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# Dare et Capere: Virtuous Mesh and a Targeting Diagram

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*Dare et Capere:*  
Virtuous Mesh and a Targeting Diagram

Vincent Manzerolle and Atle Mikkola Kjösen

**A Capitalist Love Story**

Commodities are attracted to money, argues Marx. Indeed, “commodities are in love with money.”<sup>1</sup> But what appears as a love affair for things is a fetish between humans; love is exchange value. Hence, where commodities and money find love, their guardians must go; individuals are, after all, but personifications of economic categories—fleeting, repeating inhabitants of economic functions and forms.<sup>2</sup> Once upon a time this meant people journeying to downtowns, stores, plazas, malls, and other places where commodities used to gather in large numbers in hope of finding their significant equivalent. More and more, “because of the Internet and smartphones” (as the sublime and seductive rhetoric of the technological evangelist explains), commodities have begun to follow the money wherever it might be. In fact, commodities must now stalk money and, by extension, their guardians.

The circuit of capital—the basic metaphor of capital as “value in motion”<sup>3</sup>—describes a cybernetic love story based on the cyclical attraction between the economic forms of money and commodities, an attraction consummated at the moment of exchange. The story of courtship then immediately ends just where it began. This libidinal feedback loop is a metaphor for the movement of capital itself, and it captures the contradictions, tensions, and crises characteristic of any loving relationship. The ubiquity and instantaneity of personalized digital media, however, offer greater resources in algorithmic “matchmaking” for commodities that want to find their significant other: value in the form of money.

Inseparably tethered to digital information supply chains, though not central protagonists in the love story they make possible, individual users offer dynamic inputs of capta<sup>4</sup> that ensure the regular, often serendipitous reunion of commodities and money. As mere input and access points from the perspective of capital, apps are a crucial means of mediating and articulating the communicative, attentional, collaborative, and creative capacities of

individual users. These capacities, through their conversion into capta, fuel the accelerated wooing between commodities and their equivalents.

In keeping with the theme of this edited collection, our contribution peeks beneath the “surface effects”<sup>5</sup> of apps to highlight the bursts and flows that coordinate and narrate the love story of equivalents. Our analysis emphasizes connectivity as *sine qua non* in supporting the miraculous and mundane features of app-centric media. Connectivity is an essential component in the procession of capital through its circuit, one that enhances the vector of capital’s circulation and self-augmentation, offering up new points of connection between money and commodities. Ubiquitous connectivity (UC) is an increasingly dominant form of mediation within advanced capitalist economies, and apps are currently the most effective matchmakers in the courtship between commodities and money. Our task in this essay is to reveal how the app economy mediates this courtship, how this mediation opens up new diagrammatic modes of capta extraction and modeling that drive the guardians of money deeper into the “cash nexus.”

The apps economy is not a collection of apps; rather, it is a social relationship between people that is mediated by buttons, diagrams, and algorithms. When money begins to attract commodities, money’s guardians become targets—prey stalked by commodity capital.

### A Virtuous Mesh

It is now commonplace to discuss apps as enabling mobile devices to become the remote control for our lives.<sup>6</sup> “The smartphone,” Brian Chen writes, “is no longer just a portable computer in your pocket. It has become the remote control for your life. Want to flip off the living room lights, unlock your front door or get a reading of your blood pressure? All of this can be done through mobile apps that work with accessories embedded with sensors or an Internet connection.”<sup>7</sup> The (potential) rise of the Internet of Things—through IPv6 and the proliferation of machine-to-machine (M2M) standards such as near-field communication (NFC), Bluetooth, and radio-frequency identification (RFID)—will connect all objects into potential communicative nodes within a vast, and prospectively virtuous, mesh of human and machine subjects. To human beings the mesh appears as if it is virtuous because it is based on the essential characteristics of ubiquitous connectivity: ubiquity, immediacy, and personalization.

Here “ubiquity” refers to both perceived and actual colonization of digital media devices and the technical capacity to remain connected at all times. The device is designed to be “always on” and “always on you.” Through the

harnessing of electromagnetism, everything becomes ubiquitous; everything is everywhere at once because electromagnetism makes any point on Earth, in principle, connectable to any other. Paul Virilio argues that ubiquity, the condition of being present everywhere at the same time, is tele-presence. The condition of ubiquity arrives when the physical displacement of matter is replaced by the continuous emission and reception of simultaneous information. This replacement ushers in a new form of proximity: an electromagnetic proximity in which events, people, and things are no longer confined to a specific spatial location, but are instead tele-present.<sup>8</sup> With ubiquity, the points of production and exchange are no longer places in space, but fields surrounding individuals in possession of smartphones and connectable tablets.

“Immediacy” refers to a perceived instantaneity enabled by the devices and infrastructure of ubiquitous connectivity, tending toward real-time, networked communication and a collapse of distance, be it measured in space or time. In spatial terms, “immediacy” refers to a perceived direct relation or connection, a proximal experience of nearness; temporally it refers to something current or occurring instantly without seeming delay or lapse in time.<sup>9</sup> More generally, “immediacy” highlights the tendency of digital media to accelerate the circulation of information; it describes the general condition of speed-up that is experienced phenomenally at an individual level, and at the level of capital’s compulsive space-time compression,<sup>10</sup> to the point of voiding space and time in favor of the present moment.<sup>11</sup>

“Personalization” refers to the tendency of contemporary media to materially incorporate the identity, capta, and relationships of a particular user into an apps ecosystem (e.g., iOS vs. Android) through the extraction of capta from always-on devices. Personalization is a necessary corollary to ubiquitous connectivity; the former makes the latter more profitable. The necessary evolution of this commercial logic is to wed the identity of individual users (represented as an address: phone number, e-mail, user id, ip address, credit card number) with the hardware (SIM cards, NFC chips, unique device identifiers) of devices, and making this connection a prerequisite for provision of services (e.g., wireless connectivity, downloading apps, mobile payment, theft prevention, augmented reality, location-based services). Indeed, personalization of digital media is implicit in the terms “the filter bubble,”<sup>12</sup> “the daily you,”<sup>13</sup> and “monadic communication clusters.”<sup>14</sup> Each of these terms attempts to capture how embedded learning algorithms (en)frame individuals into categories, make assumptions about identities and subject positions, and use these assumptions to customize content, services, and prices.<sup>15</sup> The logic of personalization is currently best articulated in the apps ecosystem and Web browsing<sup>16</sup>; however, as the built, physical environment becomes

smart and connectable, individual behavior in geophysical space can also be tracked, recorded, and processed. It is personalization, rather than just their smartphones or tablets, that tethers individuals to supply chains, and that allows for better matchmaking of equivalents.

