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On the Transactional Ecosystems of Digital Media

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Abstract

This paper contributes a framework for understanding the convergence of two "transactional ecosystems," or put differently, the convergence of two types of currency: money and attention. The former is represented in the push to make commercial transactions ubiquitous and seamless (e.g. as in mobile payment systems), while the latter is represented by theories of the "attention economy" and subsumed in the "attention and engagement" metrics that currently shape the production and distribution of content on digital and mobile platforms. The means of communication and commerce, of payment and attention, are increasingly wedded together in the same device or platform implying that how we pay for things is bound up with "the things to which we attend" (Innis, 1952, p. xvii). Drawing on literature on the political economy of media, this paper provides historical and theoretical context for this convergence, offers up some paradigmatic examples alongside industry analysis, and concludes by raising potential concerns emerging from its current trajectory.

Keywords

Media Theory, Political Economy, Mobile Pay, Attention Economy, Digital Media.

Introduction

This paper argues that any conceptualization of digital media that does not include reference to their transactional properties is incomplete. The fact that the overwhelming (though

not total) *commercial* development of digital media is now blending with an emerging, albeit contentious, "payment ecosystem" (European Payment Council, 2014, p. 14) represents an important line of development, shaping the future consumption, production, and monetization of digital content. In this paper we contextualize this trajectory by providing some historical and theoretical context in order to situate this development within a political economy framework of media.

By "payment ecosystem" we mean the complex ways market transactions are enacted and maintained by overlapping digital media systems. We argue that the development of mobile and ubiquitous payment platforms and capabilities will mature alongside media industry attempts to better measure and "monetize" attention as part of their ongoing restructuring around digital platforms. The prospective merger of these two transactional ecosystems—payment and attention—in the form of the personalized and ubiquitously connected mobile device enables the embedding of market relations into now essential media devices and practices. What this paper also highlights is that the transactional dimension of media is not, on its own, a new phenomenon.

Consider, for example, a recent exhibit at the Detroit Institute of Arts entitled "Arts of the Ancient Middle East." The exhibit's organizing theme was the essential role that art and technology played an in the emergence of the earliest empires of the Middle East (Sumer, Babylonia, Assyria, and others). While it showcases spectacular mosaics and sculptures expressing the cultural and military power of these empires, a far less dramatic, albeit no less important component of the exhibit highlights the emergence of writing (cuneiform script) and related media (e.g. clay tablets, metal coins) as the essential sinews of these early empires. One section of the exhibit demonstrates how writing began primarily as a necessary adjunct to

commercial transactions as those transactions became dispersed in time and across space; only later did it become a medium of cultural expression in the epic tale(s) of Gilgamesh. As the description of one small display explains: "The first cuneiform texts were lists of goods and people. They were written for accounting purposes: to organize labor forces; to provide rations of food oil, beer, and cloth for workers; to keep track of tribute and taxes given to palaces and temples." In an adjoining display, a collection of coined money with the provocative title "Coins: A Technology of Empire." We would like to make two further points about this particular anecdote: first, it reflects existing literature on the relationship between money and the rise of writing cultures (Schmandt-Besserat, 1982; Dale, 2013) as well as a central premise advanced by Harold Innis regarding the interconnection between innovations in culture and economy (Innis, 1950). Relatedly, we want to highlight the inclusion of this exhibit within a building that also houses more traditionally *cultural* artifacts such as the paintings of Vincent Van Gogh and the sculptures of Auguste Rodin.

Although contemporary digital media may seem a far cry from the "primitive" media of clay tablets and metal coins, the exhibit just mentioned is an important reminder that the history of media is in many ways bound up with the history of commerce; changes in media of communication are reflected in changes in commercial transactions and relationships; and vice versa. The circulation of goods, people, and information can be modulated by the both the commercial and communicative application of media technologies. Moreover, this connection contains the seeds of a more expansive analysis of how media technologies, and their evolution, is tied to broader political economic interests and power structures.

While our current moment may not offer an obvious parallel to the empires of Mesopotamia or the Mediterranean, it does reflect a particular "empire of capital" (see Meiksins

Wood, 2005). One thing that this "empire" does exceedingly well is make market transactions as pervasive and immediate as possible. Information and communication technologies have been essential in this process by merging one set of social relationships (senders and receivers) with another (buyers and sellers). In this sense, our paper outlines both continuity and novelty in the convergence of communication and commercial capabilities within current and future digital media platforms. While historically, communication and commerce have had linked but parallel developmental trajectories with only brief moments of intersection, our current moment suggests a more thorough fusion of the two. Hence, the dominance of "commercial media" in a double sense: on the one hand, as media that serve as both channels for commercial messages and as commodities themselves; and on the other, as media *used in and for* commerce. Moreover, this entanglement is at the heart of contemporary commercial media that directly benefits a particular modality of capitalism that we might, for now, call "platform capitalism."

