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'All the world's a shopping cart': Theorizing the political economy of ubiquitous media and markets

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Abstract:
Ubiquitous connectivity to networked information-communication technologies increasingly mediates social experiences of markets and retail environments. These conditions lead some marketing scholars to conclude that digital media are reaching their inevitable culmination: an omnipresent marketplace. They call this 'ubiquitous commerce' (u-commerce). U-commerce annihilates constraints over markets; borders, cultural differences, and geography cease to impose friction on exchange. As part of a broader understanding of new media and marketing, u-commerce deserves attention from critical communication studies. In foregrounding concerns of space, time, and consciousness, u-commerce exemplifies a *commercial theory of media* and invites critique at the nexus of medium theory and political economy. The work of Harold Innis is uniquely suited to this task. This article contextualizes and identifies biases in the conceptual systems and infrastructures of u-commerce.

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In this amazing world of instant, global communications, the free and efficient movement of capital is helping to create the greatest prosperity in human history.

Christopher Cox, Chairman, US Securities and Exchange Commission (*Wall Street Journal*, 2005)

Many people…have begun to look on the whole of society as a single unified machine for creating wealth.

Marshall McLuhan (1964/1994: 354)

Some men turn every quality or art into a means of making money; this they conceive to be the end, and to the promotion of the end all things must contribute.

Aristotle (quoted in Galbraith, 1987:15)

Introduction

A growing literature on the topic of 'ubiquitous commerce' (u-commerce) posits the annihilation of spatial and temporal constraints over markets as the inexorable apotheosis of digitization (Watson et al., 2002). The intellectual support for this perspective finds its purest expression in business journals concerned with marketing and information management (Zhang and Liu, 2011), but its core principles have penetrated the culture of policymaking and governance, as evident in the above declaration from a former Chairman of the US Securities and Exchange Commission. The most dogmatic of these principles holds that technology evolves autonomously, rather than as a confluence of historically situated social developments, power relations, and vested commercial interests. This position is buttressed by a 'utopian orthodoxy' (Kreiss et al., 2011) among popular intellectuals who celebrate the transformative social power of new media—a mythology inherited (with similar ontological foundations) from the works of

Alvin Toffler, through Nicholas Negroponte, to Henry Jenkins, Don Tapscott, and others (Mosco, 2005; Van Dijck and Nieborg, 2009; McChesney, 2013). These ideas give intellectual cover for a range of emerging digital marketing strategies that colonize and leverage networked information-communication technologies (Andrejevic, 2007; Turow, 2011).

Embracing assumptions of technological progress, theorists of u-commerce argue that digital media, urged by competitive markets, evolve to the mutual advantage of business firms *and* consumers. Businesses enjoy augmented control over information resources and logistics; consumers escape the limits of rationality by customizing marketplace structures and delegating routine information processing and decision-making to automated systems (Schapp and Cornelius, 2001; Galanxhi-Janaqi and Nah, 2004; Pitt et al., 2002). Human capacities—communicative, cognitive, attentional—are thus adapted to continuous information management via technological prostheses. Ever-handy smartphones and tablets can generate shopping lists, signal purchase-opportunities, and serve as mobile wallets; a retailer may even reach into 'the cloud' to retrieve a customer's preferences or to document and reward loyal shopping. Consumers are conceptualized as 'always-on' technological subjects, existing in a ubiquitous marketplace unbounded by time and space (Elkin, 2013).

In this media ecosystem—comprising the feedback between social subjects, organizations, and technologies—'moments of exchange' can penetrate and transform almost all of lived experience. As mobile broadband technologies mature, marketers and managers are sharpening a set of readily available rhetorical tools for interpreting the commercial and organizational potential of 'ubiquitous connectivity'. This prospectively new paradigm depends on consumer-subsidized communications and computing infrastructures, and ostensibly it reduces electronic commerce to a fully naturalized, entrenched, and unnoticed component of

social reality. Most fundamentally, proponents of u-commerce regard information-communication technologies (ICTs) as instruments for freeing commercial markets and supplanting material contingencies, such as geography or regional cultures and policies, with the flexibility and efficiency of networks (Watson et al., 2004). According to u-commerce adherents, digital media usher an imminent transition from 'the geography-driven firm to the *network-driven firm*', thereby 'refashion[ing] the topography of business' (Watson et al., 2002: 334). The strategic momentum toward u-commerce culminates when 'marketing is everything' (345–346).

Grounded in a critical review of u-commerce literature, this paper contributes to a theoretical framework for analyzing ubiquitous media as an embedded, and often invisible, technological infrastructure that tunes human capacities to the paradoxically rationalized and chaotic demands of informational capitalism (Fuchs, 2008). The networking of consumers and organizations creates a communicative feedback loop linking situated actors and social structures in particular, historically contingent ways. Harold Innis' perspectives on the bias of communication and the mechanization and monopoly of knowledge are uniquely suited to interpret these developments in technology and business administration. Innis (1950/2007, 1951/1964) considered not only the limits and pressures inherent to the physical capacities of technologies, but also the social and cultural conditions in which technologies are developed and deployed to administer power across space and time. Innis appreciated the dialectical relationships among mediating technologies, institutional structures of power, and the conceptual systems through which people understand their lived realities. Our critique benefits from the insights of James Carey and others who elaborate Innis' ideas for analysis of electronic and digital media (Babe, 2000a), as well as exemplary research on the history and political economy of networked ICTs (Schiller, 1999; Barney, 2000).

As we demystify claims about the novelty (and reality) of ubiquitous commerce, we maintain that it is important to scrutinize these theories because they present concentrated expressions of a market-biased logic of technological development which international scholars have identified as a cornerstone in dominant visions of an information society (Melody, 1985; Winseck, 2002; Fuchs, 2008; Mansell, 2012; McChesney, 2013). 'Myths sustain themselves', writes Vincent Mosco (2005: 39), 'when they are embraced by power'. Upholding a Washington-*Wired*-Wall Street consensus, a managerial and marketing elite has embraced the myth of ubiquitous commerce. Most public policy interventions are anathema to these faithful champions of unbridled markets and commercially-driven technological development. Both Robin Mansell (2012: 26, 180–181) and Robert McChesney (2013: 57–58) consult Innis' ideas as correctives to this foremost 'social imaginary' and 'catechism' of information society. Consistent with what Edward Comor (2001) describes as 'Innis' uniquely non-Marxist dialectical materialist methodology', we use the concept of 'bias' to check imbalances and blind-spots through reflexivity. As Acland (2006) demonstrates, reflexivity is overwhelmed by 'present-ism' in elite policy debates on technology, media, and markets.

