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Social Payments: Innovation, Trust, Bitcoin, and the Sharing Economy

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Abstract

The payments industry – the business of transferring value through public and corporate infrastructures – is undergoing rapid transformation. New business models and regulatory environments disrupt more traditional fee-based strategies, and new entrants seek to displace legacy players by leveraging new mobile platforms and new sources of data. In this increasingly diversified industry landscape, start-ups and established players are attempting to embed payment in 'social' experience through novel technologies of accounting for trust. This imagination of the social, however, is being materialized in gated platforms for payment, accounting, and exchange. This paper explores the ambiguous politics of such experiments, specifically those, like Bitcoin or the on-demand sharing economy, that delineate an economic imaginary of 'just us' – a closed and closely guarded community of peers operating under the illusion that there are no mediating institutions undergirding that community. This provokes questions about the intersection of payment and publics. Payment innovators' attenuated understanding of the social may, we suggest, evacuate the nitty-gritty of politics.

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A thumping bass beat greeted audience members at the beginning of the keynote session at Money 20/20 in 2013, a conference held at the Aria hotel and casino in Las Vegas for payment professionals, which billed itself as 'the breakout annual event for emerging payments and financial services'. Anil Aggarwal, the co-creator of the event, took the stage.

'Innovation in payments and financial services', Aggarwal declared, 'depends in large part on our ability to develop and build relationships with each other. Relationships built on trust and open communications'. Money 20/20's other co-founder, Jonathan Weiner, took over, telling us: 'You represent the next seven years of change in how people and companies will manage, spend, and borrow their money'.

The lights dimmed, a screen lowered, and the music picked back up. An animated, infographic-style video played behind the two men, highlighting what is sometimes called the 'payment wars': a burgeoning competition among start-ups and established players to attract customers to novel mobile and digital payment technologies. This competition grows out of the profound diversification of businesses, interfaces, networks, and underlying infrastructures we use to access and move money around.

One of us (Mainwaring) has described this diversification as a kind of 'Cambrian explosion' in payments. The Cambrian explosion was a period in evolutionary history characterized by a rapid speciation and radiation of complex life forms. Prior to this period, most life on earth consisted of simple, single-celled organisms and colonies of similar cells. During the Cambrian explosion, most of today's major animal phyla emerged as a plethora of multi-celled, structurally complex animals appeared, of many body patterns and types. It may strike the reader as incongruous that we analogize the payments industry between 2008 and 2016 to the Cambrian explosion. But prior to this period, retail value transfer was mainly accomplished through a small, set number of devices and infrastructures: cash and cash logistics, checks and check clearing, plastic cards and the debit and credit infrastructures, and the wire transfer services of companies like Western Union; internet-based payments relied almost entirely on these other systems (Benson and Loftesness, 2010). And today, payments professionals like Aggarwal and Weiner talk constantly about rapid and ramifying change, innovation, disruption – indeed, very often, about the 'evolution' of payments in response to new financial technologies (or 'fintech', as it's usually put). How do payments professionals, both mainstays and newcomers, represent that evolution to themselves and others?

Those behind the creation of new forms of electronic value transfer have long entertained fantasies of taking the state's place in the issuance

of money. Dee Hock, the founder of the network that became Visa, often slipped between the language of being in 'the business of the exchange of monetary value' (in Stearns, 2011: 45) and being in the business of inventing a digital currency. 'Think of it as money', was the first advertising campaign for VISA's precursor, BankAmericard. As Stearns (2011: 67) writes:

> for Hock, the BankAmericard was not just a credit card, it was a medium of exchange, and thus a new kind of money. This was graphically reinforced by showing a BankAmericard held by a money clip, decorated with a coin.

Fashioning themselves as 'innovators' and 'disruptors', today's payments professionals sometimes similarly imagine themselves to be not only harnessing old infrastructures to new ends, but creating new payment 'rails' – as payment professionals term infrastructures like the credit and debit card networks – and, in the process, inventing new moneys. In moving from rail to money, they are also moving from an understanding of payment providers as intermediaries facilitating the transfer of value to 'disintermediaries' displacing the role of these institutions and others – including the state. This tension becomes important to our story: in setting themselves up as disintermediaries, they position themselves in the place of the state or an organization like Visa. At the same time, they also seek – paradoxically – to disappear into the very relations they facilitate. New payment innovators seek, in short, to refunction exchange and repurpose social relations in order to reimagine money, bringing such relations in through novel technologies of payment and accounting. This vision of the social, we suggest, rejects the mediating institutions of society and their enduring relations of solidarity in favor of a set of payment and accounting infrastructures that trade on the data of trust to constitute an economy of 'just us'. We unpack this assertion empirically and expand on it theoretically in what follows.

First, however, some background on the payments industry. Beginning around 2008, payment began to diversity – rapidly – in both form and function. That diversification encompasses: first, the creation of new technologies built on top of existing payment rails, including new point-of-sale devices; online payment and peer-to-peer money transfer services; 'multi-' or 'omni-channel' banking; and hundreds of new mobile apps harnessing smartphone capabilities to allow users to store and access bank and card accounts, pay in-store, split bills, give gifts, donate to charity, manage budgets, invest in stocks, and accrue and receive targeted advertisements, discounts, promotions, and rewards – often all through a 'mobile wallet' relying on some contactless data transmission technology like Near Field Communication or Bluetooth. Second, this diversification also encompasses a related, but often

tangential set of experiments in the creation of new infrastructures for transacting, storing, and keeping track of value. These experiments attempt not just to ride the old rails but build wholly new ones. Many of the efforts here were inspired by Bitcoin and its underlying blockchain technology, a distributed transactional database we discuss further below. Third, and finally, this diversification touches on new business models adjacent to payments, grouped together under the banner of what has been called the 'sharing' or 'peer economy', which match buyers and sellers in online marketplaces through payment and accounting platforms. The actors at work across these three areas include not only legacy players like the card networks (Visa, MasterCard, American Express, and Discover), payment processors, and banks and their associated infrastructures. They also include: telecoms; retailers; hardware and point-of-sale device manufacturers; data analytics, marketing, and advertising companies; prepaid card issuers; security firms; a plethora of venture capital-funded start-ups; and, looming over everyone, technology companies like Google, Amazon, Facebook, and Apple.

