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Technologies of Immediacy / Economies of Attention

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CHAPTER ELEVEN

Technologies of Immediacy / Economies of Attention: Notes on the Commercial Development of Mobile Media and Wireless Connectivity

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The Era of Ubiquitous Connectivity

This chapter contextualizes and expands upon Smythe’s contributions to the critique of capitalist media within an environment increasingly defined by the rapid global development and adoption of mobile devices and ubiquitous wireless connectivity (UC). Specifically it theorizes the evolutionary trajectory of mobile media and wireless connectivity within the context of Smythe’s analytic focus on the audience commodity as: a) the organizing principle of commercial media; and b) a central component in the development of “consumption relations” including those “that motivate the population to buy consumer goods” (Smythe 1994, 239–240) necessary to informational capitalism. By *informational capitalism*, I mean a version of capitalism whose dialectic between forces and relations of production and consumption revolves around technologies specifically designed (and marketed) to enhance, capture, transmit, and store human capacities such as creativity, communication, co-operation, and cognition (see Fuchs 2009; Manzerolle and Kjøsen 2014). Under the condition of UC, these consumption relations are increasingly shaped by a contradictory milieu where the seeming abundance of information is countered by a growing scarcity (and prospective degradation) of attention itself.

As Smythe has noted (1981, 7), the competition for attention is an essential aspect of the demand management strategies that underpin the organization and development of commercial media. This competition engenders an emphasis on "technologies of immediacy" which tend toward real-time consumer engagement, targeting, and purchasing opportunities realized in the "twinkling of an eye" (Harvey 1990, 106). In the popular press, the development of sophisticated consumer devices, for example Internet-enabled mobile devices (IMD) like smartphones and tablets,[2] are cast as unproblematic forms of empowerment and liberation. The current popularity and profitability of IMDs bears the imprint of this competition for attention, as wireless connectivity has commercially developed beyond simple tools for voice and text communication. Indeed, they now represent a potentially lucrative site (or "platform") for expanding billable data, real and virtual purchases, and ultimately reconstituting the audience commodity as a collection of discrete individuals produced by an explosion of contextual data. As such, the recent commercial and technical development of IMDs and related services has demonstrated a shifting emphasis from the "use value" of communication to the "exchange value" of mobile data.

The implications of this shift are all the more important because IMDs are increasingly treated as staples of everyday life by growing numbers of consumers. IMDs have become ubiquitous mediators of personal communication and the production and consumption of information, culminating in their development into "remote controls for everyday life" (Chen 2013).[3] In the United States, annual household spending on mobile devices and services increased from $1100 USD in 2007 to $1226 USD in 2011 (Troianoski 2012).[4] It is important to note that this increase occurred despite a deep and sustained economic downturn where consumer discretionary spending generally decreased. The *Wall Street Journal* reported that, "Americans spent $116 more a year on telephone services in 2011 than they did in 2007, according to the Labor Department, even as total household expenditures increased by just $67. Meanwhile, spending on food away from home fell by $48, apparel spending declined by $141, and entertainment spending dropped by $126" (Troianoski 2012).[5]

For these reasons, IMDs, devices designed and marketed to be "always on" and "always connected" (see Manzerolle 2013), offer a vital analytic opportunity to not only re-assess (and potentially expand) Smythe's original critique of capitalist media, but to link it to forms of mediation that express the prevailing acceleratory logic of capital's circulation and reproduction (Manzerolle and Kjøsen 2012).

Materiality, Mediation, and The Infrastructure of Being

In beginning with the material thing—IMD; the technical object—I draw some inspiration from Marx's (1976) opening chapters of *Capital Volume 1* which strategically begins with an analysis of the commodity in order to set the stage for a more systemic imminent critique of bourgeois political economy. Social relations are (re)produced as lived experience, but artifacts offer the material trace of these experiences and their specific political economic pretexts (e.g., wage labour), although fetishization, Marx explains, conceals these pretexts (e.g., prosumption). As Marx wrote, "The hand-mill gives you society with the feudal lord; the steam mill, society with the industrial capitalist" (Marx 1984, 102). One should not take Marx's observation to be espousing a deterministic, causal relationship between social and technological change. Rather, as Barney (2000) suggests,

> What Marx appears to be saying in this aphorism is that certain technologies are indicative of, or significant to, particular productive relations. He may be going so far as to posit that these technologies facilitate particular relations, but, unlike the determinist reading, this is well within what is suggested by "giving." (35)

Similarly, I argue that informational capitalism gives us the IMD. This is not to imply a deterministic and causal relationship, but rather to demonstrate how human capacities are organized and articulated by the prevailing mode of production and its specific technological apparatuses and related forms of mediation. Thus capital, in its informational form, compels a quixotic search for a mode of stabilization partly dependent on mediation by ubiquitous connectivity. For example, this condition is an essential component in mobilizing the intellective capacities of both workers and consumers towards social relations conducive to informational capitalism (a process that regularly encounters resistance, friction, and failure). The specific articulation of these capacities, and the extent to which they are mobilized in the service of capital, partly depends on the technical composition of the available media.