The paper is organized into three sections. The first considers u-commerce as a conceptual system. Summarizing relevant literature to distill the main principles of u-commerce theory, and weaving this review with an introduction to Innis, we identify assumptions and biases in the intellectual blueprints of u-commerce. We argue that Innis helps us understand how u-commerce, as a way of thinking about technology, markets, and culture, attends to certain concerns at the expense of others. The ambition to annihilate spatial and temporal barriers through a networked market system both embodies and engenders a neglect of tradition, geography, and cultural contingency. The second section focuses on material expressions of u-

commerce in complex technical and administrative infrastructures. With recourse to Innis'

concepts of the mechanization and monopoly of knowledge, we present examples from the

recent history of mobile technology, devoting specific attention to the policy conditions that

encouraged investment in smartphones as a consumer-facing infrastructure for u-commerce.

Finally, we investigate mobile payments, 'omnichannel retailing', and the Internet of Everything

as the latest iterations of ubiquitous commercial connectivity. The rhetoric of u-commerce is

representative of how the emerging digital media environment is conceptualized within the

corporate imagination; we deploy a theoretical framework that begins from the logistical

interconnection between 'routes of culture' and 'routes of trade'.

U-commerce as conceptual system

As an administrative system of exchange, u-commerce is not difficult to imagine. Its

ancestry extends thousands of years to the earliest bureaucracies, commercial systems, and

control apparatuses for establishing and maintaining empires (Beniger, 1986: 13, 62–63). The

earliest forms of writing were developed to afford the spatial connectivity necessary for

routinized and accountable commercial exchange (Innis, 1950/2007: 46, 1951/1964: 39). As

commerce expanded and accelerated due to complementary developments in power generation,

transportation, and communication, greater volume and velocity of production and distribution

demanded technologies to manage information and control economic activity. ICTs have become

indispensable for orchestrating the global movement of goods and for organizing enterprises

dispersed in space, with specialized departments stationed in different jurisdictions (Harvey,

1990; Schiller, 1999; Barney, 2000). As Dwayne Winseck (2002: 95-96) writes, 'efforts to create

and embed markets within electronic networks formalize what markets already do: enhance

administrative control as well as accelerate and intensify the circulation of commodities, capital,

transactions and information'. Today, representative u-commerce functions are manifest in popular uses of Internet-enabled mobile devices (IMDs) for shopping, as well as more arcane enterprise operations for coordinating transport logistics, tracking inventory, and managing supply chains (Lee and Park, 2008; Citi Research, 2013).

U-commerce is difficult to grasp in full, however, because it is necessarily *everywhere* and *invisible* (Watson et al., 2002: 336–337; Watson et al., 2004: 34). It involves immersion within a 'smart' environment equipped to constantly assess location-specific contexts and 'identify business opportunities among users' (Franko et al., 2011: 238). At its logical conclusion, u-commerce is nothing less than the embedding of microprocessors in everyday objects to connect them in an all-encompassing digital marketplace (Andrejevic, 2007: Zinkhan, 2005). To paraphrase Marshall McLuhan: when the store becomes omnipresent, it is naturalized and unnoticed, *like water to a fish*. As Mark Andrejevic (2007: 105) puts it, 'the electromagnetic enclosure…will be the medium through which we move'. Our critique finds an entry point in the intellectual support for u-commerce, with particular attention to the work of Richard T. Watson and his collaborators. Our engagement with this cohort owes to their preoccupation with time, space, and consciousness, which, we argue, invites debate from the field of media studies. As mentioned, this task is important because u-commerce research is just one specialized expression of a conventional wisdom about ICT-mediated markets. Don Tapscott (2002: 12), for example, welcomes 'a completely new infrastructure for wealth creation', asserting that comparisons to media of industrial capitalism, such as railroads and telephony, 'belittle' the profound impact of networks that will 'connect every business and business function and a majority of humans on the planet'. Business and marketing rhetoric promises nothing short of a new way of life.

Ultimate commerce

U-commerce describes the use of computing networks to support seamless communication and exchange of information, products, and services between buyers and sellers in a marketplace, including all stakeholders within a firm's supply-distribution chain (Watson et al., 2002; Lee and Ju, 2007; Zhang et al., 2009). The infrastructure for this feedback system accelerates the key reproductive moment for capitalism: the moment of exchange. These systems are implemented with the ambition of amplifying productivity and efficiency across entire economic sectors by *annihilating boundaries of space and time*. Dutiful to Bill Gates' (1996) vision of 'friction-free capitalism', this paradigm promises that technologies of ubiquity and immediacy will eliminate 'friction in the commerce chain' (Schapp and Cornelius, 2001: 1; Galanxhi-Janaqi and Nah, 2004: 747). The anticipated result is a circuit of uninterrupted transactions: '[a continuous] stream of information and value' (Galanxhi-Janaqi and Nah, 2004: 746). 'U-commerce', it is argued, 'is a model where the traditional barriers to commerce – access, geographic borders, time differences, currency exchange – simply go away' (753).

Watson and his collaborators build their u-commerce model on a conceit of four principles: ubiquity; universality; uniqueness; unison (Watson, 2000; Watson et al., 2002; Junglas and Watson, 2006). *Ubiquity* promises connectivity any time, any place. This hinges on information transfer protocols, devices, and resources to facilitate communication (e.g., electromagnetic spectrum, bandwidth, optical fiber, microprocessors), and market institutions to mediate transactions and render citizens 'purchase-capable'. In essence, the marketplace becomes omnipresent. This requires *universality*, or compatibility across networks, devices, interfaces, and institutions. A universal marketplace depends on the dubious assumptions that (1) capitalist modes of consumption jibe with conceptual systems, or routes of culture, globally, and (2) historical and power-laden institutions allow equal marketplace freedoms. Universality

imagines away the role of states. Yet regional variations in tax policy, labor laws, and environmental protection encourage unequal concentrations of wealth, waste, and exploitation (Maxwell and Miller, 2012). Requirements that foreign companies operating in India stock local products have frustrated supply chain optimization for Wal-Mart and other retailers, even as markets there are opening to electronic and mobile commerce. And recent proposals for data-localization and sovereign 'Internets', by Brazil and other BRICS countries, dispel fantasies that universal commercial infrastructure is *fait accompli*. Universal coordination is further contravened as telecommunications firms competing (or colluding) for market share build infrastructure unevenly according to particular interests (Crawford, 2013). Fully subsumed by a commercial logic, ubiquitous connectivity reflects the often contentious convergence of interests across media sectors (Dholakia and Zwick, 2004).