A deluge of prominent brands and companies across multiple industries—finance, hardware and software tech, telecommunication—are pushing to develop the fullest application of mobile media for commercial and peer-to-peer transactions. Large companies such as Starbucks, Apple, Chipotle, CVS, and countless others have invested millions of dollars into integrating mobile payment services into their business practices. (Kharif & Pattron, 2016, & Borison, 2014). Rightfully so, as mobile payment transactions accounted for $450 billion worldwide in 2015 (Statista, 2016).[1] This push is occurring at the same time that the amount of attention *paid* to mobile devices and content is expanding in both reach (number of individual users) and depth (amount of time spent on the device). It is predicted that the number of global

[1] Starbucks in particular is a trailblazer in the push for ubiquity in mobile payments. Twenty one percent of all Starbucks transactions in the U.S. take place via the company's "Mobile Order and Pay" app, which allows customers to order and pay without waiting in line (Kharif & Pattron, 2016).

mobile phone users will rise to 4.77 billion in 2017 with users spending an average of five hours on mobile devices per day (Statista, 2016, Baral, 2015, & Chang, 2015).

With these opening considerations in mind, this paper contributes a political economic framework for understanding the convergence of two "transactional ecosystems," or put more simply, of two types of payment: commercial and attentional. The former is represented in the push to make commercial transactions ubiquitous and seamless (e.g. mobile payment systems),[2] while the latter is subsumed in the "attention and engagement" metrics that now shape the production and distribution of content on digital and mobile platforms. The means of communication and commerce, of payment and attention, are increasingly wedded together in the same device or platform. The integration of the means of communication with the means of commerce implies that how we pay for things is bound up with why we "attend to the things to which we attend" (Innis, 1952, p. xvii). What follows is not an exhaustive attempt to map of this terrain, but instead presents selective examples in order to offer a glimpse of the "longue durée" of media development as it is bound up with both communicative and commercial needs. The paper provides a brief historical and theoretical context for conceptualizing this convergence of ecosystems, offers a snapshot of current developments, and concludes by raising potential concerns about the current trajectory of this convergence.

"Always Already In the Market" - A Field Theory of the Market

The multi-industry attempt to develop mobile-first payment and financial services is symptomatic of a broader colonization of everyday life by market mechanisms and relationships (buying and selling, paying). Digital media are, in this perspective, providing the technical

[2] Furthermore, the development of ubiquitous/mobile payment platforms/services is part of a longer history within the imaginary of capitalist economies to evolve into "cashless societies" (Batiz-Lazo, Haigh, & Stearns, 2014).

infrastructure for an all-encompassing market *field i*n which the potential for market/commercial transactions are always "ready-to-hand." It is in this crucial function that the transactional capacity of media is enhanced and it is in this sense that the convergence of the two transactional ecosystems can be understood as a means to optimize both consumption and communicative "capacity." In the former case, we mean the tendency to always maximize opportunities/potential for market transactions, while the latter refers to the ability of an individual to engage in a diverse range of communicative acts. Following Harold Innis, the term "capacity" can be thought of as an "index of potential" (Comor, 1994); potential that can be realized to greater or lesser extent by the specific characteristics of different media technologies. Thus by turning market relations into an embedded part of communicative activity, the market itself becomes an omnipresent field enabled by digital platforms and "activated" by users' measurable attention and behaviour.

As already noted, the connection between communication and commerce is a recurring theme in the history of media including the earliest examples or writing, the phonetic alphabet itself, and more recent technologies like the electric telegraph (see Carey, 2009). This connection evidences the flexibility of communication media in their application; it also evidences the homology between communication and commerce as different modes or orders of exchange. Conceptualizing how the market is constituted in and through the transactional function of media is therefore essential to the articulation of the market as a material contingency realized when certain social relations are enacted (e.g. buyer/seller, sender/receiver).

In *Wheels of Commerce* (1983) Fernand Braudel provides a history of capitalism as it emerged in early modern Europe. Here, in Braudel's meticulously detailed history, he describes the materiality of spaces in which market relations have been instantiated, but also links these

spaces and practices to the particular "instruments of exchange" that enabled them. From modes of pre-capitalist barter, to the development of coinage and paper money, into more abstract financial instruments. The market economy is made material by the spaces which instantiate particular relations as well as the instruments of exchange that mediate such relations. For Braudel, and others (e.g. Stearns, 2011), one of the most important instruments is the invention of "symbolic money", like paper money (bills of exchange), which acted as an "accelerator of capitalism" (Braudel, 1983, p. 113). Further contributing to this acceleration, mobile payment technologies and services, as emerging instruments of exchange, enable the collapsing of the "threefold division" of material life, economic life, and the activities of capitalism (p. 455). As such, locating the market becomes much easier: wherever you are, there you are, always already in the market (McGuigan & Manzerolle, 2015).