Smythe's critique of capitalist media reinforces the fundamental inseparability of political economic and ontological levels of analysis. In ontological terms, mediation can be thought of as articulating the relationship between different modalities of human experience (e.g., introspection, sociality, and citizenship). The essence of modern technology, Heidegger writes, is not only a "mere means" to an end, but also a "way of revealing" and "enframing" human potential (Heidegger 1977, 13–29). Building on Heidegger's concern with the *essence* of technology, Darin Barney reframes

the "question concerning technology" to deal with mediation. Barney writes that,

> Heidegger understood the essence of technology to be located in its mediation between the ontic and the ontological—between the practices of existing beings and a thoughtful engagement with the Being of those beings. Technological practices, like all existential activities, are ontologically significant to the extent they express something at issue in terms of Being. (Barney 2000, 204–205)

In so far as Being is increasingly mediated by complex, capital-intensive technological apparatuses, media, or what Marx terms 'general intellect'—as the 'infrastructure of Being'—act as tethers to the dialectic of forces and relations of production that underpin historically contingent political economic structures.[6] As I will discuss below, this mediation offers insights into the limits and barriers associated with the articulation of human capacities, specifically centering on the competitive *channeling* and *tuning* of attention itself.

As McGuigan notes in the introduction to this volume (4–5), Smythe's and Innis' research emphasize the material constraints that shape attention (i.e. media). For Innis answering this question involved comparative historical research guided by a new heuristic and conceptual framework emphasizing the materiality of media in socio-historical contexts. Smythe employs a similar type of historical and materialist analysis, though one specifically directed at capitalist media and what he calls the "Consciousness Industry." In this sense, the audience commodity can be understood as a "real abstraction"[7] that materially governs the organization of commercial media systems influencing crucially "the things to which we attend" or the *things paid attention to* or *thought with* (Carey 2009) in order to accelerate the circulation/turnover of capital by attempting to mobilize consumers with greater intensity towards the final and essential moment of capital's reproduction: the moment of exchange.

The era of ubiquitous connectivity defined by personalized devices like smartphones is an expression of this logic. Indeed, packet-switched wireless data connectivity creates the potential to maximize possibilities for exchange (for example, in the development of mobile payment and location based services) as well as the real-time logistical data about user behavior and location. In both cases the capabilities inhering in the device are essential to the functioning of the vast and highly complex technological system tethering individuals wirelessly to commercial networks. In relation to Smythe's overarching critique of the capitalist organization of commercial media systems, what distinguishes media adapted to a condition of UC can be best explained with reference to their *ubiquity*, *immediacy*, and *personalization*.

Ubiquity here refers to both the perceived and actual colonization of digital media devices and, in this case, the technical capability to remain connected at all times through devices designed to be "always on" and "always on you."

Immediacy refers to a perceived instantaneity (or simultaneity) enabled by the devices and infrastructure of UC, tending toward real-time, networked communication, and a collapsing of spatial distance. Connectivity (comprised primarily of both the transmission and reception of digital data) is relatively unencumbered by spatial and temporal constraints, effectively tied to the specific location of individuals. In spatial terms, immediacy refers to a perceived direct relation or connection—a proximal experience of "nearness" (Tomlinson 2007, 74). In temporal terms, immediacy refers to something current or instant occurring without seeming delay or lapse in time (74). More generally, immediacy highlights the tendency of contemporary media to accelerate the circulation of information. It reflects the general condition of speed-up that is experienced phenomenologically at the individual level as equal parts euphoria and anxiety (or as an experience of the technological sublime, as Leo Marx [1964] might characterize it). At the same time, it can also be expressed at the level of a political economic compulsion, as in David Harvey's (1990) conception of space-time compression. John Tomlinson has referred to this pervasive technological milieu as an expression of the "condition of immediacy" (Tomlinson 2007, 72–93)—as a relatively "new" narrative that encompasses culture, economy, and everyday life.

Personalization refers to the tendency of contemporary media to materially incorporate the identity, information, and relationships of a particular user. The identity of the user is deeply embedded both in the commercial development of digital media as well as in its technical composition (e.g., SIM cards, NFC chips, unique device identifiers). Indeed, personalization of digital media is implicit in concepts like "the filter bubble" (Pariser 2011), "the daily you" (Turow 2011), or "monadic communication clusters" (Gergen 2008). Each of these terms attempts to capture how contemporary media customizes our content and services, for example, through the embedding of algorithms that learn the habits of particular users (Mager 2012). The personalization inherent in IMDs suggests: (1) an intensified transformation of public space into private space (Fortunati 2002); (2) an expansion from connected places to connected people to connected everything. Personalization through UC thereby privileges possessive individualism (Macpherson 1964) as well as consumer-centric market mechanisms to deliver access to connected technologies and services (e.g., through the use of spectrum auctions).[8]

Mobile Media, Personal Data, and Digital Prosumption

Mobile devices represent a now ubiquitous, yet personal, consumer technology perfectly suited to the construction of scalable mobile audiences. As nodal points in a vast feedback loop, mobile and ubiquitous technologies like IMDs are really personalized communication devices hooked into the user's specific social networks and tuned to the user's consumption-mediated or consumption-defined interests, needs, and behaviors. As tools of digital prosumption, these devices contribute to a central area of contemporary capitalist accumulation: personal data (Elmer 2004; Lace 2005; Manzerolle and Smeltzer 2011; Tucker 2013).[9] A report from the World Economic Forum (2012) entitled "Rethinking Personal Data: Strengthening Trust" suggests that personal data is the key economic resource of the 21st century. The report states that:

> The explosive growth in the quantity and quality of personal data has created a significant opportunity to generate new forms of economic and social value. Just as tradable assets like water and oil must flow to create value, so too must data. Instead of closing the taps or capping the wells, all actors can ensure that data flows in a measured way. (5)
>
> Historically, the strength of a major economy is tightly linked to its ability to move physical goods. The Silk Route, the Roman roads and the English fleet all served as the economic backbones connecting vast geographies. Even though it is a virtual good, data is no different. Data needs to move to create value. Data alone on a server is like money hidden under a mattress. It is safe and secure, but largely stagnant and underutilized. (7)

This important sub-industry of the information economy shapes the development and deployment of consumer ICTs as they help accelerate the consumption and production of data in order to capture and sell the attention of users.[10] Specifically, the personal data economy, as a site for capital investment and accumulation, amplifies myths about the emancipatory and/or empowering nature of digital prosumption (e.g., Google, Facebook, and Apple).