Uniqueness is a buyer-oriented feature. It means that information and marketplace structures are tailored to a customer's immediate circumstances, such as location or previously registered preferences. Customization has been debated in various contexts—notably Nicholas Negroponte (1995) has championed media platforms designed to deliver personalized content to known users, while Joseph Turow (1997) has warned about an imbalance between media that encourage community and media that divide the public into market segments. Sophisticated location-aware marketing functions have raised alarms about surveillance and privacy (Humphreys, 2011), especially since the information harvesting necessary for uniqueness can be executed in ways almost invisible to customers (Watson et al., 2002: 341).

To mollify privacy concerns, marketers posit that consumers willingly exchange personal information for tangible incentives, such as price discounts or customized services. This argument proceeds from an assumption that people *exist first and foremost as consumers in a*

marketplace. The key tension in social life, in this view, shifts away from citizens and states, toward the relationship between consumers and markets. Innis (1995) emphasized how the price system, by imposing a market-oriented interpretation of value, becomes bound up with conceptual systems through which people understand their social realities. The transactional social relations implied by u-commerce, in which privacy is just an information asset to be exchanged for market power, position agency within the boundaries of the idealized satisfactions and sovereignty of always-on consumers.

Finally, in *unison*, technologies and business administration cohere, with the entire global economy operating as a single 'organ' responsive to the 'central nervous system' of computing networks. The technological imagination has been possessed of this notion throughout the recent history of new media, from proselytizers of telegraphy in the 19th century (Carey, 2009), to the widely-observed report, *The Computerization of Society* (Nora and Minc, 1978), to former-US Secretary of State Hillary Clinton's (2010) Internet policy platform. Organic metaphors are vital in u-commerce theory. As one study suggests, 'In the ideal situation, u-commerce – like an artery – will uninterruptedly connect the parts, and make the world live and function as one' (Galanxhi-Janaqi and Nah, 2004: 755). The epigraphs at the outset of our discussion demonstrate that critical minds, from Aristotle to McLuhan, have observed the pressure to direct all technology toward the creation of wealth.

To both critique the biases of u-commerce and contextualize it within a long cultural history, we turn to the work of Harold Innis. Innis' historical materialism, 'holding that technological change is engineered and affected by society's strategies and choices' (Blondheim, 2004: 128), helps us connect the conceptual systems supporting u-commerce with the actual infrastructures necessary to make it a reality. From this perspective we see that the media

environment envisioned as u-commerce is not an inevitable outcome of digitization, but a particular configuration of media and markets.

Medium theory, political economy, and u-commerce

Innis (1950/2007) argued that empires and civilizations are formed and maintained in relation to communication and media systems, which he conceived broadly to include language, writing materials, legal institutions, bureaucracy, and transportation infrastructures. Innis (1951/1964: 31–34) observed that control of knowledge is instrumental to the durability of empires, and that media are relatively biased toward conveying information over space or preserving it over time. His unique orientation toward culture, communication, and geography distinguishes Innis from his colleagues. Described by James Carey (2009) as an 'economist of trade', Innis was suspicious of economic orthodoxies. Robert Babe (2000b: 23) credits Innis for comprehending 'markets and the price system not simply as givens, as do mainstream economists, but as instruments whereby dominant cultures "penetrate" traditional ones and transform them into societies premised on present-mindedness, self-interest, money value, commodity exchange, materialism, and individualism'. Innis also recognized that 'routes of trade' are matched in importance by 'routes of culture', or the shared 'habits of thought' that mediate social and commercial intercourse. Carey (2009: 122) explicates this view of how media relate to conceptual systems:

> Innis argued that changes in communication technology affected culture by altering the structure of interests (the things thought about) by changing the character of symbols (the things thought with), and by changing the nature of community (the arena in which thought developed).

Innis famously held in tension time- and space-based qualities of media and societies (1950/2007: 26–27). Time-bound societies are characterized by orality, community, and a concern for continuity. Space-bound societies are penetrated by the price system and frequently maintained by military order; they emphasize commodity-based relations, tend toward technocracy, and neglect concerns for longevity in favor of colonizing space and packaging time in discrete units. Time-binding media are inflexible and durable, predisposed to preserving information. Space-binding media are flexible and transportable, suited for transmitting frequently-changing market information (price, inventory, etc.) between remote outposts. 'A stable society', Innis (1951/1964: 64) writes, 'is dependent on an appreciation of a proper balance between the concepts of space and time'. Innis was convinced that ruin awaited industrial societies where the biases of commercial electronic media were unchecked (81–83). Digital ICTs, following from the telegraph and broadcasting, reflect and afford the continued spatial expansion of capitalism. Clearly, commercial databases and computer networks—such as the 'cloud'—are media 'suited to wide areas in administration and trade' (Innis, 1950/2007: 27).

Comparative media analysis finds an interesting bedfellow in u-commerce theory. Zhang et al. (2009: 343) write, 'one can argue that the epoch-changing events of civilization have been those that significantly altered our capacity to process information'. Junglas and Watson (2006) argue that technological developments, especially those in communication, arise from an innate human desire to overcome limits of time and space: 'Everything humans do is situated in a time-space framework…each major information revolution has been aimed at enabling information to escape, directly or indirectly, these time and space constraints…It is apparent that we desire a world of information unhindered by these confines' (2006: 6–7). Elsewhere, Watson et al. (2002: 345) describe this process in teleological terms: 'Ubiquitous connectivity to information and

computer-processing power will be a profound change that represents the ultimate

consummation of the digitization revolution that started more than a century ago'.

The *commercial theory of media* expressed in u-commerce literature invites consideration

of bias. Describing Innis' method, McLuhan (1964: xi) writes:

> He had discovered a means of using historical situations as a lab in which to test the
>
> character of technology in the shaping of cultures. Innis taught us how to use the bias of
>
> culture and communication as an instrument of research. By directing attention to the
>
> bias, or distorting power of the dominant imagery and technology of any culture, he
>
> showed us how to understand cultures.

More materialist than McLuhan (Buxton, 2012), Innis considered how communication and

media relate to large cultural formations and executive organs of power—bureaucracies,

markets, militaries, the church, and so on. Sut Jhally (1993: 67) is incisive on the social

importance of bias: 'For Innis, the most critical factor in society is the way in which the means of

communication provide a framework of possibilities and parameters—the limits and boundaries

within which social power (as well as modes of cognition) operates'. Jhally goes on to argue that

'bias does not only derive from the technology (the means of communication), but is also related

importantly to the functions to which it is put and the manner in which it is organized (the

relations of communication)' (69).