It is worth discussing briefly a key innovation in the development of digital media as instruments of exchange: Visa. As David Stearns (2011) has written in his fascinating history of the Visa payment system, what is perhaps most interesting about Visa is what it is not: "Visa does not actually issue cards, Visa is not a bank, does not extend credit, nor maintain their accounts…" (p. viii). This begs the question: what exactly is Visa? Stearns' answer is that "Visa is an enabling organization…Visa provides an infrastructure for making money move" (p. ix). The history of Visa is one that provides a clear precursor to the current era in which the line between tech companies like Google and Apple and traditional financial or banking entities has become blurred. As Stearns explains, Visa is significant in developing the transactional logic of digital media:

> Visa, more than any other organization at the time, defined the electronically-processed credit and debit cards we known today. Visa's founder and his staff changed the way

> bankers and consumers thought about the card, transforming it from a vehicle for automating consumer credit to an access device for a global electronic value exchange network. (p. ix)

In this respect, the initial formation of Visa is telling and worth quoting at length:

> Even before the organization was formed, Founder Dee Hock, had come to the conclusion that money had become nothing more than "guaranteed alphanumeric data" and that computers and telecommunications would soon enable the near-instant transfer of those monetary data anywhere in the world. The implications for banking and payments were enormous: any organization that was adept to data processing could easily become a 'bank'; and any organization that could facilitate and guaranteed transmission of these data would effectively create, and sit at the nexus of, a new global currency…[Hock] also realized that the term 'credit card' was a misnomer, a historically contingent label that limited how people thought … The card was simply an access device, something that identified an account holder to a value exchange system. There was no reason why the account in question had to be a line of credit, or any other account…*there was little reason why the access device needed to be a rectangular plastic card, it could just as easily be something else typically carried by a consumer*. (p. ix, emphasis added)

What Braudel, and Stearns, illustrate is that the rise of capitalism is fundamentally bound up with financial abstractions that are meant to correlate with the real (and predictable) behaviour of buyers and sellers in time and space (a point we will return to when we discuss the capture and monetization of attention). Similarly, the current development of payment, advertising and marketing practices embedded in digital and mobile platforms illustrate the

development of tools for financial transactions that fuse communication and commerce, as a means to maximize consumption capacity. The result is that the evermore technologically mediated 'moments' of everyday life have engendered new forms of social productivity and value creation (Fortunati, 2002).

It is at this point that we want to introduce how attention is incorporated into the broader political economic demands of contemporary capitalism. The convergence of the two ecosystems—attention and payment—address two crucial, yet interconnected, barriers to the accelerating/expanding circulation, or consumption, of goods and services.

In a lucid passage from the *Grundrisse*, Marx explicates capital's two significant barriers (Marx, 1973, p. 398-423). The first barrier is a cultural barrier involving the expansion of needs, use values and desires; the second involves the means to pay. As Marx writes: "Its first barrier, then, is consumption itself—the need for it…Then, secondly, there has to be an equivalent for it" (Marx, 1973, p. 404-405). As Manzerolle and Kjosen (2015) write, "Taken together these two barriers reflect a specific consumption capacity or magnitude. While the first barrier traces the entire evolution of the advertising and marketing apparatus (and its migration onto digital platforms), the latter has been overcome by the creation of credit and crediting mechanisms like mobile payment systems" (p. 168). Consequently, the consumption associated with this expanding bundle of needs comes to reproduce "the individual himself in a specific mode of being, not only in his immediate quality of being alive, [but] in specific social relations" (Marx, 1973, p. 717). The social being of the individual and the circulation of capital are tied to the perpetual modulation of consumption.

What then is the materiality of the market, and how can it best be expressed under conditions in which ubiquitous digital media are always already integrating us into market

relations? The term 'field' is a metaphor we deploy to understand the latent potentiality of specific social relations (e.g. buyer and seller) within digital media as well as the almost gravitational attraction between money (or credit) and commodities. In our usage there is also a double reference: the first is to Braudel's market fairs (p. 81) the physical spaces temporarily designated on special occasions in order to instantiate particular social relations and practices to occur; while the second reference is to emphasize the crucial role of wireless connectivity, spectrum technologies, the electromagnetic field that, while not directly experiential, increasingly serves to coordinate the networking of people, places, and products in real life.

Omnipresent forms of payment (and supporting credit and crediting mechanisms) combined with attention and engagement metrics ensures that the market field follows the individual user through their device. Here we might think of how the field of potential market transactions instituted by mobile devices significantly lowers the threshold of change from everyday user, friend etc. into possible consumer or transaction agent. This media environment fulfills Marshall McLuhan's (1964) prediction that the "steady progression of commercial exchange" is inseparable from the "movement of information itself" (p. 137). Increasingly, these flows of data are being treated as a kind of pseudo currency, or at least ascribe some nominal value for their marketing importance. Indeed, consumers are willing to hand over personal information in exchange for coupons, discounts, and other rewards (Accenture, 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...it reduces electronic commerce to a fully naturalized, entrenched, and unnoticed component of social reality" (McGuigan and Manzerolle, 2015, p. 1832). The capacity for market transactions is as pervasive and saturating as the electromagnetic field itself.

Having laid out a historical and conceptual framework, we will now look more specifically at the two transactional ecologies as they appear now, and provide details on how they are converging together.