The economic necessity of personal data to contemporary capitalism has contributed to the renewed popularity of a post-industrial archetype—the *prosumer*—a figure that, since its popularization by Toffler (1980), embodies the convergence of production and consumption within the purview of an empowered and autonomous user-consumer of ICTs (see Comor 2011). As the capabilities for producing and consuming data ubiquitously (e.g., through IMDs) become more widely adopted, the prosumer becomes the ideal user

embedded in the technologies and services available, as well as the target of marketing/advertising. The prosumer, however, is in fact the techno-utopian representation of the sovereign consumer championed by neoclassical economists (McGuigan 2000; Babe 2006a). In accordance with neoliberal theory, this figure provides a digitalized version of human rationality premised on self-interest. Thus it is not surprising that web 2.0 reflects a neoliberal form of individualism that posits consumer sovereignty in the creation of user-generated content—a symbol of the empowerment of rational individuals over networks.[11]

Importantly, IMDs serve roles other than just communication. By associating mobile communication access with fashion and status through, for example, the branding and design of the iPhone or BlackBerry, such devices reflect possessive individualism—a form of agency central to capitalist hegemony (MacPherson 1964). Possessive individualism refers not only to the goods one possesses, but also to the capacity to sell one's labour; it provides a basis for a labour market in which individuals sell their productive capacities as commodities. In so doing it creates a homology between the commodities one consumes and the labour one sells. By creating channels for personally identifiable data flows, IMDs are part of a commodification process that cuts across traditional distinctions between work and leisure. Thus the popularity of the prosumer and prosumption as terms celebrating the collapse of media production and consumption provides cover for the exploitation of free or unpaid labour by commercial interests (Comor 2011; Scholz 2013). The growing ubiquity of IMDs, particularly those that exist at the convergence of computing and mobile telephony, are paradigmatic technologies illustrating this point.

Fundamentally then, prosumption supports the sale of devices and services, while also enabling the creation of a secondary market of personal data.[12] Because the Internet does not have an "identity layer" (meaning personal data is scattered and fragmented), Cavoukian (2012) estimates that a given user "releases over 700 items of personal data per day" (3). The bulk of all digital data produced globally carry some "fingerprints" that identify the person (or persons) of origin (Ungerleider 2013), for which IMD are particularly well suited given the nature of their technical functioning.[13] Wireless devices and services offer the possibility of real-time, highly precise and contextual data about users which is now becoming a new revenue source for the commercial entities that control this data (e.g., wireless carriers, Facebook, Google) (see Leber 2013). The major challenge for telecommunications and media conglomerates is in properly channeling the user's prosumption—whether in the form of text messages, email, file sharing,

video uploads, blogs, or photojournals— into the expansion of the personal data economy in order to maximize return on investment (ROI) particularly in light of costly infrastructure, excess capacity, and expensive R&D projects (World Economic Forum 2011).

The personalization of consumer technologies, including IMDs, creates scalable audiences with varying degrees of heterogeneity and segmentation. Because UC underpins the logic of prosumption I have just discussed, the drive to implement "mobile strategies" as key to future profitability on the part of many web 2.0 companies (specifically Facebook; Pepitone 2013)[14] signals how UC is now a dominant paradigm in the development of commercial digital media in the near term.

Audience, Abstraction, Capacity

In the case of Smythe's provocative (and controversial) concept of the audience commodity, the "work" of the audience is materially embedded in, and articulated through, the capitalist development of ICTs directed primarily at "demand management." The audience commodity emerges as a logistical necessity in the sphere of circulation, where surplus value is *realized*, as opposed to the sphere of production, where surplus value is *created* (Lebowitz 1986).

The audience commodity is not a material thing, but an abstraction that gains a reality in the commercial organization of media systems. It is an abstraction produced by the logic of acceleration inherent in capitalism's sphere of circulation. Following economic historian Karl Polanyi (2001), the audience commodity might be considered an "essential element of industry" and a central "organizing principle" of communication media (76). Just as land, labour, and money are "obviously not commodities" in an "empirical sense" (76), the audience commodity is a fictitious commodity that serves a logistical and acceleratory function in reproducing capital both generally and specifically. The extent to which these fictions become real—that is, *treated* as real—depends on historical context. Specifically, it depends on the social relations that govern both the spheres of production (e.g., wage-labour) and circulation (e.g. prosumption), as well as, and this is the point that Smythe alludes to, the specific organization of communication itself, including the systems and technologies that articulate and mediate communicative capacities. Since these capacities are themselves limited, media—as "attentional forms" (Stiegler 2012)—are a means of tuning and channeling attention, and as such, directed towards mobilizing these finite human capacities. Mirroring the sale of labour as "labour power" in the sphere of production, the abstrac-

tion of the audience commodity allows the sale of "audience power" in the sphere of circulation.