As a conceptual system, u-commerce sets the parameters of social organization within a

non-materialist interpretation of markets as free from politics, power, cultural context, class, and

physical space—a mindset operative across many theories of globalization (Mosco, 2005;

Morley, 2011). On the enterprise side, we are at the dawn of what one venture capitalist calls the

'mobile-born' revolution: 'It's hardly far-fetched to imagine companies that exist and are run

entirely in the cloud by a de-territorialized mobile workforce. Already we carry much of our day

job's office communications, data, colleagues, customers and products around in our pockets'

(Holland, 2013). For consumer markets, the prospects are equally vast. When MasterCard's chief

innovation officer boasts that 'any device is potentially a device of commerce', it seems normal

for the *New York Times* to proclaim, 'All the world's a shopping cart' (Stout, 2013).

As ubiquitous communicative and commercial infrastructures mediate everyday

experiences of reality (Graham, 2000), relations of *immediacy* are inculcated within the

prevailing concept of time.

Immediacy, present-mindedness, and the price system

'Obsession with present-mindedness precludes speculation in terms of duration and time'

(Innis, 1951/1964: 87). Capitalist consumption, particularly in its modern consumerist

formations emphasizing rapidly disposable and replaceable commodities (Bauman, 2007), is a

mediating institution biased toward present-mindedness, immediate gratification, and instability

(Comor, 2008). The assertion that consumerism emphasizes instant gratification is certainly not

new, but its embedding in the commercial development of digital media infrastructure (and

related practices) identifies it as a structural bias of the entire political-economic and cultural

milieu. U-commerce is a system of business enterprise so obsessed with rapid turnover and

inventory management as to fit items with computer chips that trigger an automatic purchase

immediately when a store's or consumer's supply is depleted (Zinkhan, 2005: 111; Galanxhi-

Janaqi and Nah, 2004: 746; Andrejevic, 2007: 122). U-commerce constitutes consumption as a

thoughtless reflex. Watson et al. (2002) recommend automating 'routine' purchases, so that

'technology creates value by performing tasks outside or behind awareness in specific time-space

locations' (340). The 'real masters' of u-commerce are marketers 'who get customers to let them choose products on their behalf and spend on them what is necessary' (341).

As media and markets become more pervasive, they also become more automatic and invisible. With reference to ancient Greece, Zinkhan (2005: 111) accentuates the difference between times when marketplaces were discrete and bound to space, and the digital age in which 'it is rather difficult to identify times when we are *not* in a marketplace'. This corresponds to what Innis (1995) called 'the penetrative powers of the price system', which Carey (2009: 171) describes as 'the spread of a uniform price system throughout space so that for the purposes of trade everyone was in the same place'. Despite Zinkhan's engagement with components of medium theory, he arrives at radically different conclusions than Innis. While Innis advocated deliberation, Zinkhan (2005: 111), like other u-commerce theorists, heralds the automation of decision-making, culminating when 'routine purchases could become automatic and take place below the level of our consciousness'. U-commerce, this argument suggests, will approach ideal market conditions: information is complete and perfect, and consumers are unbounded in their capacities to acquire, process, and react to that information (Melody, 1985). With cultural, geographic, and cognitive impediments overcome, ubiquitous connectivity unleashes the full power and efficiency of markets (Winseck, 2002).

Adherents portray u-commerce as seamless and natural, evincing what Mansell (2012: 108) calls 'a decidedly one-sided view of empowerment that favours a social imaginary of a relatively conflict-free world enabled by progressive innovation in technology'. The ostensibly 'free' march toward u-commerce is in fact mediated by historical and power-laden institutional arrangements. The prospective reality depicted in u-commerce literature depends on complex *technical* and *administrative* infrastructures (DeNardis, 2012). The former refers to the capacities

of hardware and software systems; the latter describes networks of personal, corporate, state, and supra-national relations and information flows that coordinate commerce as a social process. The parameters and possibilities for commercial activity are mediated by laws and contracts, international trade agreements, and formal and informal regulatory bodies such as the International Monetary Fund, the World Bank, the International Telecommunication Union, the Internet Corporation for Assigned Names and Numbers, the Internet Engineering Task Force, GS1 (responsible for barcode and supply chain standards), and the Industrial Internet Consortium[1] (see Mansell, 2012: 158; DeNardis, 2012: 723).

U-commerce as infrastructure

Having introduced u-commerce as a conceptual system celebrating networked ICTs as a central nervous system for informational capitalism, we now consider how such elite discourses relate to real investments in infrastructure. Tracing conditions that encouraged development of smartphones and broadband networks (as necessary infrastructures for u-commerce), we argue that these artifacts and developments reflect a particular agenda reinforced by the myth of ubiquitous connectivity, and thus certain ways of thinking about media and markets infuse business strategies and actual infrastructures. We look to Canada for a delimited, but significant case study.

Public policy and the infrastructure for ubiquitous connectivity

Beginning in the 1980s and accelerating during the 1990s, a mantra for Canada's 'new economy' reflected and extended theoretical and policy frameworks valorizing knowledge, communication, and information services. In 1981, a mythology about computer networks as routes of trade was formalized in the Canadian Department of Communication's report, *The Information Revolution*

and Its Implications for Canada. By 1994, Industry Canada was convinced that the country's 'information infrastructure must be linked and integrated…as part of a seamless, global information infrastructure' (quoted in Babe, 2011: 112). Canadian economic strategy involved national and provincial initiatives, comprising programs such as venture capital allocation, tax credits, government grants and loans, as well as loosening restrictions on foreign investment and trade. In particular, the federal government implemented a combination of income tax deductions and investment tax credits to promote research and development in the private sector (Department of Finance Canada, 1997). This policy climate directed investment in ways that shaped the emergence of the smartphone as an artefact of and infrastructure for ubiquitous connectivity (Manzerolle, 2013).

Two companies emerged as emblematic of the 'new economy' in Canada. The first was Nortel, which produced innovations that built the largely unseen infrastructure of the ubiquitous network society. The second enterprise, Research In Motion (RIM), created a new consumer device market—the smartphone—and an iconic brand in the BlackBerry, which played a central role in promoting and reproducing myths related to the power of networks, connectivity, and the Internet. The always-on capabilities offered by the BlackBerry served as a tangible expression of the vision articulated by Canadian policymakers as well as Peter Drucker, Alan Greenspan, Bill Clinton and other technocrats in the United States urging for a flexible, knowledge-based economy. We focus briefly on the conditions nurturing the ascent of RIM and the smartphone.

