Payment Technologies: Past, Present and Future
An initial provocation

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The "end of cash" is on the agenda, seemingly everywhere. Constituencies rarely aligned—multinational payments companies, economic development and aid practitioners, nonprofit volunteers and venture capitalists—are coming together around the prospect of the supposedly imminent disappearance of physical currency objects. We have lost count of the number of workshops, conferences and agenda-launchings that have taken place over the past three years heralding a new future—sometimes, in fact, an end—to money. At the same time, as social scientists and historians of economies and moneys, past, present, and future, we can't help but to think that we have been here before.

Danny Kaye, promotional shot for "The Man From Diners Club," 1963

As Matty Simmons, a founder of Diners' Club, the first universal charge, explained in 1963, cash wasn't "modern" because it could not "keep up with the fast-moving world." More precisely, it could not efficiently interoperate with the networks of rapid physical and informational mobility that, at mid-century, were beginning to be assembled. If, as Eric Helleiner (1998; 1999) and others have argued, the consolidation of paper currency had been a nationalist project, cashlessness represented the deterritorialization of money and the global information age. The Diners' Club network created a geography of transaction that served as a prototype for what Manuel Castells (1996/2000) calls the "space of flows," those time-sharing practices that "link up distant locales around shared functions and meanings on the basis of electronic circuits and fast transportation corridors."

Reaching further back in time, however, we also recognize that the era of cash—of tangible, physical objects of paper or metal serving as money—is, relatively speaking, a historical anomaly, especially seen from the point of view of 10,000 years of recorded human civilization. Archaeologists and historians of the ancient Near East have shown that money of account, recorded in transactional records, long pre-dated the minting of coin or other tangible objects used as a universal equivalent for exchange. In the beginning was not the coin, but the receipt. Is cashlessness a return, then, to a world of institutionalized, transactional record-keeping? If so, what questions ought scholars and practitioners be asking, now, about those past and possible future worlds?

We were initially inspired by a series of articles by Gregory Waymire and his colleagues on transactional record-keeping artifacts as mneumonic devices that permitted an externalized extension of human

memory in order to facilitate larger and larger circuits of impersonal exchange (Basu, Kirk and Waymire 2009). We were also intrigued by the fact that their research revealed the importance of group size as a variable determining the development of externalized record-keeping, and that small-scale societies whose populations surpass Dunbar's number—somewhere between 150-300, supposedly the maximum number of social relationships the unaided human can track—tend to develop such technologies. Dunbar's number has been popularized in social media and Internet research, where it is often assumed to be the upper limit of, say, "actual friends" among a person's set of Facebook friends or other social networking connections. While skeptical of Dunbar's cognitive and evolutionary claim, not least because it takes for granted a specific notion of relationship or connection (a topic of longstanding debate in anthropology), we are nonetheless intrigued by this link to contemporary memory-devices, represented in computer-mediated social network records-keeping technologies. These, themselves, are currently subject to monetization, both in advertising, of course, but also as a potential successor to state-issued currency. At the Future of Money and Technology summit last summer, for example, more than a few speakers speculated on a future for money based on "knowledge assets" and "social reputations" garnered through online interaction (see Ingenesist; ConnectMe). Even without venturing so far into this post-state currency world, those involved in creating actual mobile and digital money deployments are beginning to notice, if not to actualize, the value—and the value chain—in digital transactional data, in the archive created by the use of digital money (see KopoKopo).

As researchers and participants in the world of mobile and digital payment and money, we wanted to assemble a diverse group of scholars, experts and practitioners to open a conversation about three specific questions or domain-areas we think that the new world of transactional data, and transactional data *as* value, suggests.

1. Value, money, and the question of representation versus use: Anthropologists of money have long pondered money's representational dynamics, how currency objects can represent some abstract notion of value, or how they congeal divergent notions of value (social, economic, religious) in a set of material objects. Money's representational dynamics have been the subject of satire and artistic expression, too (see, Thomas Nast cartoon). At the same time, money is not just a symbol, but a tool. That is, money does not just have different meanings; it is also used in a variety of ways. As a material object, its material qualities are used to make or do things: coins are used to scratch off the wax on lottery tickets; credit cards, famously, to open locked doors. But money itself, in its role as abstract conveyor of abstract value, may also be a tool, something whose representational complexity gets set aside in the name of getting a transaction completed or making, or unmaking, a social relationship. One team of neuroscientists has found that the destruction of money objects triggers responses in the part of brain responsible for the functional use of physical tools—and the higher denomination banknote, the greater the response (Becchio et al., 2011). Richard Mattessich (1987) argued with Wittgenstein that representation is both a matter of "saying" and "showing," and wondered back in 1987 what the physicality of the showing meant for the symbolic representations of the saying (going from "vibrations of air, tokens and tablet of clay" to "magnetized dots on plastic tapes" in one sentence, p.90).