Although Smythe was highly dismissive of his work, Innis' (1964) concept of bias conceptualized as *capacity* here provides a tool for analyzing the relationship between dominant media and the specific articulation of intellective capacities, in so far as the former influence the articulation of the latter through time and space. In this sense, the concept of capacity refers to an "index of potential" (Parker 1985, 76). Capacity maps a crucial intersection between ontological and political economic considerations as it entails, "analyses of the limitations and opportunities faced by people in their day-to-day lives and the factors that may influence them in any given place and at any particular time," implying that "physical and intellectual limitations and opportunities are both influential and dialectically related" (Comor 1994, 111).

The specific articulations of intellective capacity not only reflect the social settings and various media that allow the social subject to act, but actually orient the individual to the world; that is, they open up a set of potentialities—actions, thoughts, concepts, and values—that reflect pre-existing ways of living, relating, and thinking by active agents. Thus while the myth of UC (Manzerolle 2013) suggests a new era of limitless or infinite social connectivity, by foregrounding the technical mediation of intellective capacities we highlight the *limits* or *constraints* shaped by a specific political economic milieu (which includes the habits of thought and action that are continuously produced and reproduced; Parker 1985, 88).

In a commercial/capitalist system, this mobilization is subsumed by the needs of demand management, and the overall logistics of circulation that culminate in the determining moment of "exchange"—the key reproductive moment for capital both specifically and generally.

Thus commercial media are organized to mobilize consumers to go out and help produce the moment of exchange. The unpaid "work" done by consumers in the sphere of circulation is increasingly necessary since this participation helps conserve and realize surplus value; as the commodity form spreads through culture, consumers play a crucial role in facilitating competition by redistributing wages within the market. Thus the audience commodity appears as a necessary abstraction in the sphere of circulation. Its reality is given by consumption relations (e.g., prosumption), technical capabilities, and by a specific economy of attention.

The broadcasting model that defined the rise of the audience commodity (see Jhally in this volume, X), and the more contemporary forms of fragmentation that mark Internet users, are successive evolutionary steps in

the ever-expanding circuit of capital comprising the integration of both spheres of production *and* circulation. Through Smythe's emphasis on the capitalist application of ICTs, the sphere of circulation can be seen as productive in two senses: (1) it literally facilitates the expanded/accelerated circulation of commodities and thus the realization and accumulation of surplus value; and (2) it facilitates the subjective reproduction of the wage-labourers themselves as subjects of capital. In so doing it enables the reproduction of the wage-relation *in general* by compelling consumers back to work so as to consume an expanding bundle of goods through the willing, and sometimes involuntary, acceptance of new and novel needs.

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The growing dependence on this unwaged labour, absorbed in the 'production of circulation,' the colonization of personalized devices in free leisure time has spurred-on the monetization of user-generated content (UGC). Consequently, the consumption relations that inhere in the prosumption activities associated with IMDs help maximize the productive use of leisure or unwaged time. With this capability, economic and cultural pressures reshape the consumption relations that inhere in, and are enabled by, ubiquitous connectivity:

> Mobile communication anytime, anywhere, increases social accountability. The revival of 'dead' moments not only gives us extra time, but also makes us open to real-time monitoring and control. Mobile communication etiquette seems to involve the norms of 'being always available' and 'reciprocating messages/calls you get.' (Arminen 2011, 97)

This engenders, Arminen continues, "normative pressure for availability [while it] also allows [for] an increase in accountability, a continuing monitoring of communicative parties" (97). Similarly, as Fortunati (2002) writes, mobile phones enable users to progressively "single out the pauses in their actions, the pores, the cracks in time, so as to get hold of and to make communicative use of them" (517).

In this sense "free" time helps translate the unused capacity associated with the fixed cost investments in infrastructure into profitable services (and devices) but also creates the means to generate potentially valuable personal data. This data serves a dual purpose as it is used both to commodify personal information and to enhance, rationalize, and personalize marketing and advertising in exchange for user's attention. Like the abstract nature of the

audience, the monetization of attention requires new techniques of measurement through "attentional assemblages" (Terranova 2012) of digital media.

The productive capacity of the prosumer also extends beyond this largely passive and logistical role of providing ever more detailed commercial data. In contrast to traditional mass media audiences, in the web 2.0 era "users are also content producers: there is user-generated content, the users engage in permanent creative activity, communication, community building and content production" (Fuchs 2009, 82). Web 2.0 and related myths offer up a fetishistic valorization of UGC, which conceals the more expansive "commodification of human creativity" (82). Because these creative capacities are now unleashed both technologically and symbolically, the explosion of UGC mirrors the equally rapid expansion of a flexible, precarious, and contract-based workforce, particularly in media industries (Neilson and Rossiter 2008; Gill and Pratt 2008). In addition to the perception of empowered users across a variety of technologically mediated settings, web 2.0 reflects a new web-based marketing approach that strategically employs UGC in the production and targeting of commercial messages. Mobile media are evolving into the penultimate expression of Smythe's original premise regarding the capitalist development of ICTs and the audience commodity.