RIM's initial founding owes in part to a $15,000 CAD loan from the Government of Ontario's New Ventures loan program in 1984. Tax credits afforded RIM the financial capacity to survive its formative years, and in 1994 the Ontario Technology Fund awarded RIM $4.7 million CAD (Sweeny, 2009: 76-77). As a result of new initiatives facilitating foreign

investment, later in 1994 RIM secured a $300,000 CAD investment from Ericsson predicated on

an initial grant from the Ontario Development Corporation. In 1998, RIM received a $5.7 million

CAD loan from Industry Canada's Technology Partnerships Canada. This provided crucial

funding that allowed RIM to fulfill BellSouth's $70 million USD[2] order of the first BlackBerry

850 pager. Similarly, government backing helped induce Intel to supply RIM with custom

microprocessors (Tubbs and Gillett, 2011). This was important because Intel had to invest in new

facilities to produce a specialized chipset that would accommodate the needs of the

BlackBerry—an investment difficult to justify absent some guarantee on funding.

In 2000, RIM received $33.9 million CAD from Industry Canada, and another $12

million CAD in 2002 from federal Scientific Research and Experimental Development tax

credits (Sweeny, 2009: 77). That year RIM released the BlackBerry 5800, arguably the first

smartphone for the global market combining packet-switched messaging with voice service.

With a secure operating system, a (patent-protected) keyboard conducive to e-mail messaging,

and the promise of an always-on workforce, BlackBerrys were embraced by businesses and

government organizations. RIM catalyzed widespread adoption by becoming the first 'mobile

virtual network operator', buying bandwidth from various providers to assemble a

telecommunication network that provided BlackBerry users with consistent service despite

uneven deployment of network standards. Over the next decade, the BlackBerry, and other

smartphones, bridged enterprise and consumer markets, as ubiquitous connectivity came to

inflect conceptual systems and experiences of social reality.

RIM (re-named BlackBerry) has suffered a reversal of fortune, but mobile ICTs have

been adopted rapidly. It is estimated that 4.55 billion people will use a mobile phone in 2014 and

that 1.75 billion will use a smartphone, up from 1 billion smartphone users in 2012 (McCarthy,

2014). Cisco reports that 406 million new smartphones were connected in 2013, contributing to an 81 percent increase in data traffic over 2012 (Deagon, 2014). Smartphone sales from 2011 to the end of 2013 are estimated at 2 billion units (Elkin, 2013: 3), and the use of these devices is pervasive, with smartphone owners in the US and China attending to their devices for 151 and 170 minutes per day, respectively (Bergen, 2014). Beyond becoming commodities, IMDs are commercial platforms. Analysts at eMarketer report the ascendance of retail mobile commerce sales in the US: $24.78 billion in 2012; $41.68 billion in 2013; and as much as $113.57 billion projected in 2017 (Elkin, 2013: 11). M-commerce sales in Japan grew 40 percent from 2008 to 2011, from $17.1 billion to $24.2 billion (OECD, 2013: 22). Growth in the UK is more staggering: up 1,320 percent from 2010 to 2011 (22). These trends lead the OECD to conclude that electronic and mobile commerce, supported by ubiquitous connectivity through IMDs, are producing a borderless market that is open all the time.

As the case of RIM shows, handset manufactures and network service providers have benefited from a combination of policy decisions to (1) liberalize the telecommunications sector and (2) steer investment toward innovations in ICTs. The result was the evolution of a product category that embodied and enabled ubiquitous connectivity and the commercialization of data and broadband provision. This infrastructure was wedded to a conceptual system obsessed with ubiquitous markets and media technology, expressed in managerial demands for operational flexibility and spatial dispersion among 'always-on' employees and consumers. To help us understand power in economic arrangements dependent on information and technical innovation, we turn to Innis' concepts of the mechanization and monopoly of knowledge.

Information and knowledge: Mechanization and monopoly

Innis (1950/2007) understood that control of information, and control of technologies for processing, storing, and disseminating (or withholding) information, is tantamount to power. Total control constitutes a monopoly of knowledge, as we have seen wielded throughout history by interests monastic, military, mercantile, and the like. Innis (1951/1964: 190–195) showed particular concern for how knowledge became *mechanized*—embedded in complex systems, administered by authorities of science and technology (in the case of u-commerce, a technocratic managerial and marketing elite)—thereby restricting free thought and open democratic communication among citizens. Innis concluded that improvements in communication technology ironically often pose difficulties for human understanding. Mansell (2012: 116) explains the 'paradox of complexity' resulting from the mechanization of knowledge: 'The more our lives are mediated by technology, the more difficult it is to discern whether this outcome is favourable'. Reliance on computerized intelligence, she says, obscures 'the values and motivations of those who are designing the system'.

Monopolies of knowledge entail control over both 'routes of trade' and 'routes of culture' (Carey, 2004: xvi). U-commerce theory shows special concern for routes of culture, or 'the things to which we attend' (Innis, 1951/1964: xvii). For Watson et al. (2002: 333), u-commerce does more than just 'transform our view of business':

> The management of conscious attention is likely to become one of the *key* challenges of u-commerce. Marketers will have to learn what aspects of consciousness consumers want amplified and attenuated and in what contexts…When consumers are using every conceivable form of computer/network-driven technology to perform just about every task they need to as consumers, then we have real u-commerce. (344–346).

Trade is fully mechanized—not between people in a social process, but between nodes in a computing network.

While u-commerce advocates are wont to venerate improved access to media for retrieving, processing, and storing information as the basis of consumer empowerment (Pitt et al., 2002), it is doubtful that the thorough mechanization of knowledge undermines entrenched institutional power. This paradigm occludes *human* understanding and magnifies dependency on ICTs (Mansell 2012: 180–181), thereby distorting power relations toward consortia that design, operate, and own ICTs and their infrastructures (DeNardis, 2012: 734). Andrejevic (2013: 14) lays bare the mechanization of 'knowledge-generating processes': 'We no longer have to take responsibility for making sense of the data – the apparatus does this for us'. As studies of commercial databases, algorithms, and predictive analytics show (Graham, 2000; Manzerolle and Smeltzer, 2011; Andrejevic, 2007, 2013), the alleged sovereignty of consumers tends to be its opposite: a monopoly of knowledge for the administrators of u-commerce. Reliant on proprietary resources, 'digital-era knowledge practices could prove to be even more exclusive and asymmetrical than those they promise to displace' (Andrejevic, 2013: 21).