Payments professionals see this diversification as the latest stage in the 'evolution' of payment technologies and practices. Indeed, images of the 'evolution' of money and payment are ubiquitous in industry spaces like Money 20/20. Often they take the form of linear chronologies or tree-like cladograms, explicitly analogizing popular representations of human biological evolution. One, for example, pictures barter, cash, checks, cards, and so on in a line under silhouettes of apes and pre-*Homo sapiens* hominins, culminating in digital and mobile payment, associated with the image of an upright walking man. More recently, however, these representations have gotten messier, and attempts to summarize the payments industry end up visually complex, with dozens of jumbled brand names in overlapping categories linked by branchlike lines of relation.

The year 2007 is significant as a commonly-referenced origin point for this evolution. This was the year the iPhone was introduced in the Global North and M-Pesa was first launched in Kenya. M-Pesa is a mobile payment service that 'rides the rails' of the text-message infrastructure of cellular phones running on the GSM network. The success of M-Pesa proved inspirational for many in the information technology sector who heretofore had not thought much about payments (Maurer, 2012a). Companies like Intel even sent delegations to Kenya to watch M-Pesa in practice (Kuriyan et al., 2012). It remains an exemplar of the innovative potential mobile infrastructures are said to have for the disruption of existing payment systems and players.

In this arena of innovation and disruption, the tension Hock attempted to straddle – between transiting existing infrastructures or building new ones, using existing forms of value or issuing new ones – is now often foregrounded. What interests us is the form this tension takes. For when new payment providers seek to move from being

intermediaries to being issuers, and thus disintermediaries, they often invoke the notion of 'the social'.[1] Some see themselves as socially embedded alternatives to 20th-century economic models that they foresee quickly becoming obsolete. For according to a new commercial common sense, it is not simply that the popular desire for the same mass-produced commodities has waned, nor that consumers want their needs anticipated and catered to via niche marketing. Instead, this new common sense asserts that people want meaningful experiences – and this includes the experience of *paying*. And so in addition to longstanding discourses of convenience, speed, and security, payment professionals now also talk about trust and distrust, social relations and access, decentralization and disintermediation. What's more, they also see new business models and value chains in the troves of data generated by the shift to digital and mobile contexts for that experience.

In this way, the payments industry, via its encounter with Silicon Valley, has discovered anew the social in money. No longer simply moving funds from one account to another, payment implicates the person and his or her digitally mediated social milieu. Devising new payment experiences requires the disruptors to know something about that milieu in order to construct infrastructures that cater to it. 'The social' – in the form of social media or social networking, for instance – fills the gap, and payment professionals are attempting to harness it to business models that mobilize digital and mobile platforms and applications for value exchange. Specifically, as we discuss below, they are trying to mobilize and account for trust, whether that trust is codified as reputation through one-off transactions or embedded in the technology itself. In this emergent vision of social payments, trust becomes the tie that binds.

As Maurer (2012b, 2015) has argued, payment is undertheorized in social science. Money was where the action was, from the classic accounts of Marx, Simmel, and Polanyi to contemporary anthropology and sociology. Payment, as the infrastructure facilitating money's movements, has been beside the point in social scientific stories about the role of money in abstracting social and economic value, the commensuration of different use values, the rise of states and markets, the commodification and then financialization of everyday life. Indeed, even as anthropology and sociology revealed money to be a social project, a record of social relations, and an archive of society's transactions, rarely did the technological and institutional systems facilitating such relations and transactions come into view. Yet today, payment professionals are reimagining these previously backgrounded infrastructures and building new ones, while making them central to a new set of social contexts. In these contexts, transactions are marketed as socially embedded, but without the trappings of mediating actors or institutions – state or market – to intervene. That is, if sociologists and anthropologists demonstrated that money is social, then payments professionals are now building payment

infrastructures under the sign of the social, too. Yet theirs is a peculiar vision of it.

In this essay, we put these transformations into conversation with theory that similarly attempts to expand the possibilities for imagining the economy, often by drawing on social imagery. J.K. Gibson-Graham (e.g. 2006), for example, have outlined a research program to explore what's below the water line of visible economic activity, deconstructing monolithic representations of capitalism (see also Hart et al., 2010). What happens when these kinds of social, solidary, relational, or otherwise alternative activities do not remain submerged beneath the representational hegemony of the mainstream capitalist economy, but come to surface – in the rhetoric of payment start-ups, for example – or are built into the very infrastructures channeling the economy's monetary flows? Our project, then, is reflexive: What do we do when our theories seem to crop up in the empirical realities we seek to analyze, as tools used by our interlocutors, even if (what appears to us to be) in peculiar ways? But our project is also diagnostic: What kind of realities do our interlocutors think they are making, and, if they are in fact succeeding, what kind of world are they potentially bringing into being?

This essay is based on more than four years of collaborative research, including archival work, interviews, and ethnographic fieldwork. Although we each have independent research programs, our agendas overlap in spaces like Money 20/20 and networks like those of Bitcoin and sharing economy proponents and practitioners. We have been calling ourselves, tongue firmly in cheek, the Future of Money Research Collaborative. We acknowledge that in the corporate worlds we are documenting in this essay, where it is imperative to stay ahead of the competition, business plans change rapidly. Nevertheless, despite the temporality of our field sites, we seek ethnographically to 'unwind' a particular moment in time and space: 2013–15 in mostly North America and parts of Western Europe, a distributed field of corporations, start-ups, consultancies, media outlets, regulatory agencies, and others who make up the payments industry and allied markets.[2] Think of this essay as a dispatch from the Cambrian explosion in payments, a paleontological survey report, a bulletin from the front lines of the 'payment wars'.[3] It joins a small but growing literature that chronicles the development of mostly private monetary technologies and the people who build and use them (e.g. Bátiz-Lazo et al., 2014; Castronova, 2014; Deville, 2014; Lovink et al., 2015; O'Dwyer, 2015; Palm, 2015; Rea et al., 2017; Stearns, 2011; Swartz, 2014).