The mesh's virtuous appearance stems primarily from the "fact" that the features of ubiquitous connectivity appear to offer nothing but benefits to us; it increases our bourgeois freedom of choice in the use values that provide solutions to daily problems and needs, some of which we once didn't even know we had. We read—presented in the best marketing lingo that money can buy—that our lives will become much easier to live, more fulfilled, and less stressful. For example, the Speaktait Assistant is "a virtual buddy for your smartphone that answers questions in natural language, performs tasks, and notifies you about important events." It "saves you time and makes communication with gadgets and Web services easier and less stressful."<sup>17</sup> With Locale (an app that makes your phone aware of your geographical coordinates), "you create situations specifying conditions under which your phone's settings should change. For example, your 'At School' situation notices when your Location condition is '77 Massachusetts Ave.,' and changes your Volume setting to vibrate."<sup>18</sup> And Fred Wilson, principal of Union Square Ventures, agrees: "I'm really taken with Locale. . . . The idea that I have an intelligent phone that configures itself depending on where I am is very powerful."<sup>19</sup> This app is nothing but virtuous, a project manager named Judy tells us: "I used to have this nightmare that my kids were sick at daycare but no one could reach me because my ringer was off. With Locale, now I don't have to worry!"<sup>20</sup> Wikitude, an augmented-reality app, promises to be your "third eye": "New in town? Want to know what's what? With Wikitude, you can explore the world around you with a simple glance. Thanks to Wikitude's millions of points of interest, you're sure to find something new and informative around you right now. . . . Got a taste for Thai tonight? Yum! Use Wikitude to not only find Thai restaurants near you, but narrow in on user reviews and opinions. 3am and need a taxi? Wikitude to the rescue! Want to visually see the tweets happening around you? Can do! Know what that money in your pocket is really worth? Check it with Wikitude! Wikitude is constantly adding new content to the app daily, ensuring you'll never run out of augmented experiences."<sup>21</sup> In this sense, the app economy epitomizes what the personal digital assistant (PDA) once promised in name only: a selfless aid whose sole purpose is to help us live better and more fulfilling lives.

In the virtuous mesh, participation is voluntary, often euphoric, but it requires users to "buy in" by purchasing devices, paying for services, and regularly using the panoply of "solutions to modern living" offered by app-centric

media. Whether users accept these terms and conditions through informed consent or through willful ignorance matters little. The effect is the same: acceptance and support for the nominally voluntary basis of the virtuous mesh is to consent that your device to transmit *capta* about how you use the device, where you are, what you are doing, where you are going, and so on.<sup>22</sup> Proximal effects of connectivity are at once maximized yet increasingly obscured by the perceived simultaneity and invisibility of electromagnetic waves. Messages triggered by our movement through time and space—say, restaurant suggestions from Yelp or Foursquare sent as we move through midtown at dinnertime—provide an immediate utility that conceals the complex interweaving of *capta* flows, algorithmic processing, and commercial transactions that makes this event and this surface effect possible.

While at the level of individual users these surface effects are variously positioned as solutions to modern life, the qualities we have noted—ubiquity, personalization, and immediacy—have not evolved by accident. Let us therefore leave this world of screens, where everything takes place on illuminated surfaces, for the world of the machine and its micro-dramaturgy of temporal events,<sup>23</sup> which will reveal not only how capital circulates in the apps ecosystem but also how this circulation is produced.

