for military and non-military applications. The prevailing narrative is derived from a social imaginary that discounts the socio-cultural and political character of technology. It comes in two principal favors, consistent with Taylor’s view that there are always multiple narratives in play.

One variant of this social imaginary privileges a ‘higher authority’ in the form of the market. In this account efficient markets and individual choice are said to have guided change in internet system. This imaginary invokes a market-led diffusion of technology model. In the case of the internet, the distinctive expectation is that all countries and people eventually will benefit from a ‘single global digital economy’ (Aspen Institute, 2012). The narrative underpinning this imaginary envisages a ‘catching up’ process whereby decisions are taken to ‘leapfrog’ generations of technology to reap economic benefit. Innovation is seen as being responsive to market demand which is assumed to maximize individual choice, leading to evermore intelligent machines that are increasingly responsive to human needs, most recently for instance, through the development of the Internet-of-Things. The expectation is that investment in the digital technology system (including the internet) has uniform positive impacts, unless ‘residual’ factors skew the development trajectory in unexpected ways. The factor deemed most likely to detract from widespread economic benefit is interference in the marketplace through intrusive governance or regulation. The social imaginary of the digital world is one in which ‘thing-like’ information products enlighten people’s lives. The idea that technological progress

could be benign or harmful becomes simply ‘too obvious to mention’ (Taylor, 2007: 176).

The second variant of the prevailing social imaginary is very similar to the first. It also privileges technological innovation and the diffusion of digital technologies on a world scale. It differs mainly in its expectations with regard to where any ‘higher authority’ is, or should be, located. In this case, there is an expectation that horizontal or collaborative models of authority, enabled by decentralized networks, are the optimal means for organizing and governing society (Mansell, 2012). In this social imaginary, authority may reside with the commercial market or it may be located in a host of non-market arrangements. In either case, however, the narrative focuses on how internet technology-supported, non-hierarchical models of authority, most notably, peer-to-peer online interaction, favor the exchange or sharing of digital information.

This social imaginary underpins the notion that an open, emergent and collaborative culture is favorable to collective decision making (Benkler, 2009; Jenkins, 2006; Lessig, 2006). Like its counterpart, it insists that the internet should not be regulated so as to give free reign to innovators, often but not exclusively in an open information commons. Inspired by a commitment to open access to information and to minimal restraints on freedom of expression and the preservation of privacy, the historical narrative is about the benefits of horizontal institutions of governance, the empowering characteristics of user-generated content and mass-self communication (Castells, 2009). Scholars whose work is informed by this variant of the prevailing social imaginary may criticize intrusive corporations and state exploitation of Internet users and highlight power asymmetries (Mosco, 2014), but their accounts treat digital information primarily as a ‘thing’ to be circulated and diffused. This second variant of the prevailing technologically deterministic social imaginary fits with the notion that the internet should not be formally regulated.

In both variants of the prevailing social imaginary the resulting accounts of the innovation process eschew a consideration of the variability of meaning construction. The accounts are therefore apparently universally applicable. In both cases, the appropriate locus of authority is assumed to be diffuse, consistent with the end-to-end

architecture of the internet. Over time, this architecture comes to be seen as a technological given, no longer one with multiple possibilities and potential trajectories. Proponents of the two variants of the prevailing social imaginary of the internet are pitted against each other in policy debates. One group advocates reliance on the emergent properties of a complex market system as the means to achieve universally positive outcomes. The other advocates reliance on the generative activities of decentralized technology designers and a growing mass of online participants to achieve these outcomes. In both, the overall narrative about the history of internet is remarkably similar. Claims to universal applicability invoke a ‘higher authority’, whether market *or* dispersed members of civil society. This means that detailed attention to differences in the values and commitments of stakeholders to market-, government- or civil society-led innovation go largely unexamined.

If this prevailing social imaginary of a technologically undifferentiated internet was simply a narrative account with no bearing on the future, we might conclude that scholarship on the distinctive ways in which the internet has been ‘localized’ is all that is needed to correct the historical record. It is this prevailing social imaginary, however, that gives rise to expectations that predominate in contemporary debates about the future of the internet. Today, computing experts are referring to ‘social machines’. A world of Web 3.0 technologies is expected to diffuse throughout the world. The contemporary imaginary is one of ‘metaverses’ embracing social media and information, drawing in data from virtual (physical) spaces. Social computing, web science and social computation focus on combining citizen participation with machine-based computation. Higher authority here rests with key individuals who are responsible for ensuring that security and privacy are designed into these machines (Smart & Shadbolt, 2014).