The Two Ecosystems: An Overview of Current Developments

There has been, at least for the last few years, great investment on the part of many companies to integrate financial transactions into social media and mobile platforms. While adoption rates are still underwhelming in North America, the industrial effort and investment directed at transforming or disrupting the existing payment ecosystem is worth examining. Bill Maurer, an anthropologist who has extensively studied mobile money and payment systems writes that, "The contemporary payments industry is based on the conceptualization of payments as a 'space' within which one can develop value propositions. Mobile money proponents seek to do more than generate profits: they seek to create a new infrastructure, new 'rails' in the words of Bill and Melinda Gates Foundation staff, on which to roll out new products for financial inclusion" (Maurer, 2012, p. 593). He concludes that, "Mobile money derives from the past 50 years of conjuring a value chain in the act of payment: creating new payment systems to foster 'efficiencies' but also to generate revenue through transaction fees" (p. 593). What is novel about the current development is that, until recently, "consumer payments were not seen as 'owned' or 'ownable'" (Maurer, 2012, p. 476). Apple's development of a mobile payment service is emblematic of this, and is arguably a watershed moment in the development of mobile payment tech and the more general consumerization of "fintech" (Aspan, 2015; The Economist, 2015). A brief survey will help demonstrate the breadth and scope of this project to convert our most essential communication media into financial tools.

At an institutional and policy making level, the European Payments Council (EPC), the "coordination and decision-making body of the European banking industry in relation to payments," in a recent report on mobile payment systems proclaimed that, "Since mobile phones have achieved full market penetration and rich service levels they are an ideal channel for payment instruments" (EPC, 2014, p. 7). Because of the complex, often fraught, relationship between competing companies and, indeed, industries, the global adoption of mobile payment services and platforms has been uneven. While mobile payment technologies and digital wallets offer a novel way to pay, American consumers have been particularly slow to adopt these functions on their mobile devices. A number of recent reports (Board of Governors of the Federal Reserve System, 2016; PYMNTS, 2016) have found that, on average, only 20% of global mobile phone users (with compatible devices) make mobile payments on a regular basis.[3]

Mobile Pay

In terms of typology, there are at least three different types of mobile payments: 1) e-commerce involving web or app portals; 2) mobile payment at "point of purchase" (POP); 3) peer-to-peer (P2P). Most mobile and digital platforms include some combination of these three. A brief review of some of the key players in the mobile payment ecosystem will help ground our earlier historical and theoretical discussion.

Initially released in October 2014, Apple Pay is an emerging mobile payment technology and digital wallet that allows users to complete POP transactions with their mobile devices. The payment transaction process begins with users inputting debit or credit card information into the

[3] In North America in particular, 52% of mobile phone users are "extremely aware" of mobile payments, yet only 19% make use of them on a regular basis (Accenture, 2015, p. 9). Even when Apple Pay, a mobile payment giant, was first released in October of 2014, over 90% of compatible-device users did not use the service; 83.4% still did not one year later (PYMNTS, 2016, p.1).

Wallet app on their Apple devices. Users may add payment methods manually, through their iTunes accounts or by taking a photo of their cards. Users may then use the digital wallet on select merchant terminals equipped with near field communication (NFC) technology, identifiable by an Apple Pay symbol. Users need not open any app to activate Apple Pay. Rather, the wallet will activate when it is near an NFC-equipped terminal. To complete a purchase, users first select the card they wish to use, they then hold their smartphone in front of the reader with their finger held on the Home button for identification purposes. This completes the in-store purchase. However, adoption rates have been less than satisfactory for Apple. In June of 2016, only 23.8% of all Apple Pay-compatible devices have tried the service, while the majority of non-users (47%) claimed they are satisfied with using their current payment methods (PYMNTS, 2016). Even though Apple Pay accounted for three quarters of all contactless payments made in the U.S. in 2015, and the number of retailers accepting Apple Pay is increasing, Apple Pay's profitability is but a smidge of Apple's total quarterly earnings (Wuerthele, 2016). After all, Apple Pay only charges merchants 0.15% of each transaction made with the mobile wallet (Tonner, 2016).

Apple's largest mobile competitor, Android, also has its own digital wallet for Android users that operates in much the same way. Launched in September 2015, Android Pay is a mobile wallet developed by Google that is available on smartphones running Android 4.4 or above and equipped with NFC technology. One survey by PR firm, Walker Sands (2016), found that 19% of compatible mobile device users have used Android Pay for making an in-store purchase, while 61% chose not to because of security concerns (Sterling). While Android Pay also experienced a slow start upon release, its adoption rate was "on par with where Apple Pay was several months into its launch" (MOA, 2016, para. 1). In late 2015, Google Wallet ceased to

be a means of transaction for point-of-sale purchases, and Google's NFC payment functionality was entirely shifted to Android Pay. In-app purchases are also now handled exclusively through Android Pay. As a result, Google Wallet began to function primarily as a method of peer-to-peer transaction. Google Wallet users only require a US bank account in order to send funds directly with an Android or iOS device. Money can be sent to anyone with an email address within the United States. To access the funds sent, the recipient must create a Google account.

Samsung Pay is another important digital wallet released in September 2015 that works in a manner very similar to Apple Pay and Android Pay. However, Samsung Pay can be used anywhere a credit or debit card can be used. This is because it has the ability to complete payments using both NFC technology and magnetic secure transmission (MST) technology, of which is found on magnetic stripe readers. Since the U.S. is one of the remaining countries where magnetic stripe readers are still common, Samsung Pay's availability is much more widespread (McFadden, n.d.).