This section has argued that development of an infrastructure for u-commerce, exemplified by smartphones as a necessary implement for making consumers purchase-capable, was not inevitable and purely market-driven, but the outcome of specific policy directives, elite conceptions of a networked economy, and control over technical knowledge. In the final section we consider emergent iterations of layered infrastructures underpinning u-commerce.

U-commerce as marketplace

As an economist of trade—exhibited in a 'career-long investigation into the communicative flow of goods and ideas' (Blondheim, 2004: 133)—Innis tuned his mode of analysis to critique habits

of thought regarding payment and exchange. Computing networks seem remote from the railroads and waterways studied by Innis, but they are analogous as routes of trade in informational capitalism. According to a report from Visa and Accenture, 'Payments are the lifeblood of economies'. Eliminating friction on payments is what 'u-commerce is all about' (Schapp and Cornelius, 2001: 5).

The development of mobile payment systems is a primary beachhead for realizing the strategies reflected in u-commerce literature. In theory, mobile payment allows moments of market exchange to exist everywhere and operate immediately. We are early in this process, and hype abounds. Gartner research predicts that mobile payment sales will skyrocket to $617 billion in 2016, up from $171.5 billion in 2012; and Google expects mobile payments to exceed $600 billion by 2014 (Citi Research, 2013: 18–19).

Among the most touted payment systems is Isis, which began as a joint venture of AT&T, Verizon Wireless, and T-Mobile USA to administrate mobile payments using smartphones with near-field communication (NFC) chips. With Isis, wireless carriers intended to make smartphones a discrete payment technology: customers tap the phone at the point-of-sale, carriers collect transaction fees, and purchases accrue to users' phone bills. Soon, however, the venture became a mobile wallet for storing the cards of credit companies that would have been by-passed by Isis. This reversal, orchestrated through a deal including Visa, MasterCard, Discover, and Barclays, demonstrates what an expert respondent to a Pew survey on the future of money called the 'monopoly power' of financial institutions and transaction processors (Smith et al, 2012: 16). Amidst power struggles among wireless providers, banks, credit and payment firms, retailers, software developers, and handset manufacturers, Isis continues to disappoint expectations.

A universal and ubiquitous regime of mobile payment remains encumbered by problems of infrastructure (Smith et al, 2012: 5). The risks of upfront investment and long-term fixed capital—which conflict with present-minded investment strategies—are aggravated by uncertainty about standards. While Google pursued its own NFC-based mobile wallet with Citigroup, PayPal developed payment apps for iOS and Android and in-store systems using Bluetooth technology and iPads as point-of-sale terminals. That new iPhone models do not have NFC chips exacerbates vendors' reluctance to install terminals that neglect Apple's share of the market. Disquieted by NFC's limited optimal range and modest improvements over card swiping, a consortium of more than a dozen major retailers, representing over $1 trillion in in-store transactions, is developing its own mobile payment system, 'Merchant Customer Exchange' (Citi Research, 2013: 20). Some analysts expect Apple to develop a mobile wallet and gain immediate advantage by leveraging its iTunes database containing credit card information from 575 million users. Again, competition among firms, and proprietary control of knowledge, impairs the universality and unison necessary for u-commerce.

The convergence of commercial services on the smartphone continues to ignite marketers' imaginations and urge reorganization of retailing in line with u-commerce ambitions. PayPal Beacon, for example, uses Bluetooth low-energy (BLE) technology—small units that transmit to Bluetooth-enabled devices—to automatically 'check-in' customers, offer personalized deals, and allow 'hands-free' payments. Characterizing the future of retailing as 'knowing exactly when you arrive [in a store] and exactly when you leave', a PayPal executive evokes the 'frictionless' rhetoric of u-commerce: 'No taps, no swipes, no signatures. The payment completely gets out of your way' (Brewster, 2013). Apple's BLE offering, iBeacon, further integrates digital and physical shopping experiences. BLE sensors placed on store shelves

trigger advertisements or marketing offers *unique* to a user's specific location within a store. It is one of many technologies to rationalize the organization of marketplaces by documenting and manipulating how people move through retail space (Franko et al., 2011; Andrejevic, 2013: 41; cf. Beniger, 1986: 330–343).

Investments in BLE beacons, which combine payment capabilities and precise geo-locational targeting, reflect corporate enthusiasm for 'omnichannel retailing', essentially a new buzzword for u-commerce, with particular emphasis on marketing to customers on any and all devices. While analysts herald omnichannel marketing as a top priority for retailers (Citi Research, 2013), its success hinges on advances in technologies to track and analyze consumer behaviors. Unsatisfied with tracking 'cookies', Google, Microsoft, and Facebook are building 'unique identifiers' that will become associated with a specific consumer across devices and activities—from computer, to mobile devices, to the point-of-sale (Dwoskin, 2013). According to Forrester Research, the next twenty years will be defined by a business cycle in which firms must become 'customer-obsessed' (Cooperstein, 2013). Marketers will rely on 'a halo of quickly updated information' to deliver products and services 'in a customized way to smart devices wherever they may be' (8). Macy's has practiced such 'customer intelligence' strategies for more than a decade; since 1999 it has employed data-broker Acxiom to monitor 'each recognizable interaction' with customers and then analyze and react in real time based on what one Macy's executive calls a '360-degree' view of its customers (Acxiom, 2013). Since 2011, Macy's has accommodated Google's NFC wallet—an application compatible with more than 140,000 US merchants as of 2013 (Citi Research, 2013: 19-20)—and, in partnership with Apple, Macy's has installed beacon systems to target customers precisely at the point of sale. Wal-Mart is another to embrace digital retailing technologies. Beyond using RFID for inventory management, it has

determined that by leveraging customers' smartphones to accelerate payment processing, it can realize an annual windfall of $12 million for each one second reduction in average checkout time in the US (21).

These developments illustrate that smartphones are a necessary and consumer-subsidized part of the infrastructure for u-commerce. Internet-enabled mobile devices facilitate 'physical' or 'interior' analytics: retailers can use BLE beacons and Wi-Fi signals to count devices in or around a store and potentially track customers' movements through the aisles. Smartphones are delivery platforms for location- and time-sensitive marketing communications. And, IMDs allow for payment technologies and loyalty rewards programs to be digitized and consolidated. As the founder of Toronto-based consultancy Retail Prophet puts it, 'The store, in essence, is becoming a physical website' (Shaw, 2014).