The prevailing social imaginary is of machines that can ‘think’ and make ‘choices’ on behalf of human beings. De Landa’s (2011) work on simulation, for example, is illustrative of attempts to employ computerization to explain the emergent properties of systems, including the social. Self-organizing ‘meshworks’ are depicted as alternatives to hierarchy in a socio-technical system that increasingly privileges the potentialities of ‘intelligent’ computing. This is seen either as enhancing the prospects for economic growth through information markets, now designated as ‘big data’, or as

facilitating increasingly decentralized societal governance (Mayer-Schönberger & Cukier, 2013). These expectations are being inscribed into algorithms (boyd & Crawford, 2012). With companies storing terabytes of data for scrutiny, the emphasis is on machine learning to harness the power of the social web, resting on an open internet.

This diffusion of technology narrative differs remarkably little from that which informed the work of earlier generations of scientists and engineers. Bush (1945), for example, hoped that social machines would be better able to review their ‘shady past’ and to analyze social problems. As Mirowski (2002: 19) asserts, ‘if there was one tenet of that era’s particular faith in science, it was that logical rigor and the mathematical idiom of expression would produce *transparent agreement* over the meaning and significance of various models and their implications’ (emphasis added). Little has changed. The prevailing expectation is that by searching, tagging, and reviewing, digital information is being harmoniously aligned with the pursuit of commercial gain or with the pursuit of fairness and justice; the same technology is universally invoked.

This is not only a Western (or American) narrative. China’s Baidu is estimated to be investing USD 1.6 billion in big data centers and in automation. Social media platforms from Twitter to Facebook or Google and non-commercial open source online tools (Ushahidi or OpenStreetMap) are supporting massive data collection and aggregation for commercial or social application. This digital information, generated as a by-product of electronic services, is discussed in terms of the quantities of data/information available for algorithmic processing and pattern recognition. In the prevailing social imaginary, the innovation trajectory is not discussed in terms of its implications for meaning construction or how it may differ across cultural, social or political contexts (Couldry & Powell, 2014).

Additional Distinctive Imaginaries

Other traditions of research on digital technology innovation suggest additional social imaginaries. These continue to be in play and are especially visible when the internet’s development is considered on a world scale. These contrast with the

individualistic, technology-centric, and diffusion-oriented social imaginary discussed above, even if they go largely unnoticed in much Western scholarship.

In the 1930s 'technics' was assumed by Mumford (1934) to encompass people's diverse wishes, ideas, goals, and habits, as well as their tools and machines. It was assumed that people do not simply adjust to the exigencies of digital technological innovation. The social imaginary in this context gives rise to the expectation that socio-technical transformation is not simply a response to digital tools. Instead, in these narratives it is the heterogeneous interfaces between the material and informational or symbolic world that matter; human agency gives rise to heterogeneity. The emphasis in historical accounts is often on specific tactics for accommodating or resisting digital technologies (Silverstone, 2007). In these narratives ethical and moral differences and contested symbolic meaning are given a central place.

Feenberg (1992: 319) argues, for instance, that 'individuals who are incorporated into new types of technical networks have learned to resist through the net itself in order to influence the powers that control it'. The history of such resistance cannot be told when the focus is on individuals and their technical choices about the functioning of technology. In these accounts the social imaginaries about the locus of 'higher authority' is that digital information should not be presumed to be 'innocent' (Escobar, 1995). This is because asymmetrical power relations and disparate cultural, social and political contexts inevitably mediate people's lives in heterogeneous ways. When digital technologies are not privileged as 'sentient' actors (Latour, 2005), but, instead, as the embodiment of 'propensities', attention in the historical narrative can be drawn to the non-linearity of innovation and to the variety that guides interactions between technologies and human beings. As Jackson and Kang (2014: 9) suggest, if the expectation is that technologies add 'weight, shape and direction to some lines of action while subtracting it from others', it is easier to see that the internet's history is more variegated than it appears when its history is narrated in line with the prevailing social imaginaries. Critical reflections on the history of the internet are more likely to display a variegated development trajectory when digital technologies are seen as embracing propensities that can accommodate a wide variety of expectations about how they are, or should be, developed and used.