We identify two cases that are deeply implicated in this Cambrian explosion: Bitcoin (and its blockchain technology) and the sharing or peer economy. In each, there is an explicit, albeit differently framed, embrace of the social. That embrace is predicated on the value of trust, which is redefined in terms of an infrastructure for payment and

accounting that does the supposedly social work of providing participants direct, unmediated access to one another and securing their interpersonal credibility. We propose that despite a good deal of diversity in this space, the notion of the social at work in many of these interventions is a particular one, an ideal that we call an economy of 'just us'. This notion of the social rests on a vision of ostensibly peer-to-peer communities, made possible through distributed or decentralized digital infrastructures that are, in their ideal form, open to all and free from governing intermediaries. In practice, however, the infrastructures of trust and circuits of exchange facilitated by these interventions result in closed or semi-closed communities of users, access to which is gated by membership or other means. Not only, then, do these projects produce their own inclusions and exclusions; they are perpetually recentralizing, not in the form of democratic collectives or representational polities, but as companies and corporations, now with a novel 'social' mandate.

In what follows, we return to Money 20/20 to track the various manifestations of the social in the payments industry. We describe the ways two examples of innovations at the edges of the payments industry – Bitcoin and the sharing economy[4] – confront this question and ask what is lost when the economy is limited to 'just us'. We argue for an inquiry into the politics of these developments, shifting away from an analytically flat vision of the social to a more robust set of questions about the *public*. Payment, especially when it becomes a function of accounting for trust, is of public concern, and a focus on publics has the advantage of linking together infrastructure and the communities built on top of and mediated by them, while also foregrounding the politics of that relation. This short essay is not intended to offer another theoretical framework for understanding the public. Instead, in thinking through digital forms of value transfer and the imaginations of the social that accompany these forms, we are interested in what kind of politics a focus on the public might afford.[5] This holds implications for the way we think about money and *its* publics.

Social Disruption

Back to Vegas. At Money 20/20 in 2013 and 2014, we met with businesspeople, consultants, journalists, and a few regulators over the course of several days. We mingled poolside, in presentations, and in the exhibit hall (as Cirque du Soleil-style acrobats bounded around the room on stilts or poured champagne while suspended from the ceiling). And we attended panels where we learned about the many companies hoping to carve out a market share for themselves in the rapidly changing payments industry.

Payment has been largely ignored by academic scholarship outside of law and business schools. Yet it is a massive industry: One consulting

group estimated that in 2013, transaction revenues amounted to US$425 billion (Dab et al., 2014). The field is a crowded one, competition is fierce, and the imaginaries of 'fintech' we have come across are varied: some explicitly utopian, all profit- (or acquisition- or venture funding-) driven, most a mixture of both. But even among the entrepreneurs and corporate actors at Money 20/20, talk of the social was ubiquitous, indicated not only by the use of a specific word, but also by the currency of terms like 'relationships' and 'communities'. In 2014, for example, many payments professionals argued that in order to spur adoption, new technologies needed to embed payment in social experiences or build the social into the experience of using those technologies. That argument was phrased several ways: as moving 'from transactions to relationships' or 'from expediting to contextualizing transactions' or even as 'creating community'. In practice, this seemed to mean replicating the interface, experience, and marketing potential of social networking sites in payment. But to what end?

At the heart of such attempts to build the social into payments was the issue of *trust*. Trust appears in different ways – as 'credibility', 'confidence', 'reputation', 'loyalty', etc. – but at their core, payment intermediaries have long been in the business of trust. As one Money 20/20 presenter put it, of the card networks, 'They provide a physical mechanism and a business framework. [...] But most importantly, underlying that is a trust framework. That's the true value of the network'. Traditionally, this talk of trust in the payments industry has been about convenience, speed, and security – faith in an intermediary's ability to protect users from nefarious counterparties and reliably and swiftly deliver payments. In legacy payment systems, trust is the experience of infrastructure: it is materialized in payment rails that provide safe passage.

Increasingly, however, trust has become shorthand for the potential to obviate the need for a governing intermediary entirely. Trust has been redefined in terms of an immediate, direct social relation and has become, for that reason, 'disruptive'.

Accounting for Trust I: Bitcoin

Much of the Cambrian explosion in payments utilizes existing infrastructure as a platform for innovation. PayPal, for instance, acts as an intermediary for online payments and money transfers by 'riding the rails', as they say in the industry, of the Automated Clearing House. The ACH is a public-private payment infrastructure maintained, in part, by the US Federal Reserve as a service for interbank settlement and clearance. The ACH batch-processes payments, settling transactions in one to two business days. PayPal spots the funds for real-time payment while it waits for the ACH transaction to clear, and it charges tolls on the

movement of money through its portals onto this semi-public infrastructure. Innovation, one executive suggested at Money 20/20, was really thus a matter of taking existing tools and making them available or attractive in new ways.

If PayPal is built on top of existing infrastructures, Bitcoin – the controversial cryptographic protocol for value transfer launched in 2009 – suggests a different way of solving the problem of trust that so concerns payments professionals, approaching more closely the ideal type we describe below as the 'just us'. A key attraction noted by its supporters, including many payments professionals, is that by decentralizing the work of verifying and authenticating transactions, Bitcoin's peer-to-peer (P2P) network supposedly does away with the need for a third-party actor or 'trusted intermediary' (Berg, 2016; Brunton, 2014; DuPont, 2014; Lustig and Nardi, 2015; Scott, 2014). Instead, Bitcoin transactions are registered in the blockchain, a public ledger of all transactions and record of ownership, which is duplicated by every node in the network. Every transaction is posted to the entire network, which then goes about automatically attempting to verify it. There is no one centralized record-keeper; there is no single entity doing the work of authentication and authorization. And because the idealized blockchain is publicaly accessible, it offers 'transparency' that obviates the need to trust in a central authority, whether PayPal or the ACH.