Smartphones are just the most visible interface of ubiquitous commercial infrastructures. Unseen networks of connected devices and sensors realize the full ubiquity of media and markets. Embedded microprocessors extend connectivity to virtually all ordinary objects— clothes, appliances, product packaging—in what is being called the Internet of Things, or, more ambitiously, the Internet of Everything (IoE). The IoE is built on Internet Protocol version 6, which has the capacity to assign 4.8 trillion addresses for every star in the known galaxy; and Cisco estimates that approximately 10 billion things are connected at present (Bradley et al., 2013: 2). Cisco projects that the IoE will create $14.4 trillion in value from 2013 to 2022, based on organizational improvements including, *inter alia*, better management of supply chains and logistics ($2.7 trillion), increases in market share and the lifetime value of customers ($3.7 trillion), and acceleration of exchange by reducing time to market ($3 trillion). Projecting that $1.95 trillion is at stake in 'connected marketing and advertising', Cisco frames the IoE as a

culmination of the universality and uniqueness characteristic of u-commerce and omnichannel marketing: 'IoE will enable companies to have a complete view of their customers (behaviors, preferences, demographic profile) and deliver individually targeted messages and offers to them on any device at the time and location where they will have the most beneficial impact' (8). With this re-branding of u-commerce discourse, marketers claim, yet again, to be (almost) able to 'stimulate demand at the speed of light' (Cooperstein, 2013: 11).

Looking forward

Studying the economic and cultural history of the Canadian Pacific Railway, Innis recognized that control of the technologies and infrastructures of transportation afforded power over the administration of space and the direction of economic and cultural development. The railway was both a cause and consequence of industrial expansions. Through the impetus of expanded capacity and the influence of sunk costs in fixed capital, the railway engendered dominance of and dependence on commercial habits of thought and action.

Similarly, the expansion of networked computing technology for facilitating ubiquitous commercial exchange at once arises from the particular concerns of market-oriented societies and influences political-economic organization. Development and deployment of technology is approaching conditions in which digital capital can be transferred universally, ubiquitously, and immediately. Exploiting optimum, 'frictionless' routes for financial efficiency directs investment unevenly around the globe; yet fulfilment of this marketing logic still requires physical transportation of goods. Unlike digital flows, manufacturing of ideas and devices is not borderless: it entails bodies in space conforming to local laws and cultural standards of production and consumption. Ever more complicated routing requires tools and techniques of logistical control and human labor to build material infrastructures. With sectors concentrated

differentially by region, value is realized unequally across places, and imbalances are exacerbated. The mythology of ubiquitous commercial connectivity sanitizes the materiality of media and markets.

Innis developed analytical tools useful for critiquing a commercial system built around ubiquitous connectivity. A comparative media analysis, sensitive to institutional structures and social relations, brings into view the long history and complexity of interests operative in informational capitalism and augers an entry point to study routes of culture and trade in an age when we are always already in the marketplace.

Notes

[1] Founded in 2014 by AT&T, Cisco, GE, IBM and Intel to set standards for the Internet of Things (http://www.iiconsortium.org/).

[2] All subsequent values are in USD, unless otherwise stated.

References

Acland CR (2006) Harold Innis, cultural policy, and residual media. *International Journal of Cultural Policy* 12(2): 171–185.

Acxiom (2013) Macy's focuses on the customer. Available at: http://acxiom.com/macys-builds-comprehensive-view-customer/

Andrejevic M (2007) *iSpy*. Lawrence, KS: University Press of Kansas.

Andrejevic M (2013) *Infoglut*. New York: Routledge.

Babe RE (2000a) *Canadian Communication Thought*. Toronto: University of Toronto Press.

Babe RE (2000b) Foundations of Canadian communication thought. *Canadian Journal of Communication* 25(1): 19–38.

Babe RE (2011) Media technology and Canadian cultural policy. In: Comor EA (ed) *Media, Structures, and Power*. Toronto: University of Toronto Press, 91–118.

Barney D (2000) *Prometheus Wired*. Vancouver: UBC Press.

Bauman Z (2007) *Consuming Life*. Cambridge, UK: Polity.

Beniger JR (1986) *The Control Revolution*. Cambridge, MA: Harvard University Press.

Bergen M (2014) Welcome to the new first screen: Your phone. *Advertising Age*, March 17. Available at: http://adage.com/article/digital/millward-brown-study-shows-mobile-outpacing-tv/292183/

Blondheim M (2004) Discovering 'the significance of communication': Harold Innis as social constructivist. *Canadian Journal of Communication* 29(2): 119–143.

Bradley J, Barbier J and Handler D (2013) *Embracing the Internet of Everything to capture your share of $14.4 trillion*. Cisco White Paper.

Brewster S (2013) PayPal reveals Beacon. *Gigaom*, September 9. Available at:

http://gigaom.com/2013/09/09/paypal-reveals-beacon-a-new-way-to-check-out-and-interact-at-stores/

Buxton WJ (2013) The rise of McLuhanism, the loss of Innis-sense. *Canadian Journal of Communication* 37(4): 577–593.

Carey JW (2004) Introduction to the Rowman & Littlefield Edition. In: Innis HA *Changing Concepts of Time*. Lanham, MD: Rowman & Littlefield, vii-xx.

Carey JW (2009) *Communication as Culture*, 2nd edition. New York: Routledge.

Citi Research (2013) *2013 Retail Technology Deep Dive: Outlook for the Broadlines, Food & Drug Retailers & US Internet*.

Clinton H (2010) Remarks on Internet freedom. Washington, DC, 21 January. Available at: http://www.state.gov/secretary/rm/2010/01/135519.htm

Comor EA (2001) Harold Innis and the 'bias of communication'. *Information, Communication & Society* 4(2): 274–294.

Comor EA (2008) *Consumption and the Globalization Project*. New York: Palgrave Macmillan.

Cooperstein DM (2013) *Competitive Strategy in the Age of the Customer*. Cambridge, MA: Forrester Research.

Crawford S (2013) *Captive Audience*. New Haven, CT: Yale University Press.

Deagon B (2014) Keeping ahead of the virtual curve. *Investor's Business Daily*, March 17, p. A9.

DeNardis L (2012) Hidden levers of Internet control. *Information, Communication & Society* 15(5): 720–738.