The persistence of the technology-led diffusion narrative is not attributable only to the influence of the scientific and engineering-led communities or to the privileged position of the economics discipline. Notably, some strands of economic analysis are open to the notion that digital technology innovation differs around the world as does the invocation of a 'higher authority' with respect to governance. For example, Freeman (1974; Freeman & Louça, 2001), Perez (1983) and other economists who bring micro- and macro-level empirical analysis of technological innovation into a dialogue argue that a technological 'style' or 'techno-economic paradigm' comes to predominate. A close reading of this tradition indicates, however, that in suggesting a new 'common sense' with respect to governance might take hold in parallel with technological innovation, they insist that choices are never fixed and final; they are not the only ones available at a given time or in a particular context (Lundvall, 1996; von Hippel, 2005). Even within the mainstream of economics in the United States, there has been awareness of the variety that characterizes the innovation process. Bresnahan and Trajtenberg (1995: 84), who coined the term General Purpose Technology (GPT) to designate innovative technologies with pervasive impacts on all areas of social and economic life comment, for instance, that 'most GPTs play the role of "enabling technologies", opening up new opportunities rather than offering complete, final solutions'. The notion that there could be an innovation trajectory that is generalizable across countries is not, therefore, present in the broader literature on innovation with respect to digital technologies. Additionally, research on technological innovation in the economics tradition sometimes has been concerned with knowledge, its construction and its multiple meanings. For instance, Bell (1979: 45) observes that 'we are concerned with technical knowledge which is rooted and embedded in (indigenous to) specified social groups'. This is not a view that treats information as a 'thing-like' object as in the prevailing social imaginary.

Towards Alternative Histories of the Internet

It is, nevertheless, the prevailing social imaginary that gives rise to internet histories with an implied technological, cultural, political and social homogeneity. In contrast, research on the malleability of technology is more likely to privilege meaning and the asymmetry of power relations articulated through technological systems.

Contemporary histories of the internet are needed to map the diverse social imaginaries that shape the process of technological innovation in the case of the internet. The scholarly community has an obligation to ‘construct different alternatives for the future’ of the internet and to recognize ‘that no culture has a monopoly on the factors for successful socio-economic development’ (Albagli & Maciel, 2010: 18).

Research that does reveal the complex narratives that are indicative of contested social imaginaries of the locus of a ‘higher authority’ with respect to the internet rarely pay attention to governance institutions (Gagliardone et al., 2012; Geldof et al., 2011; Smith & Elder, 2010; Tacchi, 2010). It tends to examine micro-level innovation processes and to emphasize knowledge asymmetries (Kleine, 2013). The vast literature on internet governance tends to focus on specific conflicts over arrangements for the internet’s governance. Differences in notions about the appropriate ‘higher authority’ typically are ascribed to the architecture of the internet (Brown & Marsden, 2013; Cohen, 2012; DeNardis, 2014), rather than to more deeply rooted social imaginaries. Castells and Himanen (2014) have recently sought to treat technological innovation and governance from a global perspective. They begin to probe the normative commitments that underpin internationally diverse trajectories of technological change. There is, nevertheless, a relatively limited body of research on the distinctive ways the internet has become embedded in societies. Most historical accounts simply do not yield comparative insight into how the internet and other digital technologies are ‘structurally integrating communities into wider, uneven networks of power’ (Thompson, 2004: 2).

How can the historical record of the internet be sensitized to sustained variety in the social imaginaries about where authority is located and how it should be institutionalized? One approach is to emphasize contests over the ‘guiding principles’ (Freeman, 1992) that inform the innovation process. Historical accounts that are less internet-centric and which focus on the internet’s role within the capitalist formation are needed to emphasize similarities and differences around the world (Jessop, 2014). A focus on how neoliberal market values are accommodated or resisted and on whether or not governance arrangements perpetuate asymmetrical power relationships

(Lash & Urry, 1987) is essential if competing social imaginaries are to be acknowledged.