As Nigel Dodd (2014: 362) has pointed out, Bitcoin seems to embody a desire for 'a form of money in which there is no need for trust'. Indeed, Satoshi Nakamoto, Bitcoin's mysterious creator, proposed that '[t]he root problem with conventional currency is all the trust that's required to make it work' – trust in central banks 'not to debase the currency' and trust in banks 'to hold our money and transfer it electronically' (in Dodd, 2014: 364). Thus, '[w]hat is needed', Nakamoto (2008: 1) wrote in his original white paper, 'is an electronic payment system based on cryptographic proof instead of trust'.

Yet talk of trust among Bitcoin users and proponents is not eclipsed by cryptography; instead, at Money 20/20, conference-goers told us again and again that Bitcoin users need only 'trust in numbers', 'trust in math', or 'trust in the code'. Indeed, as we have previously argued (Maurer et al., 2013), the discourse around Bitcoin suggests a shared belief that the value of a commodity – in this case, a cryptographic one – forms the basis for a shared economy and, thus, community. Trust inheres *in* Bitcoins. 'Bitcoin', insisted one Money 20/20 speaker, 'is a unit of trust'.

Early in its existence, Bitcoin was commonly referred to as a decentralized cryptographic *currency*, a rhetorically flexible term that included its multiple and sometimes competing uses as a payment system and speculative commodity. At Money 20/20 in 2013, we saw a new discourse emerge as users and advocates began to formulate a narrative about Bitcoin not as a currency or commodity, but as a 'protocol'. Many

presenters emphasized not Bitcoin, but the blockchain, and some compared the blockchain to SMTP, the infrastructure underlying email. Like SMTP, they argued, the blockchain provides an 'open platform'. 'These are infrastructure, these are pipes', one presenter told us. 'That's a game-changer', another exclaimed. 'The possibility for *anyone* to build on top of the protocol. Http for money!' Thus, the blockchain was seen as a way to extend Bitcoin's theory of (non)trust to any kind of contractual or financial interaction.[6]

Accounting for Trust II: The Sharing Economy

Like Bitcoin, many sharing economy or on-demand start-ups also propose to rebuild the infrastructures not just of money but, more fundamentally, of trust. While such projects rarely describe themselves as payments companies, payments professionals situate them alongside Bitcoin as disruptors, and they rely on specific payments infrastructures as well as a specific imagination of payment. These projects offer online platforms for individuals to come together and share, trade, barter, or – most commonly – rent goods and services, including the labor of the un- or underemployed. For many developers and consumers of these services, the idea of a sharing economy re-introduces social experience and social values – enabled by and defined in terms of trust – as a way of organizing and orienting the economy. Many sharing economy businesses attempt to enhance that experience and those values by making payment disappear by having the process of payment take place without handing over cash or interacting with a point-of-sale device.

Professionals call this 'seamless' payment – a payment that happens in the background, invisibly to the transacting parties, with no direct exchange of filthy lucre or the hassle or delay of the point-of-sale device, with its fumbling for cards, receipts, PINs, and signatures. With ride-sharing businesses like Uber or Lyft, for example, payment is processed automatically, no swipe required, and new payment processors like Braintree (now owned by PayPal) make it all happen 'seamlessly' by harnessing the legacy payment networks, but also the mobile telecommunications network, geolocation services in mobile devices, and electronic systems for recording the user's and the driver's ratings of one another, to be aggregated and made available to future transactors.

Those ratings provide the content for an infrastructure of online reputation. In a well-known TED talk, Rachel Botsman (2012) suggests that what makes these new online 'collaborative consumption' systems different is that they foster trust between strangers and scale it up via novel technological infrastructures, first into communities and then across communities. Identity and reputation, Botsman insists, echoing many payments professionals (e.g. Birch, 2014), are becoming valuable assets. Measures of one's trustworthiness in a particular community

can displace, she argues, the role of accumulated monetary wealth and credit history. It is thus necessary to think about the tools we will use to keep track of behavior, link it to codified reputation, and leverage that codification into value. Botsman calls for the aggregation of data streams into a single reputation 'feed', which would become a way to display one's 'reputation capital'. This desire to aggregate online data traces under a single measure of social identity hangs over the industry, an aspirational or even phantasmagoric ambition driving speculation both cultural and financial. In fact, Botsman points out, preliminary efforts to create what some have called reputational currencies – units of respect or regard that can circulate in exchange for goods and services – are already in the works. These would serve as a 'transferable trust metric for P2P marketplaces' (Solon, 2012).

Critiques of the sharing economy – especially as it has been framed by overeager proponents – have recently proliferated. Academic and popular voices agree that in transactions like those facilitated by Uber or AirBnb, there is very little sharing involved. Many argue that these start-ups are more an effect of economic crisis, recession, austerity, and deregulation than a solution to problems of unemployment or overproduction (see, e.g., Gray, 2015; Irani, 2013; Scholz, 2014; Schor et al., 2015; Walker, 2015). These concerns are not trivial, simple wrinkles to be ironed out through technical and legal fixes. Instead, they point to a key supposition at the heart of otherwise diverse experiments in money: that new payment platforms and accounting technologies facilitate trust and transaction while promoting an investment in individual and group autonomy.

Many in the industry have absorbed these critiques rather defiantly, simply eschewing the language of the sharing economy and referring instead, and increasingly, to the 'peer', 'gig', or 'on-demand economy'. The last vestige of sharing is the backgrounding of payment: While a financial transaction is almost always in play, it is intended to be seamless, entirely 'embedded in the social experience', as one Money 20/20 attendee told us. And alongside this invisible moment of payment is a stealthy exchange of ratings and rankings. These metrics, like Botsman's reputational currencies, are key to the new practice of the peer economy as a set of 'marketplaces' where ostensibly coequal buyers and sellers are matched, their encounters brokered by distributed interfaces and back-end accounting infrastructures.