Department of Finance Canada (1997) *The Federal System of Income Tax Incentives for*

Scientific Research and Experimental Development: Evaluation Report. Ottawa: Department of Finance Canada and Revenue Canada.

Dholakia N and Zwick D (2004) Cultural contradictions of the anytime, anywhere economy. *Telematics and Informatics* 21(2): 123–141.

Dwoskin E (2013) Web giants threaten end to cookie tracking. *Wall Street Journal*, October 29, B5.

Elkin N (2013). Key digital trends for 2014. *eMarketer*, December 9.

Franko LK et al. (2011) MUCS: A model for ubiquitous commerce support. *Electronic Commerce Research and Applications* 10(2): 237–246.

Fuchs C (2008) *Internet and Society*. New York: Routledge.

Galbraith JK (1987) *Economics in Perspective*. Boston: Houghton Mifflin Company.

Galanxhi-Janaqi H and Nah FF (2004) U-commerce: Emerging trends and research issues. *Industrial Management and Data Systems* 104: 744–755.

Graham P (2000) Hypercapitalism: A political economy of informational idealism. *New Media & Society* 2(2): 131–156.

Harvey D (1990) *The Condition of Postmodernity*. Malden, MA: Blackwell.

Holland P (2013) The rise of the mobile-born. *TechCrunch*, November 8. Available at: http://techcrunch.com/2013/11/08/the-rise-of-the-mobile-born/

Humprheys L (2011) Who's watching whom? *Journal of Communication* 61(4): 575–595.

Innis HA (1950/2007) *Empire and Communications*. Toronto: Dundurn Press.

Innis HA (1951/1964) *The Bias of Communication*. Toronto: University of Toronto Press.

Innis HA (1995) The penetrative powers of the price system. In: Drache D (ed) *Staples, Markets and Cultural Change*, Montreal and Kingston: McGill-Queens University Press, 66–87.

Jhally S (1993) Communications and the materialist conception of history. *Continuum* 7(1): 161–182.

Junglas IA and Watson RT (2006) The u-constructs: Four information drives. *Communications of the Association of Information Systems* 17: Article 26.

Kreiss D, Finn M and Turner F (2011) The limits of peer production. *New Media & Society* 13(2): 243–259.

Lee D and Park J (2008) RFID-based traceability in the supply chain. *Industrial Management & Data Systems* 108(6): 713–725.

Lee KJ and Ju J (2007) Ubiquitous commerce business models based on ubiquitous media. *Business Information Systems* 4439: 510–521.

Mansell R (2012) *Imagining the Internet*. Oxford: Oxford University Press.

Manzerolle V (2013) *Brave New Wireless World*. PhD dissertation, University of Western Onatrio.

Manzerolle V and Smeltzer S (2011) Consumer databases, neoliberalism, and the commercial mediation of identity: A medium theory analysis. *Surveillance & Society* 8(3): 323–327.

Maxwell R and Miller T (2012) *Greening the Media*. New York: Oxford University Press.

McCarthy A (2014) Worldwide mobile phone users. eMarketer.

McChesney RW (2013) *Digital Disconnect*. New York: The New Press.

McLuhan M (1964) Introduction. In: Innis, HA *The Bias of Communication*. Toronto: University of Toronto Press, vii-xvi.

McLuhan M (1964/1994) *Understanding Media*. Cambridge, MA: MIT Press.

Melody WH (1985) The information society: Implications for economic institutions and market theory. *Journal of Economic Issues* 19(2): 523–539.

Morley D (2011) Communications and transport. *Media, Culture & Society* 33(5): 743–759.

Mosco V (2005) *The Digital Sublime*. Cambridge, MA: MIT Press.

Negroponte N (1995) *Being Digital*. New York: Vintage.

Nora S and Minc A (1978) *The Computerization of Society*. Cambridge, MA: MIT Press.

OECD (2013) Electronic and mobile commerce. *OECD Digital Economy Papers*, No. 228.
    OECD Publishing. Available at: http://dx.doi.org/10.1787/5k437p2gxw6g-en

Pitt LF, Berthon P, Watson RT and Zinkhan GM (2002) The Internet and the birth of real
    consumer power. *Business Horizons* 45(4): 7–17.

Schapp S and Cornelius RD (2001) *U-Commerce: Leading the New World of Payment*. VISA
    White Paper.

Schiller D (1999) *Digital Capitalism*. Cambridge, MA: MIT Press.

Shaw H (2014) Stores that follow your footsteps. *Financial Post*, March 21, FP1.

Smith A, Anderson JQ, and Rainie L (2012) *The Future of Money: Smartphone Swiping in the
    Mobile Age*. Washington, DC: Pew Research Center's Internet & American Life Project.

Stout H (2013) For shoppers, next level of instant gratification. *New York Times*, October 8, B1.

Sweeny A (2009) *Blackberry Planet*. Mississauga, ON: John Wiley & Sons Canada.

Tapscott D (2002) Competing in the age of hypercapitalism. *Intelligent Enterprise*, July 26:
    12, 53.

Tubbs G and Gillett T (2011) *Harvesting the BlackBerry*. Tucson: Wheatmark.

Turow J (1997) *Breaking Up America*. Chicago: University of Chicago Press.

Turow J (2011) *The Daily You*. New Haven, CT: Yale University Press.

Van Dijck J and Nieborg D (2009) Wikinomics and its discontents. *New Media & Society* 11(5):
    855–874.

Wall Street Journal (2005) Cox to the SEC. 3 June. Available at:

   http://online.wsj.com/article/SB111776013243750026.html

Watson RT (2000) U-commerce: The ultimate. *Ubiquity* 33: 1–2.

Watson RT, Pitt LF, Berthon P and Zinkhan GM (2002) U-commerce: Expanding

   the universe of marketing. *Journal of the Academy of Marketing Science* 30(4): 329–343.

Watson RT, Berthon P, Pitt LF and Zinkhan GM (2004) Marketing in the age of the network.

   Business Horizons 47(6): 33–40.

Winseck D (2002) Illusions of perfect information and fantasies of control in the information

   society. *New Media & Society* 4(1): 93-122.

Zhang L and Liu Q (2011) A review for ubiquitous commerce research and application (2000-

   2009). *International Journal of Mobile Communications* 9(1): 39–56.

Zhang L, Liu Q and Li X (2009) Ubiquitous commerce: Theories, technologies, and

   applications. *Journal of Networks* 4(4): 271–278.

Zinkhan GM (2005) The marketplace, emerging technology and marketing theory. *Marketing*

   Theory 5(1): 105–115.