The concise definition of "mobile marketing" outlined by the Mobile Marketing Association seems to reinforce Smythe's premise: "Mobile Marketing is a set of practices that enables organizations to communicate and engage with their audience in an interactive and relevant manner through any mobile device or network."[15] The words "interactive" (i.e. digitally networked) and "relevant" (i.e. personalized, context aware) are most telling here, particularly as mobile marketing develops in and through the interactive (re)production of the digital, socially networked, and commodified self. The resulting commodification is two fold: on the one hand, the commodification of self and sociality through the consumption of digital devices, networks, and devices; and on the other, the commodification of the prosumer as a saleable and ultimately productive audience for potential advertisers and marketers.

Mobile devices and wireless connectivity have therefore developed from basic communication technologies into platforms for the articulation of the audience commodity with four primary purposes:

- To expand the range and quantity of virtual consumption (games, entertainment content, software, information services).
- To increase the volume of payable/metered data increasing the average revenue per user (ARPU) for telecommunications providers.

- To create a channel for targeted and context specific commercial (or political) messages.
- To enable and expand the production of UGC, thereby supplying companies developing web 2.0-centric business models with free content.

The construction of a mobile audience commodity emerged amidst the explosion of IMDs and the widespread web 2.0 euphoria beginning in the mid-2000s. AdMob, incorporated in 2006 and acquired by Google in 2009 for $750 million USD,[16] is highly valued because of its prospective ability to monetize data traffic to and from personal devices. In so doing, it produces and sells mobile scalable audience commodities through the generation of detailed user information across a number of different metrics and includes the collection of data about application and website use. Promotional material for AdMob proclaims that it will offer "brand advertisers the ability to reach the addressable mobile audiences."[17]

It goes on to note, "(m)obile advertising provides you with targeted access to mobile users, and is easy to buy and measure."[18] More recently, Google has re-configured and optimized its Ad Sense service to exploit the growing use of mobile web-browsers (Rowinski 2011). Not to be outdone, Apple acquired mobile advertising company Quattro Wireless (founded 2006) for $275 million USD, in order to release its own mobile advertising platform in April of 2010—iAd—which provides similar access via its iPhone handset users. While Google built an advertising empire based on search engine optimization and keywords from the ground up, Apple's relatively late entry into mobile advertising demonstrates the perceived profitability of this area because, until then, it focused primarily on revenue from hardware and software sales. The iAd platform was Apple's first concerted foray into advertising.[19] iAd has particular relevance for commercial brands, as the official website explains:

> iAd reaches millions of iPhone, iPad and iPod touch users around the world in their favorite apps. With the iAd Network, you can reach the Apple audience, the world's most engaged, influential and loyal consumers. Each ad is shown only to the audience you want to reach, in the apps they love and use the most. Our highly-effective targeting leverages unique interest and preference data that taps into user passions that are relevant for your brand. Whether they are reading the news, playing a game or checking the local weather, your ad will make an impact.[20]

Another important company seeking to construct a mobile audience commodity, Millenial Media, founded in 2006, is the largest independent mobile advertising platform. Partners and advertisers include AOL, *New*

York Times, Zynga, Bank of America, McDonald's, Disney, Pepsi, UPS, IKEA, and MasterCard. Millenial Media provides an assortment of targeted, rich media advertisements using various forms of graphic banners, interactive, full-page, and video ads. Because of its reach and influence in mobile advertising—with roughly 91 million U.S. mobile users—it was sought after by Research in Motion (RIM) as a means of competing with both Apple and Google in the mobile advertising space. In the end RIM was unable to acquire Millenial Media in part because of the high valuation assigned to AdMob and Quattro Wireless. As a consequence, Millenial Media raised their asking price beyond what RIM was willing to pay. By the time RIM released its own advertising platform in September of 2010, simply named BlackBerry Advertising service (much like iAd it was a platform for application developers to monetizing in-app advertising for which RIM would take a percentage), mobile marketing and advertising was already worth an estimated $3.5 billion USD in 2010, with projected mobile ad spending reaching $24 billion USD in 2015 (Middleton 2010). The massive explosion of "apps" has led some industry analysts to speculate that in-app ad buying could usurp traditional Internet advertising, reaching roughly $4.5 billion USD by 2013 in the U.S. alone (Newark-French 2011). By the end of 2010 the three most important IMD companies—Apple, Google, RIM—operated and were generating revenue from their own proprietary mobile advertising platforms.

Digital and ubiquitous media have given rise to another high-tech iteration of the audience commodity. Companies like Nexage and Rubicon provide real-time bidding for mobile users' attention by inserting video and rich media advertisements into mobile applications and websites. Here Smythe's concept audience commodity reaches its apotheosis. As one critic of the process explains, "Real-time bidding creates the possibility for companies to tag you wherever you are going, without you knowing or having the ability to influence it" (Singer 2012). In effect, what Nexage, and similar companies like Tapjoy or JumpTap, do is partner with publishers or applications developers looking to monetize the attention of their users and then create an exchange (or auction) for potential advertisers or marketers to bid for access to a specific user. Based on a given users' profile, potential advertisers use sophisticated algorithms to bid in real-time for a chance to have their respective messages displayed on a mobile device. As the *New York Times* explains: "The odds are that access to you — or at least the online you — is being bought and sold in less than the blink of an eye. On the Web, powerful algorithms are sizing you up, based on myriad data points: what you Google, the sites you visit, the ads you click. Then, in real time, the chance to show you an ad is auctioned to the highest bidder" (Singer 2012).