### The Targeting Diagram

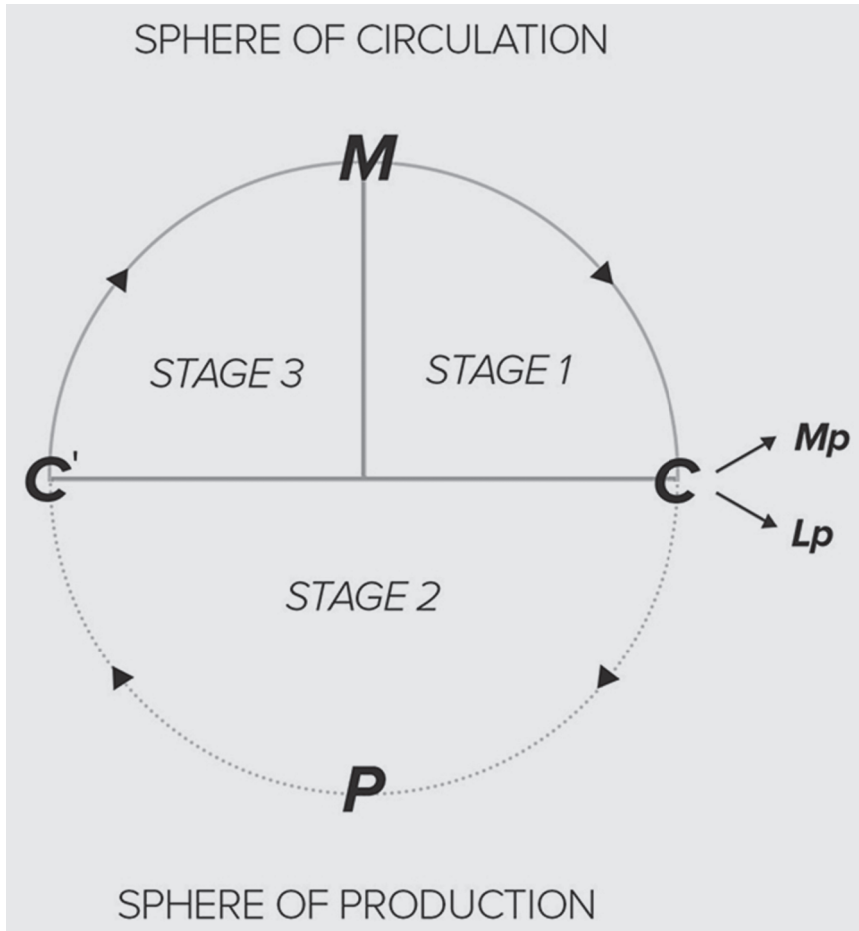
Underneath what appears as a virtuous mesh of human and machine connectivity we find the pathways of capital's diagram. Wolfgang Ernst argues that the diagram is not a structure; in operation it is a process that unfolds according to the time and logic of the machine that the diagram represents. In this sense, the diagram is a technical term: "the diagrams of circuits and machines' functions, which are abstract descriptions of the operational principles of modern technology."<sup>24</sup> Far from referring to a stable, static machine state, the diagram is "a generative, active and articulating force expressed on the time axis" and is a guiding principle for the potential actions and connections a machine might take and/or make.<sup>25</sup> When, thanks to the connectivity enabled by spectrum technologies, the market is no longer a place but a field, the number of potential moments for equivalents to consummate their love is maximized.

The diagram, however, is also a heuristic tool: "a way to understand how society operates through the diagram of machines."<sup>26</sup> The circuit of capital (figure 11.1) can thus be understood as a diagram that abstractly describes the operational principles of the capitalist mode of production. Capital's operational principle is to reproduce its conditions as the results of its life process.

On this understanding, the capitalist mode of production is locked in society when “capital itself is already presupposed as the condition of its own production.”<sup>27</sup> The circuit shows how the reproduction of capital is an iterative process that posits money ( $M$ ), commodities ( $C$ ), capitalist social relations ( $M-Lp$  and  $M-Mp$ ) and a production process ( $P$ ) as both conditions and results of capital’s vibrant material process. Operationally, rather than as a static two-dimensional representation, the diagram of capital depicts how labor-as-value is distributed, how capital is accumulated, and how capitalist social relations are reproduced in generalized commodity societies. Capital’s diagram is thus also an articulating force on the time axes of labor and circulation, but what is articulated is the domination of labor by capital and the real abstractions that mediate life in the capitalist mode of production. The fetish occupies the place of agency.

As with the technical diagrams that Ernst analyzes, capital’s diagram also depicts events in motion: buying, selling, and producing. For capital, stasis is death, devaluation, and negation, whereas movement and acceleration is capital’s becoming.<sup>28</sup> Ideally, capital circulates as it does in the mind: at the speed of thought, as one concept turns into the next.<sup>29</sup> When capital assumes a material form next to its economic one, however, it becomes subject to the laws of gravity, thermodynamics, and nation-states, and as such it cannot circulate boundlessly and without friction. As C. J. Arthur explains, capital must invest itself in matter—which may be resistant to it.<sup>30</sup> If matter resists, capital can slow down or get stuck in one of its economic forms, lie fallow, and be negated as capital, though when movements starts up again the economic form gains the social form of capital once again.<sup>31</sup> Capital’s movement (its communication) depends on the economic and material form that it assumes, and transmission is always faster than transportation. When capital is in the form of digital objects, riding electromagnetic waves (as is the case with apps), it circulates right under the threshold of absolute velocity. If capital were to circulate at absolute velocity, it would negate its existence.<sup>32</sup>

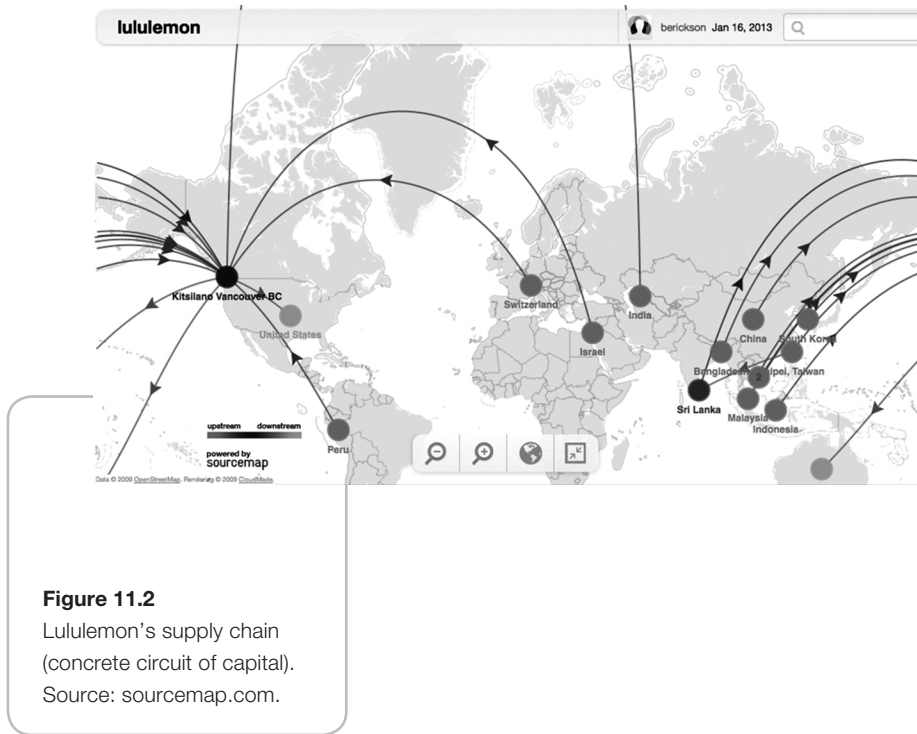
When capital’s diagram is executed as a material process in space and time, capital is nothing but the purposeful movement of matter in various economic guises. As a material process, capital assumes the form of a supply chain (see figure 11.2), comprising the integration of transportation, infrastructure, vehicles, packaging, warehouses, banking, and so on. In this context we can understand logistics as the time-related positioning of value-forms to ensure that commodities, labor power, productive capacity, and information are at the right place, at the right time, and in the right quantity.<sup>33</sup> All of this is to say that capital’s representatives, be they humans or machines, work to realize the union of equivalents on a grand scale. Logistics