The development of mobile payment systems is not just limited to established hardware and software companies. Upgrades to payment infrastructure are also driving the development of mobile payment technologies. EMV (Europay, MasterCard, Visa) technology is now a global standard for payment cards, ATMs and payment terminals, which also comes fully equipped with NFC technology (Chase J.P. Morgan, 2016). This system is considered far more secure than the older magnetic swipe system and it is therefore associated with reduced fraud. Due to the increased security provided by this technology, its widespread adoption is favoured by many financial institutions worldwide. The U.S. is one of the remaining countries to adopt EMV technology. On October 1st 2015, U.S. payment networks shifted the liability associated with credit card fraud to merchants (EMV, 2015). Only those merchants unequipped with the more

resilient EMV technology would be held liable for fraud. This 'liability shift' puts pressure on merchants to adopt EMV terminals, of which the U.S. was one of the last countries to do so. With more and more merchants switching to EMV in the U.S., it is likely that more consumers will make mobile payments due to its widespread hardware availability.

Peer-to-peer (P2P) payment methods allow users to send money to their friends and family; a process that has become increasingly popular because of the speed advantage over traditional methods like cash and checks (Corkery and Popper, 2016). Mobile apps that support these services are often used by consumers to pay their friends back who have loaned them money, or to split a payment with a friend for a taxi ride, a meal, a night out, etc. For example, Venmo is a large mobile payment service that allows for the transfer of funds between users. Owned by PayPal, Venmo allows for transactions between users with a Venmo account on both its mobile app and desktop website. However, what is unique about Venmo is that it not only allows users to upload their credit cards in addition to their debit cards, the service is deemed a 'social payments' platform, whereby transactions are shown on users' newsfeeds (Axton, 2014).[4]

Outside of North America and Europe, the highly popular M-Pesa is essentially a branchless baking system that offers a variety of P2P services over a mobile platform. The company was launched in 2007 by the largest mobile providers in Kenya and Tanzania. Since its launch, the company has spread to a number of different countries including Afghanistan, South Africa, India, Romania and Albania (The Economist, 2013). After paying a nominal fee, users can make deposits to a virtual account, transfer money by PIN-secured text messages and redeem virtual currency in exchange for real cash.

[4] Venmo is growing in popularity, particularly among millennials, as PayPal (2016) announced that the app processed over $3.2 billion in the first quarter of 2016 alone, a 154% increase from Q1 2015 (Del Rey, 2016).

Potentially even more significant is the incorporation of payment features within social media platforms. One popular platform equipped with peer-to-peer payment services is Facebook's Messenger app. Currently only available in the U.S., Facebook allows users to add a debit Visa or MasterCard to the app and send money to their friends and family. Users tap on the "$" button within Facebook's Messenger app and enter the amount they would like to send. Funds will simply be transferred from one bank account to another. The Messenger app will require fingerprint identification (model permitting) and will pose security questions before a user makes a transaction. Twitter and the U.K. bank Barclays (2015) have launched a similar initiative through the peer-to-peer money transfer app, Pingit. Users may add their Twitter handles to the app (whether they are a client of Barclays or not) and can send money to their friends or small businesses via the Twitter handle. The digital wallet by Bitcoin, iPay, has launched a similar feature; users can send others Bitcoins through Twitter handles instead of email/Bitcoin addresses (Mobile Payments Today, 2016).

Another popular mobile app that supports peer-to-peer transactions is Snapchat. As of November 2014, Snapchat allows users to send "Snapcash" to their friends and family anywhere in the US through the app. In partnership with Square, Snapchat permits users to securely add their American Visa or MasterCard debit cards to the app. Snapchat's new feature has the potential to allow advertisers to place 'buy' buttons within their sponsored stories. With their connected debit cards, users could view a sponsored story and complete a purchase within Snapchat itself.

Even major international messaging apps like the massively popular WeChat is becoming a "mobile payment giant" (Russell, 2016; Osawa, 20160). With over 700 million users, WeChat is essentially the central platform for all mobile internet activity in China (Economist, 2016). Not

only does WeChat allow for instant messaging, social networking, voice/video messaging, and online gaming, the app has been a trailblazer in the shift towards a cashless society. Users may add their banking information to the app to send money to others and to purchase goods and services in-app, online, and in-store at over 10 million merchants (Economist, 2016). However, there are a number of sociocultural conditions that have allowed WeChat to integrate exceptionally well in China. China uses mobile devices more than any other country in the world, and with high standard text messaging rates, WeChat provides a way for consumers to talk and text freely. China has also skipped the early internet phase of portable computers and email and went straight to mobile devices, so it is fitting for consumers to have one central hub for accessing the internet. This may explain why nearly half of all online sales in China are completed via mobile devices (Economist, 2016). Western companies such as Facebook can only dream of emulating the success and consumer satisfaction of WeChat in China, which puts into perspective just how large the shift to mobile payment technology is beginning to taking shape. Indeed, China is in the midst of an intense competition among possible mobile payment providers as adoption rates continue to climb rapidly, with some arguing that mobile payment is contributing to a broad lifestyle transformation (Yuan, 2016). Other popular social media platforms in China like Weibo and QQ are also incorporating payment functions into their platforms furthering contributing to the adoption of mobile payment by their users.