   How do we think about money's symbolic or meaningful, and pragmatic or tool-like qualities in light of changing transactional technologies?

Thomas Nast, Milk Tickets for Babies, 1876

2. The question of the public good and the state: Alternative monetary theorists (as well as anthropologists and sociologists) have long challenged the neoclassical story about the origins of money in solving the "double coincidence of wants" problem that is intrinsic to barter. What do you do when the person you're bartering with doesn't want what you have, nor does have what you want? Most conventional stories of the origin of money begin here. Alternative monetary theorists argue, instead, that money's origins lie in the state and/or in the public institutions that provided protection for early civilizations and whose revenue pooling and redistribution functions required a unit of account. First came the units of account and the records-keeping, to manage ever-growing early state societies; and then came the stores of value accumulated by the states or temples; only later did money as a means of exchange develop, and, when it did, it contained the seeds of challenge to public authority by private interest. Archaeologists of ancient Mesopotamia have helped us think about these dynamics, the role of public institutions and the problem of the archive, social rank and hierarchy, access to that archive and the archaeology of that archive, the material traces it leaves behind (Hudson 2000). Can anthropologists/historians of other culture areas, like the Andes, help us to think anew about those traces, access, and the state? Think: khipu as legible, how and to whom? Mesopotamian states vs. Inkan states vs. modern nation-states? What kinds of publics do these different "states" attend to and engender?

   How is state-issued currency being caught up in—or left behind by—new digital money and payment experiments? We are interested in thinking about the public function of money as a unit of account, store of value and medium of exchange. We are also interested in thinking about the role so the state and private actors in creating the "rails" along which money moves. As new private rails are being created, what lessons can we learn from public rails (Canada's Interac, for example) or the attempt to get the private rails to serve the public good (the Single Euro Payments Area provisions on interchange)?

Interac logo, Canada, 2012

3. The question of the archive: From the distant Mesopotamian and Inkan past, to today, people have been creating vast archives of transactional data. But it is newly entering into everyday consciousness. Researchers warn against celebrating or condemning "big data" without fully appreciating what, exactly, it is, how it works, and what it can or cannot be used for (boyd and Crawford 2012). The torrent of data is also, arguably, changing the nature of the technologies and their interactions with—even their separation from—their "users." We have a series of interlinked questions having to do with the great transactional archives of the present and near future, the transactional databases being assembled by the Facebooks, Googles and Amazons, as well as the effort to enclose the commons of transactional data in physical-world points of sale currently "lost" to history—and to business opportunities—by the use of anonymous cash.

   How do we understand what Maria Bezaitis (n.d.) is calling the "vibrancy" of data and technology, that is, its co-implication with and co-constitution of life itself? What kind of history of technology do we need to place this vibrancy in context?

   Who has access to this data? We are not as concerned with the privacy issue as we are the question of the public interest. If ancient transactional databases assumed social hierarchy and rank—insofar as the temple was the library, so to speak—what new configurations of hierarchy and rank do contemporary digital transactional databases create?

   Finally, how should such an archive or archives be preserved, curated, cared for? What form will the "artifacts" of transactional data take? To what degree do, say, cuneiform and khipu complicate and diversify our notions of the archive, record-keeping, material instantiations of memory? Is it incumbent upon us to articulate an ethics of curation for the digital transactional archive? (See, the Atlanta Fed's Monetary Museum, and how it addresses the question of how one puts the Automated Clearing House in a gallery, or the British Museum's Citi Money Gallery displays on digital and mobile money). What will be the archaeology of digital transactional data? Can we take inspiration from, say, the Cuneiform Digital Library at UCLA and the Khipu Database Project at Harvard?

If, as Keith Hart has argued, money is a "memory bank" (Hart 2000), then another way of framing our set of questions is: **what is the form in and through which the transactional archives preserve (collective) memory?**

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