**Figure 11.1**

The circuit of capital and its stages and forms. Figure designed by Jordan Coop.

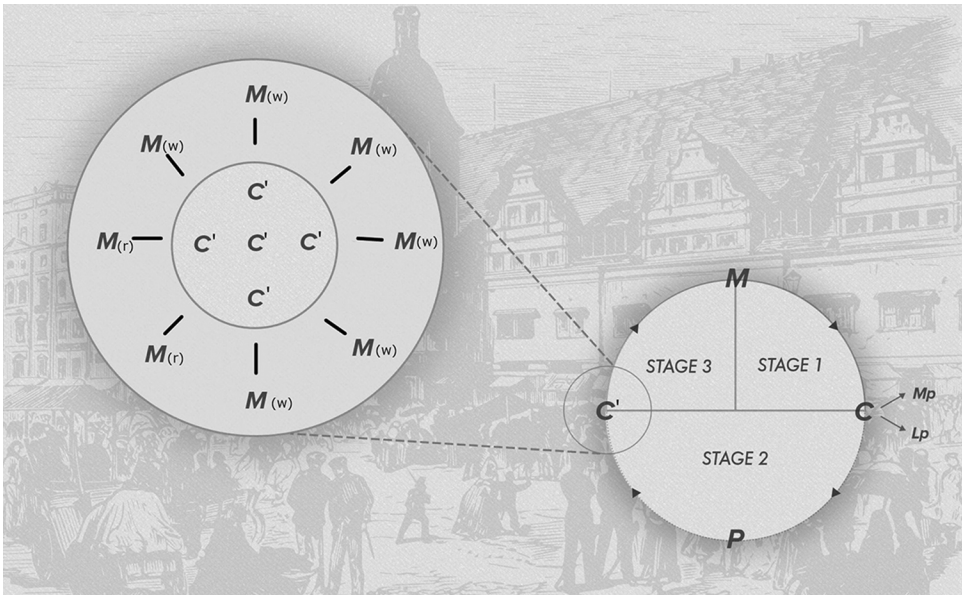
or supply-chain management is thus the science of capital's circulation—a science of acceleration compelling progressive reorganizations of space and time. The logistics of capital necessitate the adoption of newer and faster media: from metabolic vehicles to jet transportation, container shipping, and digitized commodities transmitted by tele-technologies operating at the speed of electromagnetic waves.





Because all “independent circuits of individual capitals”<sup>34</sup> are concrete supply chains, the diagram of capital is also topological. Its various moments represent a set of spatial coordinates and temporal waypoints. Thus the individual points of the diagram of capital (figure 11.1) can be mapped onto locations in space (figure 11.2).<sup>35</sup> Thus *M* can refer to a corporation’s headquarters as a center of calculation,<sup>36</sup> *P* to the point of production and *C* to points of exchange (stores and other marketplaces). The functions *M—L* and *M—Mp* assume the existence and thus precise location of labor and commodity markets in space, while *C—M* relies on the existence of consumer markets. As figure 11.2 shows, the point of departure for Lululemon’s individual circuit of capital is Vancouver. The company acquires (stage 1) the means of production and labor power from markets in Europe, Peru, South Asia, and Southeast Asia. With several points of production (stage 2) in various Asian countries and one in Canada, it sells in only four national markets: Canada, the United States, Australia, and New Zealand (stage 3).

The circuit, as a physically instantiated supply chain, has limited points of connection for commodities and money. They are confined to points, places,

**Figure 11.3**

The marketplace/commodity as attractor.  
Figure designed by Jordan Coop.

or locales—city centers, shopping districts, plazas, malls, and so on. Space is limited: only one store can occupy the location with the most consumer traffic, and inside stores shelf space is limited. Furthermore, it takes time for money to travel to the gathering places of commodities. The possibility of commodity-capital being sold at these places thus depends on the material infrastructure and the marketable appeal of locations that help to attract money, and their guardians. This form of connection between commodities and money in terms of specific but limited locations in space was the dominant mode of circulation before the 1970s' ICT revolution. Figure 11.3, an abstract representation of this type of connection, shows how commodity-capital ( $C'$ ) is the attractor for the money (wages or revenue) of consumers.  $M(w)$  designates wages and  $M(r)$  designates revenue that workers and capitalists respectively spend to reproduce themselves.  $C'$  represents various commodity capitals. The arrows indicate that money's guardians must go to where commodities are located—for example, a Lululemon store in Vancouver.