Attention

This last point about social media offers a useful way of returning to the issue of how attention is being conceptualized as an increasingly scarce currency which digital media platforms are attempting to monetize. This second mode of payment, is perhaps more abstract, but no less important in understanding the developing transactional logic of digital media: the

development of attention metrics as a growing influence on digital advertising and marketing—and more generally, the future *commercial* development of digital content and platforms. What we argue here is that the economics of attention, reflected in the emergence of attention-centric advertising/marketing metrics and strategies, reflects a transactional logic captured by the colloquialism "paying attention." For example, much of the current effort in monetizing attention rests with the ways in which users "pay" attention to a particular piece of content. Facebook and Google are two paradigmatic attempts to create virtual monopolies of attention where monetization stems from advertising and marketing interests.[5]

A common definition of attention includes some variation of the following: "focused mental engagement" on a particular piece of content or information (Davenport & Beck, 2001, p. 20) or as time spent "interacting with someone or something" (Simon quoted in Kortelainen, 2012, p. 661). Reviewing literature on the attention economy, Tizianna Terranova (2012) writes:

> In theories of the attention economy, attention is first of all a scarce resource, which is what allows the Internet to become an economic medium again, that is, a medium to which all the axioms of market economics can once again be applied. Scarcity is the condition that can give rise to a proper economy, the 'attention economy'… According to theorists of the attention economy, in as much as attention is both scarce and measurable, it can become not simply a commodity like others, but a kind of capital. (p. 2)

As a scarce resource, attention can be profitably monetized, it is argued, through the development of sophisticated metrics available on digital platforms (mobile, desktop and others

[5] With respect to the shift towards mobile, some statistics will be helpful in supporting this claim: Facebook's mobile ad revenue grew 82% from 2015-2016 and now accounts for 80% of its total ad revenue (Peterson, 2016). Mobile advertising on Facebook accounted for 84% of total ad revenue in the second quarter of 2016 (Facebook, 2016). Facebook's mobile ad prices went up 5% in Q1 of 2016 since more advertisers were purchasing more mobile ads (Seetharaman, 2016). Mobile advertising accounts for 59% of Google's total digital ad revenue. YouTube accounts for 9% of Google's total digital ad revenue (Freier, 2016). More Google searches take place on mobile devices than on desktops in the U.S., Japan and eight other countries as of May 2015 (Sterling, 2015). Google's total mobile ad revenue for 2015: $24.31 billion U.S. dollars (Statista, 2016).

like smart TVs); "…the financialization of attention relies on the possibility of measuring attention by means of techniques operating on data and meta-data abstracted from digital interaction" (Terranova, 2012, p. 5). Transactional data is perhaps the most crucial type of meta-data since it reflects actual, rather than assumed, behavior. The production of transactional data measuring attention "spent" on particular digital content echoes a similar drive in the enclosure of mobile payment services/platforms. As Maurer (2012) explains the "money in money" will not just be fees but will come largely from data (p. 475). Marketing interests are particularly focused on understanding the relationship between how attention is consumed by information and how that might correlate with specific types of valuable behaviour (e.g. promotional, purchase).

Attracting user attention, however, is increasingly difficult in a cluttered media environment where an abundance of readily available information has arguably contributed to a fragmentation and perhaps degradation of attention itself (see Carr, 2010). Since consumers have adapted to the hyper-commercialized nature of the internet, they have become blind to display ads surrounding the content being consumed; a concept otherwise known as, 'banner blindness' (Nielsen, 2007). As a result, even though traditional marketing metrics such as page views, click-through rates (CTR) and cost-per-thousand impressions (CPM) are still widely used for measuring ad performance today, marketers are beginning to realize their inextricable flaws. For example, these metrics provide little insight to marketers in regards to how consumers engage with content, or whether the ad actually gained any human attention. An advertiser measuring an ad's success based on the number of impressions served, for example, is an inaccurate judgement of consumer engagement. Was the advertisement even seen by the targeted consumer? Did the advertisement grab the consumer's attention? How can marketers measure what matters?

Marketers are aware that they must look past traditional quantitative methods of measuring engagement and look towards adopting a set of qualitative attention metrics to fully understand the consumer experience.

The development of metrics for attention is currently a popular discussion topic among digital marketers and online publishers in the digital marketing industry currently (Rigney, 2015; Munro, 2016). The main concern is how one can accurately measure consumer engagement and attention. There is currently no single method that has proved to adequately measure consumer attention and engagement, but rather a multitude of different approaches being tested. Most methods currently circulating involve two common themes: viewability and engagement. According to the International Advertising Bureau (2016), viewability incorporates two elements: the percentage of the ad that is visible in a browser window, and the number of seconds the ad is viewable for. The standard released by IAB deems an ad viewable if it is 50% in view for a minimum of one second (IAB, 2016). Viewability represents one way to measure whether an advertisement or piece of editorial content has actually been viewed, but viewability alone sheds little insight on actual consumer engagement and attention. Measuring consumer engagement while an ad is in view may lead to developing a measurement tool publishers can use to harness attention and sell to interested advertisers. There are multiplicities of ways to measure active engagement including scrolls, mouse movements, keyboard, strokes, eye tracking, etc.