Similarly, location-based services are poised to take full advantage of the contextual nature of mobile data usage. For example, location-based mobile app provider Waze's CEO Noam Bardin explains that "not only are customers being offered something that is relevant to them because they may be close to a Taco Bell, but the advertiser is also getting very specific information, which it can use to tailor future offers" (Reardon 2013). He continues, "The real value is in seeing which people arrive at different locations based on various offers. It's powerful. We can influence where people go" (Reardon 2013). The real value is derived from tracking and targeting users with "proximity information, like Taco Bell promotions, "because, as the CEO goes on to explain, "If you can't attribute and track the value of the advertising, you can't get the money for it" (Reardon 2013).

The industry term used to describe the quantification of attention in this way is "impression." Thus companies like Nexage, Rubicon, or Milllenial Media, can offer prospective clients a rate on a given number of impressions. Although Google and Apple are the dominant players in mobile advertising and marketing, the explosion of both mobile users and mobile content (applications, websites) has created a similar explosion in the means whereby the attention of users can be monetized (Rowinski 2011).

Thus the logic of monetization, and the high valuation assigned to these mobile media platforms, fundamentally hinges on user attention as the primary commodity produced and delivered to advertisers or data merchants.

This logic reflects the overall scarcity, and resulting quantification, of attention; what some theorists, economists, and marketers refer to as the "attention economy" (Davenport 2001; Lanham 2006; Falkinger 2006). Michael Goldhaber (2006) describes the attention economy as "a system that revolves primarily around paying, receiving and seeking what is most intrinsically limited and not replaceable by anything else, namely the attention of other human beings." On this point, Bauman (2007) writes, "In the cut-throat competition for the scarcest of scarce resources—the attention of would-be consumers—the suppliers of would-be consumer goods, including purveyors of information, desperately search for the scrap of the consumers' time still lying fallow, for the tiniest gaps between moments of consumption which could still be stuffed with more information" (40). To effectively tap into the attention economy marketers need to create interactive, participatory, or emotional connections with potential consumers; and for many, mobile is viewed as the penultimate medium for engaging with consumers in these ways.

Assessing the iPhone's success offers an important example of how consumption relations, communicative capacities, and the competitive search for attention are drawn together in a given technical object. Though experi-

enced as a specific and highly personal consumer technology, the iPhone is better understood more broadly as a platform for both monetizing attention as well as expanding the range of virtual consumption and the production of valuable personal data. The iPhone was fully integrated into iTunes, which provided an instant and straightforward way of selling iPhone-specific software or apps, among other digital content like videos and songs. Through iTunes, Apple created an app ecosystem that allowed software developers a direct channel to monetize their software. This generated a virtuous cycle for the iPhone platform because it offered a clear monetary incentive to develop software. Importantly, iTunes was already familiar with many users (introduced through the widely popular iPod MP3 player) who entrusted Apple with their credit card information for the easy purchase of applications. In so doing, iTunes helped rapidly expand the range of things the iPhone could do—from location-based services to video gaming—thereby increasing the appeal of the device and its ecosystem to consumers.

The app economy, seemingly overnight, fundamentally changed the relationship between handset manufacturers, software developers, telecommunication providers, and users. As a ubiquitous virtual storefront, iTunes offered a means of transforming mobile users into an active audience of potential consumers of devices, applications, and other virtual goods, while at the same time creating a highly personalized channel for generating marketing data and targeting advertising.

Personalization, Democracy, and "Present-Mindedness"

The audience commodity is not only another abstraction crucial to the circulation and realization of surplus value, but one that sheds light on how specific communication systems also shape the prevailing habits of mind, including the capacities for thought and action conducive to democratic institutions. The commodified personalization that is a hallmark of the era of ubiquitous connectivity arguably contributes to a closed symbolic world; one in which the control and preferences of the user are embedded in the very software and algorithms themselves. In contrast to the embodied flesh and blood individual, the digital self becomes a self-propelling algorithm that, if left uncontrolled, will work to personalize the symbolic and communicative landscape. While our dominant technological milieu adapts to, and reinforces, the creation of small "monadic communication clusters" (Gergen 2008), individuals are tacitly encouraged (or enabled) to disengage from the human beings around them, as they are committed to their respective social networks, rather than civil society.

The prospective degradation of democratic institutions in an era of personalized media is mirrored at the physiological level. Nicholas Carr (2010a), and others (Stiegler 2012; Terranova 2012), have suggested that this media condition may be altering the structures of the brain, thereby foreclosing the capacity to think in particular ways (i.e., "deep attention"). Carr (2010b) writes,

> The Internet is an interruption system. It seizes our attention only to scramble it…The penalty is amplified by what brain scientists call switching costs. Every time we shift our attention, the brain has to reorient itself, further taxing our mental resources. Many studies have shown that switching between just two tasks can add substantially to our cognitive load, impeding our thinking and increasing the likelihood that we'll overlook or misinterpret important information.

As Terranova (2012) argues, in a media environment defined by personalization, information—conceptualized as the process of being *informed*—describes the various techniques and technologies for "consuming attention" (4). Paying attention to what others do on networked social platforms triggers potential processes of imitation by means of which network culture produces and reproduces itself; e.g., "reading and writing, watching and listening, copying and pasting, downloading and uploading, liking, sharing, following and bookmarking" (7–8).