In the age of computation, telecommunications, and post-Fordism, capital increasingly circulates through the operative diagrams of digital devices, such

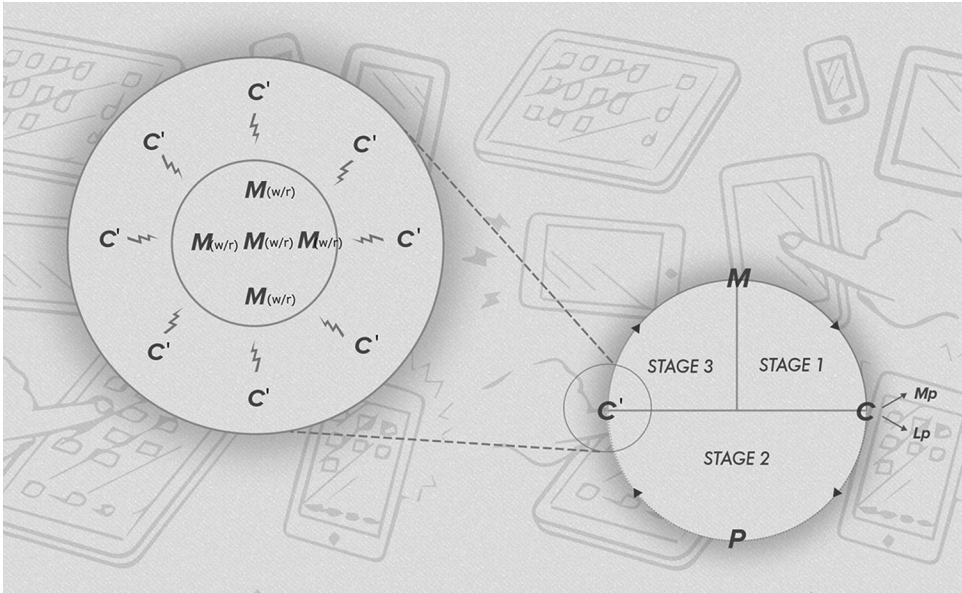
as tablets, smartphones and the wider apps infrastructure. Capital ceases to circulate in geophysical space, instead traversing the topology of chip-set architectures and the paths of fiber-optic cables between server farms and continents and bouncing off satellites. In the case of apps, capital has ceased to move according to the geographical foundations of real space (roads, railways, etc.) in favor of the “tele-foundation of the global real-time communication system.”<sup>37</sup>

It is by way of the operations of telecommunications that capital’s circulation itself becomes diagrammatic as it traverses the space of electronics, or, in the words of Wolfgang Ernst, operates according to the intensive micro-temporal dramaturgy of events inside computational devices. Capital’s circulation comprises pulses, starting, and stopping—a creeping vector employing electromagnetism to close the gap (the “last mile”<sup>38</sup>) between commodities and money. In this process, capital’s circulation becomes isomorphic with the technical diagrams of computational devices of smartphones, tablets and the Internet’s backbone; the potential points of connection multiply, and are theoretically and technologically, for all intents and purposes, limitless (especially if IPv6 is adopted).<sup>39</sup>

The potential points of connection expand when the market ceases to be a place and instead becomes a field (see figure 11.4), as is the case with any app store. What increases are the potential points of connection between commodities and money. Figure 11.4 shows how the money of consumers ( $M(w/r)$ ) is the attractor when the market is a field. The waves designate that a specific quantity of commodity-capital ( $C$ ) is transmitted in the “last mile” to a trackable and locatable individual consumer, or, more precisely, to an always-on smartphone pinpointed in space. Thus capital’s meeting places for equivalents in love no longer refers to specific locations in space (such as a supermarket, a mall, a corner store, or your home); it now refers to all the potential locations in space that a particular individual might occupy as it moves through geophysical space. When the market is a field, commodities can in principle be transmitted directly to individual consumers wherever they may be in the world.

By privileging money as the attractor, we are not arguing that the individual consumer is empowered, even though the virtuous mesh might give consumers and market evangelists precisely that idea. Rather, what has happened is that one abstraction has replaced another as the center of gravity of attraction.

With the increase in potential connections, the apps economy is the paradigmatic example of what political economists<sup>40</sup> and logistics revolutionaries<sup>41</sup> refer to as the change from a push economy to a pull economy, from

**Figure 11.4**

The market field/money as attractor.

Figure designed by Jordan Coop.

supply to demand, or (in epochal terms) from Fordism to post-Fordism.<sup>42</sup> In terms of the value form, there has been an inversion of polarity, from commodities to money being the attractor for circulation.<sup>43</sup> Instead of connecting with money in the limited points of connection afforded by physical stores in real space, capital has a virtually limitless field of potential connections in the form of vectors. Although malls are dying and the old bricks-and-mortar stores are going under as online and hybrid businesses are gaining more and more market share,<sup>44</sup> the storefront is omnipresent. The app stores of Apple and Google have such a tele-presence (that is, ubiquity in space) because of always-on smartphones and tablets. Ubiquitous connectivity renders the points of production and exchange to be potentially ubiquitous. Indeed, app stores are neither “here” nor “there.”

Accessing these vectors, capital launches its digitized commodities (such as apps and downloadable content) directly at the consumer, in a manner similar to how anti-aircraft batteries attempt to intercept planes or missiles by tracking them in real time. With the app economy/ecosystem, capital has found a way to penetrate directly to the individual rather than going by way of

a store located in a specific location in geophysical space. Through the closed supply chain of the app ecosystem, capital has gained a targeting system. This targeting system has the function of predicting who will buy what, where, and when. The system thus calibrates its predictive targeting by aggregating and processing capta extracted from the devices of individual consumers. Nearly all commercial apps extract capta from the individuals who have installed them. Although individuals expect Facebook, Google Maps, and other apps to collect some capta, even innocuous apps (such as Angry Birds and Brightest Flashlight) collect locational and device ID capta.<sup>45</sup>

Points of connection, transmission, and reception offer both opportunities for the exchange of equivalents and opportunities for the extraction of capta about the moment of exchange itself. This confirms what the prophet Marshall McLuhan observed: there is a “steady progression of commercial exchange as the movement of information itself.”<sup>46</sup> The cybernetic actualization of this potential is the diagrammatization of capital.