Another noteworthy example of the shift towards an attention metric framework within the digital attention economy is the web analytics firm, Chartbeat. The firm has paved the way for online companies and publishers to move past the click as a tool for measurement and towards a set of metrics that optimize and track real consumer attention. Founded in 2009,

Chartbeat partners with advertisers to help them publish high quality, attention-grabbing content by evaluating precisely how consumers engage with content. Chartbeat (2009) utilizes a unique metric, active exposure time, to measure the total amount of time consumers spend engaged on a particular page when an advertisement is shown in an attempt to quantify consumer attention. More specifically, Chartbeat measures consumer engagement by constantly checking for signs such as mouse movements, window resizing, mouse-downs, key-downs, and scrolls to ensure the consumer is remained active (Chartbeat, n.d.). Time-spent is measured beginning when a consumer loads a page. Chartbeat's timer will pause when the consumer exhibits no signs of engagement after five seconds, will resume after engagement occurs again, will pause if the consumer switches tabs within their browser, and will stop when the consumer closes the window (Chartbeat, n.d.). Chartbeat's active exposure time is just one method the firm uses in an attempt to quantify consumer attention.

Using Chartbeat's metrics as backbones for attention research, Upworthy is a popular online publisher that has adopted a new approach to monetizing attention in what it entitles, "attention minutes" (Upworthy, 2014, para. 5). Utilizing Chartbeat's 'active exposure time' metric, Upworthy combines the total amount of attention paid by active consumers on its site, and the total amount of attention paid per editorial piece in order to calculate how many attention minutes are paid by Upworthy's readership (Upworthy, 2014). Other online publishers beginning to stray from traditional click and view-based metrics include the Wall Street Journal, Medium, and Bloomberg.

Since social media giants rely on advertising for revenue, they also have their own unique set of metrics to measure ad performance. Among its Page Insights, Facebook (2016) measures user engagement by calculating the percentage of unique people who saw a post and clicked,

liked, commented or shared it. Facebook not only tracks the number of likes, shares, and comments a page or post garners, but it also provides insights on reach. Reach is defined by how many people have seen a page/post or when it is viewable in one's News Feed (Facebook, 2016). One way that these social media are attempting to better monetize attention is a shift towards live video streaming paired with advertisements or other commercial messaging (Tam, 2016).

Brands on Snapchat are also tapping into the mobile app's metrics for user engagement with Snapchat stories. Brands may use the total number of unique views each Snapchat within a Snapchat story receives, much like any other Snapchat user. A view is counted when a user taps on the story and views the first frame for at least one second. Since Snapchat allows users to view the number of people who have seen each individual Snapchat throughout the course of a story, brands can calculate the fallout rate. This rate is the percentage of people who stop viewing the story at a certain point during the story. Next, brands may calculate the completion rate of a story by looking at the number of people who have viewed the first Snapchat within a story to the very last one. To get a percentage rate, brands may divide the total number of views from the last Snapchat by the total number of views from the first Snapchat (Honigman, 2015). Brands that post Snapchat stories may also calculate the screenshot rate, which divides the total number of views a Snapchat receives by the number of screenshots taken to measure audience engagement.

Literature on the ability to measure consumer attention in terms of ad viewability and consumer engagement on mobile devices is rather limited. However, there have been industry discussions in regards to how marketers are attempting to uncover how mobile user attention is paid. One method that is beginning to earn notice is eye-tracking technology used by mobile marketers to measure where users' eyes and attention are directed when on mobile devices. A

study conducted by Lagun et al. (2014), tracked where user attention is directed when on a mobile search engine using eye-tracking technology. The results show that user attention is typically focused on the top half of the mobile phone screen and that it is the second search result that users' eyes typically go to. The team developed what they describe as 'viewport metrics,' in an attempt to quantify user attention by analyzing the portion of the mobile page that is viewable and the direction of users' eye gaze.

Platform Capitalism, Market Democracy - Questions and Concerns for the Future

The developments we have outlined in relation to the transactional ecosystems of money and attention are not a fait accompli, but they do reflect the aspirations of digital media industries and key players. There are some notable examples that suggest, despite the trajectory we have outlined, that there are still hurdles and resistance on the part of consumers and other interests. The first is the use of ad blockers which are growing in popularity, including on mobile devices (Juskalian, 2015 & PageFair, 2016). In a report by PageFair (2016), 419 million people worldwide block ads on their mobile devices, with the largest markets being China and India. There are also now twice as many ad blockers available for mobile devices than there are for desktop browsers with ad blocking *browsers,* not apps, being the primary way users block mobile ads (PageFair, 2016). The second is the emergence of blockchain based cryptocurrencies like Bitcoin, which appear to circumvent the usual capitalized interests of banks, credit networks, and big tech companies. In the 2016 Fintech Ecosystem Report (2016), it is predicted that Bitcoin has the potential to replace the need for financial institutions altogether. A public ledger, the Blockchain, for sending and receiving currency has the potential to eliminate any means of human mediation, much like financial technologies such as ATMs and PayPal have done in the

past. Finally, there is clear evidence of costly failure partially attributed to consumer apathy but also questionable marketing decisions. As evidence, we submit to you "Tappy" the anthropomorphized payment terminal mascot developed by Softcard, a now defunct mobile payment standard developed by an industry-led consortium of credit card and telecommunications companies (Hof, 2015).