Thus the perceived abundance of information—conceptualized as a non-scarce, non-depletable resource—is countered by a growing scarcity and fragmentation of attention itself. Terranova writes that, "[b]y consuming attention and making it scarce, the wealth of information creates poverty that in its turn produces conditions for a new market to emerge. This new market requires specific techniques of evaluation and units of measurement (algorithms, clicks, impressions, tags, etc.)" (2012, 4). On this note, consider Smythe's description of the changing role of "information" in media systems:

> The function of "information" transfer, which in the 18th century was the province of the press and the post office, is now diffused through this broad complex of institutions. And the flowering of computers and information processing has added a new level of meaning to the "informational" function of the "communications" complex—a function of serving as the means of production, exchange, and consumption of "information" in the sense of Norbert Wiener's definition, " a name for the content of what is exchange with the outer world as we adjust to it, and make our adjustment felt upon it. (Smythe 1994, 248)

Similarly, Herbert Simon writes that, "What information consumes is rather obvious: It consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention, and a need to allocate that atten-

tion efficiently among the overabundance of information sources that might consume it" (quoted in Terranova 2012).

As such, attention is made more scarce but is also "degraded" (4). The personalization of our media environment epitomized by IMDs enables the regular intervention of a ubiquitously enabled siren's song competing for smaller and smaller slices of our attention. In this sense, Google's massive market capitalization ($271 billion USD as of March 2013), indeed its entire business model, can be related to the various ways by which it monopolizes and monetizes attention (Lee 2011; Pasquinelli 2009).

Similarly, the implications of personalization on politics and culture seems to reinforce a tendency towards fragmentation, the creation of parallel communicative universes defined by closed symbolic structures of circular affirmation and group polarization (see Turow 1997). This is the un-reflexive tendency Innis tried to warn us against, for it is in society's ability to self-reflect, self-critique, that it is able to self-correct. At the level of political economy, we might consider the processes of personalization as one of symbolic enclosures in which the structure of wealth and privilege are reproduced in separate social and financial networks in ways that exclude non-participants (creating the equivalent of online gated communities). Overall, personalization is merely a cover for privatization, which in a post-Fordist neoliberal era means a growing precarity of labour, increasingly made replaceable or disposable by the automation enabled by personalized media.

We can think of the growth of personalization in the era of ubiquitous connectivity as a feedback mechanism that flows through our personalized media. Historian of technology Otto Mayr (1971a, 1971b) wrote two articles about Adam Smith and the debatable influence of feedback technologies (the steam engine in particular) on the intellectual genesis of liberal economic theory. According to Mayr, the concept of a self-correcting, self-regulating system was the paradigm, the chief metaphor of the free market, in which the flows of goods, money and prices would create a self-correcting system that could maximize social welfare for the most number of people. We are now seeing that personalization of this sort falls closely in line with the beliefs and values of typical liberal market theories, using personalization and ubiquitous connectivity as a means of efficiently and instantaneously matching services and products with consumers (Manzerolle and Kjøsen 2013).

In this, capitalism's cybernetic imagination (Webster and Robbins 1999), we can find buried Shannon's mathematical formula of communication, described as a noise-reducing feedback system (1949). This cybernetic imagination is preoccupied with the search for perfect information—the

elimination of noise—that constitutes a mathematically perfect communication system, yet one subservient to the expanding algorithm of capital circulation and accumulation (Manzerolle and Kjøsen 2012). It is no surprise then that our means of communication and our means of exchange, of payment, are converging together. While personalization creates nearly perfect information about users, commodified or commodity-defined, in the context of technologically mediated "social networks," noise will increasingly constitute those voices, opinions, and messages that do not already conform to our personally cultivated algorithm. Such occlusions thereby reinforce a *present-mindedness* (Innis 1964, 76) suitable to the impulses and work routines mediated by a state of ubiquitous connectivity.

Notes

1 Thanks are due to Atle Mikkola Kjøsen, Edward Comor, and Lee McGuigan for providing valuable feedback. Portions of this chapter were developed in Manzerolle (2013) and Manzerolle & Kjøsen (2012; 2014).

2 Citigroup estimated smartphone sales to increase 50% percent year-over-year in 2013, with further 61% increase in smartphone shipments in 2013. Expect 1.5 billion units by 2014 (Citi Research 2013, 11).

3 This dependency was acutely exposed during the service outages that followed in the wake of hurricane Sandy in 2012 (Wortham 2012). By contrast, a chronic dependency is evidenced in the growing percentage of users that sleep next to their phones (44 of all mobile users, 66% of smartphone users; Smith 2012), despite their tendency to disrupt sleeping patterns (Gaudin 2012). A national survey of Americans revealed that a third of respondents would rather give up sex for a week than their smartphones (Jackson 2011). This dependence has been associated with forms of obsession and/or addiction by some psychologists (Gibson 2011; Gaudin 2011). More profoundly, dependence on networked technologies like smartphones and Google have been associated with changes in the structure and function of the brain itself (Carr 2008)—changes revealed through the growing use of brain pattern imaging technologies (Davidow 2012). These figures suggest that the title of Smythe's penultimate tome, *Dependency Road*, might also include forms of social and psychic dependency that crystallize around specific communication systems/organizations, which themselves bear the imprint of broader political economic interests.

4 Households with multiple smartphones often spend far more for wireless services than for cable TV and home Internet (Troianovski 2012). Unsurprisingly, "The trend has been a boon for companies like Verizon Wireless and AT&T Inc. U.S. wireless

carriers brought in $22 billion in revenue selling services such as mobile email and Web browsing in 2007, according to analysts at UBS AG. By 2011, data revenue had jumped to $59 billion. By 2017, UBS expects carriers to be pulling in an additional $50 billion a year" (Troianoski 2012).