Cryptocurrency and sharing economy discourses dovetail around this vocabulary of peers, each taking social interaction as a model for their peer-to-peer network structure and, at the same time, offering up 'P2P' as a model for social interaction. This language of peerness evokes a flattening of hierarchies and an unmediated directness in transactions, at the heart of which is the trust that smooths people's relations in and through decentralized digital networks. If Bitcoin is a unit of trust, then trust becomes, perhaps, a fungible unit of currency; similarly, if trust is what sharing-economy

systems record and verify, then trust is what is exchanged as users interact with one another, paying and rating one another.

Trust in both cases is a matter of memory, and memory, when it concerns not the individual but the community, often depends upon external material devices. For Bitcoin users, trust is established by code, through the blockchain and its cryptography. Since trust emerges out of the machine, so to speak, Bitcoin users don't see it as a political or social arrangement, and relationships between individuals appear to be unmediated, wholly independent of any third party. In the case of the sharing economy, by contrast, trust is presented in the guise of individual codified reputations: upvotes and downvotes. Since trust here is the outcome of votes of confidence made by fellow users, it is clear to users that trust is a social phenomenon, but the technology disappears into the ratings. The votes are the public face of the social.

In both systems, trust is imagined not as an effect of accounting and its technologies, but as the accounting itself. This is a vision of a digital community of modular individuals, endlessly and autonomously connecting and reconnecting without any kind of mediation beyond the infrastructure for accounting and payment itself – which, again, is (ideally, at least) backgrounded, embedded seamlessly in the experience of transaction itself. To those working to design these new economic imaginaries in Bitcoin and the sharing economy, 'the social' – we might say – is sociality without the need to convene a public.

An Economy of Just Us

The social is a vague, slippery term, for us and for our interlocutors. In the payments industry, references to the social marked a break with existing systems of value transfer, but that break could index the marketing possibilities of social networking just as easily as a romanticized vision of economy before the institution of money. Even when proponents of cryptocurrencies and sharing economies push self-consciously against a vision of the money-based economy, such projects are also inextricably intertwined with mobile technologies and digital infrastructures, start-up culture and venture capital. Nor do they escape money outright, insofar as they depend on new, or newly meaningful, money-like artifacts and practices. In other words, it is an open question just how innovative, disruptive, or alternative new payment systems, cryptocurrencies, or sharing economy schemes really are. What constitutes 'sharing' in the sharing economy? What is the 'peerness' of peer-to-peer networks? In short, what kind of social is being imagined in the cladistics of the Cambrian explosion in payments?

We suggest that the speculative vision of the social made manifest in these experiments is one of building an economy that is, somehow, *just us*. This is the dream of a payment system without corporate or

government intermediaries and of a sharing or peer economy in which we have direct and unmediated access to one another and to the value we transact with one another. Bitcoin promises not just autonomy from authorities and intermediaries, but a more deeply autonomistic way of being together, socially, in an economy and as an economy. Similarly, the sharing economy is not, as some once hoped, a kind of anarchist welfare society, a social without the state. It is also, we suggest, a vision of the social *without* society – indeed, when the goal is for there to be no need for society, only our ratings of one another's trustworthiness rendered via a neutral shared technological platform for all to see.

This is a very different notion of the social from that imagined in 19th- or 20th-century social theory and social action. The social of a 'just us' economy is not the statistical artifact of an aggregation of individuals in a national population, which gave rise in the 19th century to a host of efforts to measure and police public and private vices, from criminal behavior to unemployment, and which provided the conceptual underpinnings for the modern welfare state (Donzelot, 1979, 1984; Ewald, 1986; Foucault, 2003; Hacking, 1990). Quite the contrary, it is envisioned as the product of a disaggregation, a granular personalization of preferences and taste profiles that can be algorithmically sorted and targeted (Cheney-Lippold, 2011; Pasquale, 2015; Seaver, 2012; Tiessen, 2015). But nor is it the social as a mediated and mediating network, such as in Granovettor's (1973: 491) description of social relations that 'penetrate irregularly and in differing degrees in different sectors of economic life' or in accounts of the individualization of the social under neoliberalism (Rose, 1999). For the goal here – the disruptive promise of innovation – is specifically to disintermediate *all* mediating entities, whether the state or the firm or the family or even the institutions of the market, which were previously trusted to intervene between political and economic actors and provide the basis and the frame for social action. This social is, then, at least in theory, 'just us', and just us in the fleeting moments of our transactional encounters. Ideally, whatever infrastructure facilitates those encounters – the cryptographic protocol, the proprietary software that matches us with our Uber driver – disappears into the encounters themselves. Our ties are neither weak nor strong, because to the extent that they bind, they do so in interactions that are designed *not* to endure. No state. No society. No network. Just nodes. Just peers. Just us.

This vision and rhetoric are speculative, even fantastical. But payment professionals are not only in the game for the sake of 'liberating' us from intermediaries. There is a business plan and 'value proposition' here. How, therefore, might this vision of an economy of just us actually manifest, not only in the speculative imaginaries of innovators and disruptors, but also in the material relations of their rapidly evolving world of payments? Here we offer one possibility, although there are no doubt others. We are concerned that the attempt to realize such 'just us'

economies will involve building gated payment and accounting platforms, which could provide the foundation for semi-closed and privatized communities. These gated platforms are sometimes known in the payments world as 'closed loops' or 'walled gardens'. They are merchant-specific payment systems that promise ownership over the full consumer experience while making possible data tracking and targeted advertising. One benefit of such systems is that because the circuit of value circulation is closed, there is never a need for the customer to convert the internal token of value into another form (say, US dollars); the value remains denominated in the unit of the loop.