Formerly anonymous and accidental moments of exchange in generalized commodity societies have been replaced with an abstraction, a “known/knowable” individual, produced by the technical capabilities of identifying and pinpointing consumers in space and time. It is through the ubiquity of capta production/extraction that capital enhances the vector (that is, its targeting system) of its circulation and makes the circuit diagrammatic.

Capta are used for the real-time calibration of coordinates, and subsequent extraction of capta allows for the further calibration of capital’s targeting system so that commodity-capital can confront an equivalent in money with less friction and more accuracy. This calibration and this targeting occur by making assumptions about who the guardian of the money and the smartphone is. The (en)framing of individuals into categories that John Cheney-Lippold discusses is an excellent example of calibration; the category is the cross-hairs for delivering commodities, content, and advertising. Systemic categorization is a central technique in this targeting system, which ultimately aims for a target market of one.

Cheney-Lippold documents how algorithms using capta from Web-surfing behaviors are used to generate “statistical commonality models to determine one’s gender, class, or race in an automatic manner at the same time as [mathematical algorithms] defines the actual meaning of gender, class, or race themselves. . . . It moves the practice of identification into an entirely digital, and thus measureable, plane.”<sup>47</sup> For example, “gender becomes a vector, a completely digital and math-based association that defines the meaning of maleness, femaleness, or whatever other gender (or category) a marketer requires.”<sup>48</sup> Similarly, pregnancy is a vector. By statistically

analyzing point-of-sale capta, the Target Corporation is able to “predict” who is pregnant, because pregnant women buy specific commodities during each trimester. Using capta from such purchases, Target’s marketers can send vouchers for commodities that they know a consumer will need as her pregnancy progresses.<sup>49</sup>

Although categories can change both offline and online, algorithmic identity-making represents a “continuous, data-centered manner that modulates both user experience (what content they see) as well as the categorical foundation of those identifications.”<sup>50</sup> Users can be “made” more male or female if they browse content that is targeted to a particular gender. In this way consumption itself could be determined by what the individual consumer is presented with, which is only further proof that bourgeois freedom of choice obfuscates how individuals are determined as workers and consumers.

### **(Dia)Grammatization and the General Intellect**

Although the virtuous mesh is only a surface effect, it has the particular function of translating human capacities into capta for the purposes of more effectively uniting the star-crossed lovers of this story. The virtuous mesh articulates us as communicating subjects for capital, but what is most important is the surface appearance of the apparatus that is used to extract our behavior, absorb it, and translate it into usable flows of capta. The concept of the general intellect has found renewed relevance, particularly in view of the seemingly virtuous nature of our networked surroundings. In the same way that industrial machinery absorbed the physical and intellectual capacities of the worker in the sphere of production, our networked environment and digital devices absorb our sociality and movement through space and time as streams of capta, which are produced by the very nature of personalization and connectivity in the sphere of circulation (i.e., our cultural and communicative capacities). The sum total of this distributed process is a material expression of what Marx called the “general intellect,” i.e., the process by which social knowledge becomes a direct force in production.<sup>51</sup> We argue that the general intellect has become a direct force in circulation as well. The role of the general intellect in the sphere of circulation is thus, in the words of Dodge and Kitchin, “conceptually about understanding a mass of consumers, in order to persuade individuals to consume in ways more profitable to business.”<sup>52</sup>

According to Paolo Virno, the “general intellect manifests itself today, above all, as the communication, abstraction, self-reflection of living subjects.”<sup>53</sup> This manifestation, however, occurs in a system of machines (as



Marx originally argued), and not as “an attribute of living labour” (as Virno insists).<sup>54</sup> With the rise of ubiquitous media, the body (as “understood/interpreted” by our devices) becomes inseparable from a steady stream of digital capta. Indeed, the economy and the ecosystem of apps set this articulation in relief. Individuals gain capta-shadows that follow them, and often precede them, as they are (en)framed into categories of gender, race, place, time, and other demographic abstractions. It is these abstractions that subsume the communicativity and self-reflexivity of individuals into the general intellect; indeed, the general intellect consists in part of such abstractions.

When money becomes the attractor, and when capta about its guardian can be extracted, capital acquires a targeting system for its commodities. “The *general intellect* demands virtuosic action, precisely because a consistent portion of this intellect is not channeled in the machine system, but manifests itself in the direct activity of human labor, in its linguistic cooperation.”<sup>55</sup> Virno is correct in that a consistent portion of laboring subjects is not subsumed into the general intellect—this is precisely the distinction between data and capta. But capital demands virtuosic action because it can extract capta from and about these actions—capta that then become part of the (machinic) general intellect. Because the general intellect can subsume only capta, and not data, it has to fill in the rest for itself by making assumptions about an individual’s gender, race, consumption capacity, and so on. Capital must rely on abstractions about individuals based on a mass of consumers; the concrete individual, however, is a singularity that can never be fully captured and subsumed.

In the sphere of circulation, it is not surplus value that can be extracted from communicative and intellectual activities; it is capta, via the apps running on smartphones and tablets. Capta about these activities are, in turn, processed into abstractions that allow commodity capital to lock onto and fire at its target. The stakes are high: miss and love is lost. It is not surprising that the moment and activity in which capital is particularly interested is exchange itself. There is, therefore, an intense interest in producing apps that provide payment and financial services by telecommunications providers (e.g., the ISIS payment system used by AT&T and other companies), device/component designers (e.g., Apple’s Passbook), and software developers (e.g., Google Wallet).