Competing social imaginaries become embedded in texts (laws, regulations, treaties), in technical standards, and in the norms influencing the micro-practices of designing or implementing technology. The way these enable or constrain the development of the internet should be reflected in future narratives about how the internet is developing. Digital technology innovation is provoking globally contested debates and stakeholder commitments to different styles of governing authority are influenced by social imaginaries about who has the authority to act to 'get things done' in a given context (Nelson & Sampat, 2001). However, research on the internet invariably focuses on implementing prefigured digital applications such as social media, mobile phone apps or e-government platforms, or on individual or intra-organizational use (Kallinikos, 2010). Studies of formal governance institutions and regulation are often specific to domains of digital innovation such as the audiovisual industry, data protection or copyright enforcement (Puppis, 2010). Research on participation in multi-stakeholder deliberation (Raboy et al., 2010) and on the institutions that specifically govern the internet (Brown & Marsden, 2013) also pays relatively little attention to how contested social imaginaries are instantiated in authority relationships.

Historical accounts acknowledging the variegated nature of technological innovation trajectories and their governance are needed to compare where it is that a wide range of actors expect (imagine) authority to be located. A key question is where preferences for specific governance arrangements relying on the market or on its alternatives originate. Put another way, critical reflections on the internet's history need to be based on investigations of stakeholders' preferences for constituted (formal) or adaptive (flexible informal) authority and how these are combined in various contexts around the world (Mansell, 2013).

Such histories would have considerable contemporary relevance especially in a time of global instability. Increasingly strong commitments are being made to specific governance arrangements for the internet. This is exemplified in debates about the future remit of the Internet Corporation for Assigned Names and Numbers (ICANN)

at the time of writing at the beginning of 2015. The narrative in this instance is often about the respective roles of government, companies and civil society actors. Civil society representatives frequently assert a commitment to non-market collective action and a variety of hybrids, implicitly invoking commitments to where authority is best located and institutionalized. A key assumption in this and similar debates is that the internet will provide access to empowering information *if* appropriate governance arrangements are in place (Gigler et al., 2014). This is a big ‘if’ and it is far from clear that there is likely to be a lasting consensus.

A profusion of multi-stakeholder deliberations has been yielding policy statements and principles about internet governance since the 2003/5 United Nations World Summit on the Information Society (WSIS) (Mansell, 2014). These invariably assert that the internet can be governed to ensure that it contributes to justice and equity. At the Global Multistakeholder Meeting on the Future on Internet Governance in Brazil in 2014 it was asserted that ‘human rights are universal as reflected in the Universal Declaration of Human Rights’ (NETmundial, 2014). When applied to rights such as access to information, freedom of expression, privacy and surveillance, or other pressing issues, we need a deeper understanding of the social imaginaries that inform stakeholder approaches to institutionalizing governance. We need comparative research on how entrenched they are and on whether they are converging over time. Studies that systematically map the internet’s variegated development trajectories within the context of global capitalism would reveal whether emerging governance arrangements are likely to better secure people’s entitlements to digital information (Mansell, 2002; Sen, 1999).

Conclusion

Such histories would provide insight into whether emerging internet trajectories and governance are likely to be consistent with ‘another development’ (Dag Hammarskjöld Foundation, 1975/2006). These could yield insight into ‘struggles for recognition’ (Honneth, 1996) in the internet domain, as is the case in many of the chapters in this volume. When the technology diffusion narrative, underpinned by the prevailing social imaginary, is universalized, it suppresses alternatives and it negates people’s abilities to account for themselves and to conceive of themselves as active

agents (Couldry, 2010). Historical accounts that focus principally on the choices of key individuals in the United States make it appear that ‘the Internet’ establishes the conditions for the production, circulation and use of information. Since the end of World War II, this prevailing social imaginary has influenced commitments to investment in digital hardware and software for stimulating economic growth. It is more recently supporting initiatives to foster multistakeholder forums for democratic decision making. It also is fostering, whether intentionally or not, an expectation that progressively widespread automation of digital information processing is to be valued. This is because the narrative is consistent with the perception of digital information as a thing to be quantified and then acted upon.

If the prevailing social imaginary that gives rise to this narrative can be challenged effectively, it may be that new social imaginaries will emerge. These will start to influence the trajectories of technological innovation and the practice of governance. A more variegated, yet still viable, set of guiding principles might then emerge that is not indifferent to people’s lives – that is, to their rights to access information, to experience some semblance of individual privacy, and to be relatively safe from intrusive surveillance. In applying the social imaginaries construct in research on the history of the internet, taken-for-granted expectations are inevitably challenged. This arguably is an essential contribution to the understanding of the internet’s past and its future development.

Related Topics – ch 6 Yu, ch 9 Ifukor

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