Despite these speed-bumps in the adoption of mobile payment services, the convergence of the ecosystems of payment and attention suggests accumulation strategy focusing, not on specific products or services, but on control over the platform. Emphasis on the "platform" is a useful term not only for describing how different industries are linked together (e.g. finance, software, culture), but also the "stacking" of a diverse array of phenomena—hardware, software, infrastructure, markets (goods and services), and interfaces—into a coherent user experience. Benjamin Bratton (2016) has made a detailed and convincing argument suggesting the importance of "the Stack" for understanding the intertwining of culture and politics through the spatio-temporal affordances of "planetary-wide computing." The political economic context for this infrastructural reality can be captured by the term "platform capitalism." In this sense, there is the fear that platforms will remain "parasitic" by "feeding off existing social and economic relations" (Morozov, 2015). For Morozov, platform capitalism merely shifts the site of accumulation, rather than producing any less exploitative political economic system since platforms and their respective corporations, "don't produce anything on their own—they only rearrange bits and pieces developed by someone else" (Morozov, 2015).

Given the aspirations of key industry players, it seems the transactional ecosystems of digital media offer up new platforms for pursuing the type of exploitation Morozov warns about. As Maurer (2012) writes, "payment does not proceed from the assumption of equal partners in an

exchange transaction, but is predicated on an asymmetry between…those putatively equal partners seeking to transact and…those controlling the means of value transfer…that permit a transaction to occur" (p. 476-477). As a result,

> Money itself [is] redefined…the value in the exchange now takes a back seat to the transactional data…value is in the data, and that data is our relations…with each other, with things, in relation to each other and things. Value is in the potential or vibrancy of the data when it meets and interacts with other data sets… (Maurer, 2012, p. 477-479)

Jem Bendell (2015) has outlined four broad areas of ethical concern related to the emergence of a cashless society emerging out of the widespread adoption of mobile payment services (and other digital transactional platforms/capabilities). They are worth raising in conclusion particularly at a moment where the future of transactional features of digital media are still in flux, malleable, and potentially tuned to the broader goals of public interest and social justice. The first concern is protecting consumers "as they become dependent on electronic payments and e-money systems in their everyday lives," when they become the "equivalent to utilities like water and heat in the sense that they are indispensable to our ability to live normally" (Bendell, 2015).

The second concern deals with the oligopolistic or anti-competitive nature of payment systems, leaving immense control over the development and profitability of transactional media, particularly as they are wedded with attention and engagement metrics. As a recent article noted, all these companies (Visa, MasterCard, PayPal, Google, etc.) are "competing to build and control the payment network of the future" (Corkery and Popper, 2016). Relatedly, privacy concerns will be heightened since informational asymmetries can be exacerbated by those entities able to fully exploit and monetize transactional data in order to target or neglect specific types of users

(Smith, 2016); a fact captured by a recent Bloomberg article titled "Trapping you in a club you didn't know you joined" (Greenfield and Bhasin, 2016). As Rainey Reitmen of the Electronic Frontier Foundation explains, "When all our payment transactions are tracked it creates a trove of data we have no control over. It's easy to imagine a daring divorce lawyer or a government agent trying to gain access to our financial history to try to build a story about who we are" (quoted in Sorrel, 2016). Furthermore, the rise of dynamic pricing on websites like Amazon open the door for greater exploitation of informational asymmetries (Oberhaus, 2016).

Finally, Bendell suggests a potential "weaponisation of payment systems" involving the disruption or elimination of payment or transaction services to particular nations or even groups of people. This may not just be aimed at nations or industries but could also be used again particular communities or activist groups who challenge the status quo.

While such concerns are warranted, it is important to highlight the persistent uncertainty, and thus flexibility, particularly as these platforms adapt to behavioural change, including outright resistance, by users. We have made the modest case that the future of digital media will need to contend with an overwhelming effort to ensure that market relations are embedded in both the technologies and practices of digital media. If left unchecked, the converging ecosystems we have discussed will further reinforce a media environment shaped by either the purchasing power or disposition of users, or, for those lacking such power, the exploitation of unpaid labour in the form of user-generated content deployed for promotional and/or marketing purposes. Hence, the promise of platform capitalism is a media environment fractured along, above all else, class lines, where what media content a user consumes and creates will be indexed according to their access to transactional resources (e.g. money or credit). Pariser's concept of the "filter bubble" (2012) could then represent more than just a world of ideological divides, but

a digital caste system sorted according to purchasing power and thereby close a loop that marketers have pursued with determination comparable to the European search for a direct passage to India during the Age of Discovery. In this vision of the future, digital media networks fuse both communicative and consumption capacity thereby ensuring that social life itself is subsumed by the accumulation strategies of platform capitalism and the broader empire of capital.

Avoiding a media future defined by the pernicious role of filter bubbles organized according to purchasing power will requires breaking away from the "present mindedness" (Innis, 1952, p. 76) that often shapes the contemporary assessment of new media, and to place recent developments within a longer historical trajectory. What we have provided here is one small contribution to this effort.

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