The subsumption of social and communicative capacities into the general intellect is similar, in effect, to what Bernard Stiegler refers to as “grammatization,” which involves the “exteriorization of memory in all its forms” through a variety of technical organs<sup>56</sup> but mainly through communication devices that are closely integrated with the identity and the embodied

spatio-temporal vector of an individual. Grammatization can thus be seen as serial or mass amputation—dissection—as more and more of the human being's senses, organs, and capacities are exteriorized, replaced by the meta-prosthetic of universal computing machines. Apps are anatomical; the app store or the buttons on your screen are, for all intents and purposes, mimetic of an Angus Beef diagram. Rather than showing where the various cuts of meat are located on a steer, apps show the various “cuts” of capta to the representatives of capital, specifically those that base capital accumulation on “big data.”

The aim of customer profiling and personalization, and what these animated abstractions are used for, is to identify “people who poses the characteristics that make them a potential purchaser of a product, to encourage them to buy it, and to reward them for the purchase in order to maintain brand loyalty.”<sup>57</sup> This invisible “captaveillance” is an embedded component of our social lives and relationships as they are increasingly mediated by digital networked technologies. The combination of personalization and ubiquity makes the widening circulation of capta a resource in the diagrammatic expansion and intensification of capital's vector.

The “targeting” mechanisms that underpin the modeling of consumer identity and consumer behavior also reveals the ontological presuppositions that have been central to cybernetics since that term was coined. As Peter Galison writes, “anti-aircraft fire control was the key to cybernetics. Faced with the problem of hitting fast maneuverable bombers with ground-based artillery, [Norbert] Wiener brought to bear his own established interest in feedback mechanisms, communication technology, and nonlinear processes.”<sup>58</sup> Just as Wiener's proto-cybernetic anti-aircraft targeting system posited the “ontology of the enemy” as a composite servo-mechanical system that assumed that the pilot and the craft were inseparable in order to model the enemy's being, the diagrammatic coordination of equivalents frames the ontology of the consumer as a mobile relay point and an independent center of exchange in the sphere of circulation. Whereas the enemy offered a final “exchange” of fire (life/death), the virtuous mesh conceals the targeting functions that posit the user as a relay in an accelerating process of “matchmaking” between commodities and money. In the final instance, the target is itself always an imaginary entity, a projection born from a cybernetic system defined by a recursive exchange of capta.

The whole life of a society in which post-Fordist conditions of circulation prevail presents itself as an immense accumulation of capta. All that is lived can be statistically aggregated and analyzed. Ultimately, what resides on our portable devices, though seemingly innocuous, is the final anchor point that



links the circuitry of computational capitalism to individuals, forcing us to draw individuals into the diagram of capital. The fetish is thus strengthened, and so is our subjection to the abstractions of economic categories and processes.

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### Notes

1. Karl Marx, *Capital*, volume I (Penguin Classics, 1976), 201–203.
2. *Ibid.*, 92, 178–179.
3. David Harvey, *The Condition of Postmodernity: An Enquiry into Origins of Cultural Change* (Blackwell, 1989), 107.
4. To properly distinguish the relationship between potentiality and articulation in this process, we use Kitchen and Dodge's distinction between data and capta: "data is everything that it is possible to know about [a] person." By contrast, capta are "units that have been selected and harvested from the sum of all potential data." Rob Kitchin and Martin Dodge, *Code/Space: Software and Everyday Life* (MIT Press, 2011), 5. As Kitchin and Dodge explain, this distinction is based on the etymological roots of each term: the Latin root of "data" is *dare*, meaning "to give," whereas "capta," from the Latin *capere*, means "to take" (261). Through apps individuals give and capital takes capta that is consequently processed and used for capital's match-making of economic forms.
5. Friedrich A. Kittler, *Gramophone, Film, Typewriter* (Stanford University Press, 1999), 1.
6. See, e.g., Matt Cohler, "Great mobile apps are remote controls for real life," at <http://techcrunch.com>; William Webb, "The future of mobile phones: A remote control for your life," *The Independent*, May 14, 2007.
7. Brian X. Chen, "Smartphones become life's remote control," *New York Times*, January 11, 2013.
8. Paul Virilio, *Open Sky* (Verso, 1997), 13, 17, 25. See also Paul Virilio, *The Original Accident* (Polity, 2007), 26, 49.

9. John Tomlinson, *The Culture of Speed: The Coming of Immediacy* (Sage, 2007), 74.
10. Harvey, *The Condition of Postmodernity*.
11. Virilio, *Open Sky*.
12. Eli Pariser, *The Filter Bubble: What the Internet Is Hiding From You* (Viking, 2011).
13. Joseph Turow, *The Daily You: How the New Advertising Industry Is Defining Your Identity and Your Worth* (Yale University Press, 2011).
14. Kenneth Gergen, "Mobile communication and the transformation of democratic process," in *Handbook of Mobile Communications Studies*, ed. James Katz (MIT Press, 2008), 297–299.
15. See John Cheney-Lippold, "A new algorithmic identity: Soft biopolitics and the modulation of control," *Theory, Culture, Society* 28 (2011), no. 6: 164–181; Astrid Mager, "Algorithmic ideology: How capitalist society shapes search engines," *Information, Communication and Society* 15 (2012), no. 5: 769–787.
16. Cheney-Lippold, "A new algorithmic identity."
17. Locale product description page ([www.twofortyfouram.com/product](http://www.twofortyfouram.com/product)), accessed January 20, 2013.
18. Ibid.
19. Locale page on Google Play (<https://play.google.com/store/apps/details?id=com.twofortyfouram.locale&hl=en>), accessed February 4, 2013.
20. Ibid.
21. Wikitude ([www.wikitude.com/app](http://www.wikitude.com/app)), accessed February 3, 2013.
22. For the purposes of analytic clarity, let us set aside questions of privacy and security, because in principle these are necessary concerns for commercial forces too (after all, perceived security risks and overt surveillance mechanisms scare consumers away). The goal is to have consumers, one way or another, opt-in to these processes. For this to occur, individuals must accept the basic "terms and conditions" (both in a legal and experiential sense) associated with ubiquitous connectivity. Such presumably voluntary processes help validate technologies and services of ubiquitous connectivity as necessary components of a virtuous mesh, one seamlessly embedded in everyday life and rapidly disappearing from direct oversight by all but the most technologically savvy users.