Today, in fact, cryptocurrencies and sharing economies do not constitute one interconnected system, but include a range of independent, frequently non-interoperable circuits. Such walled gardens depend on the gating of entrance and exit points by private intermediaries (like cryptocurrency exchanges or commercial P2P platforms), who often operate in the name of facilitating trust or building community, but who also effectively create closed circuits that place a premium on – and charge a fee for – access. These closed payment communities seek to provide the means for the circulation of value within a specific, circumscribed, and bounded 'social' domain. They thus also recreate the structure of intermediation that the 'just us' vision animating their disruptive potential seeks to obviate. Indeed, this is one of the key ironies of innovation in the Cambrian explosion in payments: no matter how far new entrants set themselves from the processes of state and corporate centralization, disruption rides the rails of existing payment infrastructures such as the ACH – just like PayPal.

From our perspective, stalking Money 20/20's crowded corridors, this possibility – that the understanding of the social foregrounded by 'just us' economic imaginaries would drive forms of recentralization around closed payment communities – seemed not only particularly feasible. It also prompted, for us, the need for a new critical and analytical language, one that tries not to replicate the flat, contextualizing relationality of 'social' theory.

Conclusion: Money's Publics

Anthropologists, sociologists, and historians of money have long documented money's pluralism, the diversity of its forms and functions (Nelms and Maurer, 2014). Still, the Cambrian explosion in payments suggests that such pluralism may become increasingly visible, accepted, even valued. Keith Hart (2011: 9) writes, for instance, that if money emerges from 'a community's social institutions, there will have to be as many monies as there are communities. The digital revolution has begun to make that technically feasible'. Indeed, if a community recognizes itself in a shared unit of account, standard of value, and method of

payment, it is a short leap to thinking about money as a way to remake community. Experiments with money often imagine money as a kind of gateway onto society and thus as a platform for social transformation: Change the money, change the world (Dodd, 2014).

By tracing out the ramifying taxonomies of payment's Cambrian explosion, we have focused on other gateways and platforms: gateways that guard access to the transfer of stored value, and platforms that facilitate the accounting of that value. Both, we argue, are invested in a certain *political* vision that goes under the name of 'the social' and its avatars of relationality, especially trust. That vision is one of peer-to-peer payment constituted through new digital infrastructures that disintermediate corporate and government actors alike – monetary value chains freed from the interference of banks, payment companies, the Fed – even as those infrastructures themselves disappear into the 'seamless' experience of transaction. The embrace of a 'just us' notion of the social in payment – of a payment system channeling unmediated flows of money and reputation among a closed community of peers – dovetails with a certain anti-state impulse that might make some social scientists and activists cheer: society against the state. For the dream of a payment system without intermediaries is also the dream of a currency without government, money without the state – but also without society.

Centralization reasserts itself not in the form of government, whether or not secured by democratic charter or representative politics, but in the form of start-ups and tech companies, themselves ever consolidating into larger and more centralized corporations, whose governance structure is rooted primarily and unilaterally in End User License and Terms of Service agreements. In short, new infrastructures of accounting and payment open up political questions about access and control. These are not the standard questions of economic sociology or anthropology about the state's monopoly over money. Rather they are questions about payment: Who owns the means of value transfer? Who is allowed to access those means, and at what price? The business of payment is caught up in a process of simultaneous de- and re-centralization, disintermediation and re-intermediation. Unmoored from traditional banking institutions, payment allows money to become 'social', even as corporate and commercial actors set up private systems and closed loops in order to capture consumers in new ways. In other words, perhaps what is lost in a 'social' vision of payment and money is exactly the political, the formation and transformation of publics.[7]

What, after all, is a *public* payment infrastructure? Classic debates about the public sphere highlight the politics of access, framing the public as an inclusive site of discursive contestation. Habermas (1991), of course, famously bemoaned the private capture of the public means for crafting democratic consensus. We take such concerns about access and inclusion and refract them through questions about interaction and

participation on and through digital technologies of decentralization and disintermediation. In advocating for a turn to think about payment in terms of its *public* form and function, we see publics not only as communities, but also political processes, outcomes, and actors. A public is not just a collection of individuals, but an interest group, mediated by particular material technologies of communication (Kelty, 2008; Marres, 2012). This stance emphasizes the link between technical systems and the communities mediated through them – the link between infrastructure and politics. We wish to emphasize, that is, 'the importance to public debate of the unruly technical materiality of a political order, not just the embodied discourse (however material) about that order' (Kelty, 2008: 8). Building on notions of 'infrastructure' as the often-overlooked material or architectural plumbing subtending circulation (Dourish and Bell, 2007; Kockelman, 2010; Star, 1999), our engagement with payment seeks to excavate the multiple, overlapping sociotechnical forms and stakes of contemporary payment and accounting infrastructures.

This focus on publics also highlights the potential for conflict: Does 'the social' evacuate politics from these developments and debates around money and its technologies? To what degree does the Cambrian explosion in payments entail the creation of privately circumscribed infrastructures of payment and consumption? And if the means of payment – the means to transfer value – are being gated and privatized by corporate entities, how are access and inclusion being restricted, and for whom? Despite, for example, seemingly progressive efforts to promote 'financial inclusion' and poverty alleviation through 'cashless' payment and banking technologies, those excluded may turn out to be those increasingly trapped in a cash economy, who cannot afford the devices and subscriptions required by new payment systems. Indeed, visions of the social in cryptocurrencies and sharing economies overlap with a diverse register of political vocabularies. The political positionality of 'just us' economies is far from given in advance. Attempts to circumscribe a social in the service of a particular economic imaginary often align in ideologically surprising ways, with strange, unintended bedfellows.

Hence we find ourselves in the admittedly peculiar position of turning back from the social to a notion of the public – or even, perhaps, to a rapprochement with the state – which foregrounds the political implications of money and payment while remaining necessarily open to contestation. But we turn to the public not as an endpoint. The infrastructural and the conflictual, foregrounded by a focus on the public, point to the nitty-gritty of politics, and it is that nitty-gritty we seek to emphasize in the face of the social. With Dewey (1927: 32) we assert that the search for the public and its institutional form is 'a practical problem of human beings living in association with one another'. Instead of simply embracing the social, we insist that we must continue to ask: What kind of money, what kind of public, what kind of society, do we want?