5 Mobile video is one of the key drivers of mobile data revenue, bandwidth, traffic, and a significant area of growing advertising revenue. According to Cisco (2013), mobile video constitutes 51% of mobile data traffic. Cisco projects mobile video will account for 2/3 of all mobile data by 2017.

6 Following Harvey's (2006, 99) explication of Marx's concept, by productive forces I mean the power to transform nature through the development of new technologies (e.g., spectrum technologies); and by relations of production I mean the social organization and implications of the "what, how, and why of production" (e.g., wage labour) (99). Using Smythe's focus on demand management, we can also think of the forces and relations of consumption as increasingly articulated in and through IMDs.

7 First coined by sociologist Georg Simmel, but implicit in Marx's critique of economic categories, the concept of real abstraction describes how abstraction "precedes thought" and "social activity" (Toscano 2008a, 70). As Toscano further explains, "abstraction is primarily thought of as the effect of a spatio-temporal action or process" (70). Thus an analysis of abstraction entails a focus on the specific media and forms of mediation that confer it a material reality through situated human interactions and institutions (i.e. social relations, media systems and technologies). In this sense the audience commodity, insofar as it is the "organizing principle" of commercial media, is a real abstraction. For a detailed discussion of the concept see Toscano (2008a; 2008b); Reichelt (2007).

8 This fact is partially evident in the re-allocation of spectrum from traditional broadcasters, among others, to telecommunications providers for use in highly profitable mobile broadband services/devices (Wyatt 2013). This is particularly true for the "digital dividend" (700MHz) freed up by the digital switchover of broadcast television (Wray 2009).

9 The personal data economy comprises companies that exploit consumer data for internal use, sale in a secondary market, or to provide specialized services and analysis. The World Economic Forum (2012) distinguishes three types of personal data that might be treated as an economic asset. Volunteered data, data offered voluntarily by users, such as photos, blog posts, video, and so on. Observed data is data captured, controlled and owned by an organization, often without the knowledge of the data-creating individual. Inferred data, "involves information computationally derived from all the data volunteered and observed" (19). The secondary market for personal data is estimated at $2 billion USD in 2012, however this is a measure only of companies collecting data from third-parties (e.g., Azigo, Mydex) (Robin 2012).

10 This marketing orthodoxy is usefully summarized by the following quote: "There is one overriding, simple, but powerful message for all twenty-first-century marketing, media, and advertising executives: insight about consumers is the currency that trumps all others" (Vollmer and Precourt 2008, 29). As one response to the commercialization of personal data for marketing purposes, a recent proposal in France would tax Internet companies based on profits associated with data mining and the commercialization of user data, affecting companies like Google and Facebook (Pfanner 2013).

11 At a recent industry conference an IBM VP described the rise of the "empowered consumer era" enabled by IMDs and the personalization of commercial offers: "customers are quite willing to share information with businesses they trust if they believe they are going to get value in return…They want you to make offers to them—not blind offers" (quoted in King 2013). To do this companies need to engage in "social listening, seeking out customer-created content, creating a single view of a customer across multiple channels, and engaging consumers through personalized channels and empowering them to operate as advocates for a brand" (King 2013).

12 Personal data is seen as a particular area of growth for the telecommunications industry since they are privy to detailed data stemming from the usage of IMDs (World Economic Forum 2011). Identification and authentication services alone are projected to reach $52 billion USD by 2020 (World Economic Forum 2011).

13 Both Google and Apple have recently faced scrutiny about their collection of precise locational data about individual users (Cheng 2011); similar concerns have been directed at app makers (Bonnington 2012) and telecommunications providers (Eckersley 2011).

14 Indeed, the recent commercial interest in both "big data" and "cloud computing" by established technology companies like IBM, Microsoft, Oracle, and others, suggests the widening appeal of UC as an all-encompassing commercial goal. Gartner research projects worldwide enterprise spending on cloud services to increase from $91 billion USD in 2011 to $109 billion USD in 2012, reaching $207 billion USD by 2016 (Gartner 2012). Though important, I will not address this broadening of the myth of UC. For further critical analysis see boyd & Crawford (2012); Franklin (2012).

15 http://www.mmaglobal.com/node/11102 Last accessed: August 26, 2013.

16 At the time this was Google's most costly mobile-related acquisition, won in a competitive bidding war with Apple.

17 http://www.google.co.in/adwords/watchthisspace/admob/ Last accessed: August 27, 2013.

18 http://advertising.apple.com/brands/ Last accessed: August 27, 2013.

19 Apple's press release explained this bold move into advertising:
iAd, Apple's new mobile advertising platform, combines the emotion of TV ads with

the interactivity of web ads. Today, when users click on mobile ads they are almost always taken out of their app to a web browser, which loads the advertiser's webpage. Users must then navigate back to their app, and it is often difficult or impossible to return to exactly where they left. iAd solves this problem by displaying full-screen video and interactive ad content without ever leaving the app, and letting users return to their app anytime they choose. iPhone OS 4 lets developers easily embed iAd opportunities within their apps, and the ads are dynamically and wirelessly delivered to the device. Apple will sell and serve the ads, and developers will receive an industry-standard 60 percent of iAd revenue. (http://www.apple.com/ca/pr/library/2010/04/08Apple-Previews-iPhone-OS-4.html)

20 http://advertising.apple.com/brands/ Last accessed: July 30, 2013.