23. Wolfgang Ernst, "... Else loop forever: The untimeliness of media," presented at conference "Il Senso della Fine," Università degli Studi di Urbino, Centro Internazionale di Semiotica e Linguistica, September 10–12, 2009.
24. Jussi Parikka, *What Is Media Archaeology?* (Polity, 2012), 132.
25. Jussi Parikka, "Operative media archaeology: Wolfgang Ernst's materialist media diagrammatics," *Theory, Culture & Society* 28 (2011), no. 5: 66.
26. *Ibid.*, 65.
27. Karl Marx, *Grundrisse: Foundations of the Critique of Political Economy* (Penguin Classics, 1973), 715.
28. *Ibid.*, 519, 536, 621.
29. *Ibid.*, 548.
30. C. J. Arthur, "The fluidity of capital and the logic of the concept," in *The Circulation of Capital: Essays on Volume Two of Marx's Capital*, ed. C. J. Arthur and G. Reuten (Macmillan, 1998), 117.
31. *Ibid.*, 107–108.
32. For a more detailed explication of the function of digital media in relation to capital's logic of acceleration, see Vincent Manzerolle and Atle Mikkola Kjosen, "The communication of capital: Digital media and the logic of acceleration," *tripleC: Communication, Capitalism & Critique* 10 (2012), no. 2: 214–229; Atle Mikkola Kjosen, *An Accident of Value: A Marxist-Virilian Analysis of Digital Piracy*, master's thesis, University of Western Ontario, 2010, 9–35.
33. A textbook definition goes as follows: "Logistics can be broadly defined as time-related positioning of resources ensuring that material, people, operational capacity and information are in the right place at the right time in the right quantity and at the right quality and cost." Alan E. Branch, *Global Supply Chain Management and International Logistics* (Routledge, 2009), 1.
34. Marx, Karl, *Capital*, volume II (Penguin Classics, 1978), 110.
35. With the advent of the Internet of Things, the separate topologies of aliquot parts of capital can be tracked in real time.
36. See Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society* (Open University Press, 1987).
37. Paul Virilio, *The Information Bomb* (Verso, 2000), 9.

38. “Last mile” is a figurative term used within the telecommunications industry referring to the final stretch linking backhaul infrastructure and the user/subscriber. Historically, the last mile is usually the most costly, technically challenging, and often politically charged; see Michele Martin, “Communication and social forms: The development of the telephone, 1876–1920,” *Antipode* 23 (1991), no. 3: 307–333. In our essay, it describes the field in which individuals are ubiquitously connected by wireless devices. More important, in assigning mobile devices IP addresses, “the last mile” refers to the final relay point in the diagrammatic circulation of capital.

39. IPv6 refers to a new Internet protocol, launched on June 6, 2012, that increases the number of existing addresses from 4.3 billion (with IPv4) to roughly  $3.4 \times 10^{38}$ . In so doing, this new protocol allows the assignment of Internet addresses to devices previously unconnected. IPv6 provides the basis for an “Internet of Things” in which virtually any device might be brought online. More information on IPv6 and the Internet of Things can be found at <http://iofthings.org>.

40. Harvey, *Condition of Postmodernity*, 177.

41. Martin Christopher, *Logistics & Supply Chain Management* (Prentice-Hall, 2011), 104.

42. Harvey, *The Condition of Postmodernity*; Nick Dyer-Witheford, *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism* (University of Illinois Press, 1999).

43. The app economy is, of course, not the first example of money attracting commodities. It is an extension of mail order shopping combined with the postal payment of checks or money orders or wiring money in advance (Kitchin and Dodge, *Code/Space: Software and Everyday Life*, 184), and more recently hybrid online/offline stores of which Amazon is currently the paradigmatic example. However, in these cases the purchased commodity did not come directly to the individual consumer wherever it was located, but to a home or otherwise established physical postal address. The apps ecosystem thus enables exchange and consumption on the move, but with same-day delivery this could become a reality for even physical commodities, for example, by using drones to deliver directly to the consumer, as the case of the TacoCopter demonstrates. See <http://elidourado.com/blog/tag/fedex>.

44. Jeff Jordan, “The death of the American shopping mall,” December 26, 2012 (<http://www.theatlanticcity.com/jobs-and-economy/2012/12/death-american-shopping-mall/4525>).

45. Jialiu Lin, Norman Sadeh, Shahriyar Amini, Janne Lindqvist, Jason I. Hong, and Joy Zhang, “Expectation and purpose: Understanding users’

mental models of mobile app privacy through crowdsourcing,” in *UbiComp* '12 (ACM, 2012).

46. Marshall McLuhan, *Understanding Media: The Extensions of Man* (McGraw-Hill, 1964), 149.

47. Cheney-Lippold, “A new algorithmic identity,” 165.

48. Ibid., 170.

49. Charles Duhigg, “How companies learn your secrets,” *New York Times Magazine*, February 16, 2012.

50. Cheney-Lippold, “A new algorithmic identity,” 172.

51. Marx, *Grundrisse*, 704–706.

52. Kitchin and Dodge, *Code/Space: Software and Everyday Life*, 203.

53. Paolo A. Virno, *Grammar of the Multitude: For an Analysis of Contemporary Forms of Life* (Semiotext(e), 2004), 65.

54. Ibid.

55. Ibid.

56. Bernard Stiegler, *For a New Critique of Political Economy* (Polity, 2010), 34.

57. Kitchin and Dodge, *Code/Space: Software and Everyday Life*, 203–204.

58. Peter Galison, “The ontology of the enemy: Norbert Wiener and the cybernetic vision,” *Critical Inquiry* 21 (1994), no. 1: 228–266, at 232.