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Notes

1. Although words like social, sharing, innovation, disruption, and peer are at once analytical terms and native terms in the Cambrian explosion in payments, for ease of reading we do not mark them with scare-quotes when they serve as native terms.
2. We take the rhetoric of 'unwinding' from Riles (2004: 401), who suggests it as an alternative approach to technocracy as an object of research.
3. This is not to deny the simultaneous explosion in payments innovation in places like sub-Saharan Africa, Asia, or Latin America, about which we have written extensively elsewhere and which were inspirational for many of the US- and Europe-based informants we focus on here. In this essay, we focus on specific sites of innovation and specific conversations around the social, trust, and new moneys in the global North. But see, generally, the work of the Institute for Money, Technology and Financial Inclusion (IMTFI) for research and interventions in emerging economies (www.imtfi.uci.edu).
4. We focus on 2013–14, but at Money 20/20 in 2015, there were multiple panels devoted to blockchain applications for payment, and representatives from sharing economy companies were given prime speaking slots.
5. In turning to frameworks that bring together politics, publics, and infrastructure, we build on the work of science and technology studies and media scholars, who have highlighted the mutual shaping of digital media, its architectures, and online interaction, and work in anthropology and science and technology studies detailing the politics of infrastructure, only some of which we are able to cite below.
6. At the time of our writing (June 2016), the possibilities initially sparked by the shift in focus from Bitcoin to blockchain have grown into elaborate dreamscapes (Swartz, 2017), and major multinational banks and investment firms are funding blockchain-based projects for wholesale financial services, not just retail payments.
7. Here we echo legal scholars who show how money is 'a project collectively engineered and orchestrated' (Kreitner, 2012: 424) – a *constitutional* project,

as Christine Desan (2014) argues, negotiated among citizens, private institutions, and states. See Jeong (2013) for a parallel argument about Bitcoin. In our turn to the public, we also echo research on the publics and politics of digital platforms, algorithmic calculation, and online sociality (e.g. boyd, 2011; Crawford, 2016).

References

Bátiz-Lazo B, Haigh T and Stearns DL (2014) How the future shaped the past: The case of the cashless society. *Enterprise & Society* 15(1): 103–131.

Benson C and Loftesness S (2010) *Payment systems in the U.S.: A Guide for the Payments Professional*. Menlo Park, CA: Glenbrook Partners.

Berg O (2016) How is Bitcoin money? *Theory, Culture & Society* 33(1): 53–72.

Birch D (2014) *Identity Is the New Money*. London: London Publishing Partnership.

Botsman R (2012) The currency of the new economy is trust. *TED.com*. Available at: http://www.ted.com/talks/rachel_botsman_the_currency_of_the_new_economy_is_trust (accessed 17 December 2014).

boyd d (2011) Social network sites as networked publics: Affordances, dynamics, and implications. In: Papacharissi Z (ed) *A Networked Self: Identity, Community, and Culture on Social Network Sites*. New York: Routledge, pp. 39–58.

Brunton F (2014) Bitcoin. *Artforum*, February. Available at: http://www.artforum.com/inprint/issue=201402&id=45005 (accessed 30 November 2015).

Castronova E (2014) *Wildcat Currency: How the Virtual Money Revolution Is Transforming the Economy*. New Haven: Yale University Press.

Cheney-Lippold J (2011) A new algorithmic identity: Soft biopolitics and the modulation of control. *Theory, Culture & Society* 28(6): 164–181.

Crawford K (2016) Can an algorithm be agonistic? Ten scenes from life in calculated publics. *Science, Technology & Human Values* 41(1): 77–92.

Dab S et al. (2014) Global payments 2014: Capturing the next level of value. *bcg.perspectives*, 17 September. Available at: https://www.bcgperspectives.com/content/articles/financial_institutions_pricing_global_payments_2014_capturing_next_level_value/ (accessed 8 February 2015).

Desan C (2014) *Making Money: Coin, Currency, and the Coming of Capitalism*. Oxford: Oxford University Press.

Deville J (2014) Paying with plastic: The enduring presence of the credit card. In: Gabrys J, Hawkins G and Michael M (eds) *Accumulation: The Material Politics of Plastic*. New York: Routledge, pp. 87–104.

Dewey J (1927) *The Public and Its Problems*. Athens, OH: Swallow/Ohio University.

Dodd N (2014) *The Social Life of Money*. Princeton: Princeton University Press.

Donzelot J (1979) *The Policing of Families*, trans. Hurley R. New York: Random House.

Donzelot J (1984) *L'invention du social: essai sur le déclin des passions politiques*. Paris: Fayard.

Dourish P and Bell G (2007) The infrastructure of experience and the experience of infrastructure: Meaning and structure in everyday encounters with space. *Environment and Planning B: Planning and Design* 34(3): 414–430.

DuPont Q (2014) The politics of cryptography: Bitcoin and the ordering machine. *Journal of Peer Production* 4. Available at: http://peerproduction.net/issues/issue-4-value-and-currency/peer-reviewed-articles/the-politics-of-cryptography-bitcoin-and-the-ordering-machines/ (accessed 20 November 2017).

Ewald F (1986) *L'Etat providence*. Paris: Bernard Grasset.

Foucault M (2003) *'Society Must Be Defended': Lectures at the Collège de France, 1975–76*, trans. Macey D, ed. Bertani M and Fontana A. New York: Picador.

Gibson-Graham JK (1996) *The End of Capitalism (As We Knew It): A Feminist Critique of Political Economy*. Oxford: Blackwell.

Granovettor M (1973) The strength of weak ties. *American Journal of Sociology* 78(6): 1360–1380.

Gray ML (2015) Fixing the chaotic crowdworker economy. *Bloomberg View*, 12 August. Available at: http://www.bloombergview.com/articles/2015-08-12/fixing-the-chaotic-crowdworker-economy (accessed 14 December 2015).

Habermas J (1991) *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*. Cambridge, MA: MIT Press.

Hacking I (1990) *The Taming of Chance*. Cambridge: Cambridge University Press.

Hart K (2011) The financial crisis and the end of all-purpose money. *Economic Sociology: The European Electronic Newsletter* 12(2): 4–10.

Hart K, Laville J-L and Cattani A (eds) (2010) *The Human Economy*. Cambridge: Polity.

Irani L (2013) The cultural work of microwork. *New Media & Society* 17(5): 720–739.

Jeong S (2013) The Bitcoin protocol as law and the politics of a stateless currency. Available at: http://ssrn.com/abstract_id=2294124 (accessed 14 December 2015).

Kelty C (2008) *Two Bits: The Cultural Significance of Free Software*. Durham: Duke University Press.

Kockelman P (2010) Enemies, parasites, and noise: How to take up residence in a system without becoming a term in it. *Journal of Linguistic Anthropology* 20(2): 406–421.

Kreitner R (2012) Legal history of money. *Annual Review of Law and Social Science* 8: 415–431.

Kuriyan R, Nafus D and Mainwaring S (2012) Consumption, technology, and development: The 'poor' as 'consumer'. *Information Technologies and International Development* 8(1): 1–12.

Lovink G, Tkacz N and De Vries P (eds) (2015) *The MoneyLab Reader: An Intervention in Digital Economy*. Amsterdam: Institute of Network Cultures.

Lustig C and Nardi B (2015) Algorithmic authority: The case of Bitcoin. Presentation at the Hawaii International Conference on System Sciences, University of Hawai'i, Manoa.

Marres N (2012) *Material Participation: Technology, the Environment, and Everyday Publics*. London: Palgrave Macmillan.

Maurer B (2012a) Mobile money: Communication, consumption and change in the payments space. *Journal of Development Studies* 48(5): 589–604.

Maurer B (2012b) Payment: Forms and functions of value transfer in contemporary society. *Cambridge Anthropology* 30(2): 15–35.
Maurer B (2015) *How Would You Like to Pay? How Technology Is Changing the Future of Money*. Durham, NC: Duke University Press.
Maurer B, Nelms TC and Swartz L (2013) 'When perhaps the real problem is money itself'! The practical materiality of Bitcoin. *Social Semiotics* 23(2): 261–277.
Nakamoto S (2008) Bitcoin: A peer-to-peer electronic cash system. Available at: http://bitcoin.org/bitcoin.pdf (accessed 8 February 2015).
Nelms TC and Maurer B (2014) Materiality, symbol, and complexity in the anthropology of money. In: Bijleveld E and Aarts H (eds) *The Psychological Science of Money*. New York: Springer, pp. 37–70.
O'Dwyer R (2015) 'When pipes become banks': Sociotechnical control in the infrastructure of payments. Presentation at IAMCR, Université du Québec à Montréal.
Palm M (2015) The costs of paying, or three histories of swiping. In: Frayssé O and O'Neil M (eds) *Digital Labour and Prosumer Capitalism*. London: Palgrave Macmillan.
Pasquale F (2015) *The Black Box Society: The Secret Algorithms that Control Money and Information*. Cambridge, MA: Harvard University Press.
Rea SC, Dalinghaus U, Nelms TC and Maurer B (2017) Riding the rails of mobile payments: Financial inclusion, mobile phones, and infrastructure. In: Hjorth L, Horst H, Galloway A and Bell G (eds) *The Routledge Companion to Digital Ethnography*. New York: Routledge.
Riles A (2004) Real time: Unwinding technocratic and anthropological knowledge. *American Ethnologist* 31(3): 392–405.
Rose N (1999) *Powers of Freedom: Reframing Political Thought*. Cambridge: Cambridge University Press.
Scholz T (2014) Platform cooperativism vs. the sharing economy, 5 December. Available at: https://medium.com/@trebors/platform-cooperativism-vs-the-sharing-economy-2ea737f1b5ad#.re92y5l6q (accessed 14 December 2015).
Schor JB, Walker ET, Lee CW, Parigi P and Cook K (2015) On the sharing economy. *Contexts* 14(1): 12–19.
Scott B (2014) Visions of a techno-leviathan: The politics of the Bitcoin blockchain. *E-International Relations*, 1 June. Available at: http://www.e-ir.info/2014/06/01/visions-of-a-techno-leviathan-the-politics-of-the-bitcoin-blockchain/ (accessed 27 February 2015).
Seaver N (2012) Algorithmic recommendations and synaptic functions. *Limn* 2. Available at: http://limn.it/algorithmic-recommendations-and-synaptic-functions/ (accessed 19 October 2016).
Solon O (2012) We need a transferable trust metric for P2P marketplaces. *Wired UK*, 1 February. Available at: http://www.wired.co.uk/news/archive/2012-02/01/online-trust-collaborative-consumption (accessed 6 May 2015).
Star SL (1999) The ethnography of infrastructure. *American Behavioral Scientist* 43(3): 377–391.
Stearns DL (2011) *Electronic Value Exchange: Origins of the Visa Electronic Payment System*. New York: Springer.
Swartz L (2014) Gendered transactions: Identity and payment at midcentury. *WSQ: Women's Studies Quarterly* 42(1): 137–153.

Swartz L (2017) Blockchain dreams: Imagining techno-economic alternatives after Bitcoin. In: Castells M (ed) *Another Economy Is Possible: Culture and Economy in a Time of Crisis*. Cambridge: Polity, pp. 82–105.
Tiessen M (2015) The appetites of app-based finance: Affective and speculative futures. *Cultural Studies* 29(5–6): 869–886.
Walker B (2015) Instaserfs. *Theory of Everything*, 17 June. Available at: https://toe.prx.org/2015/06/instaserfs-i-of-iii/ (accessed 14 December 2015).

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