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Introduction

The current economic condition of digital participation is described by the proponents of the neoliberal model of economic efficiency as a new economic revolution. The simulated existence of the market in computer networks and graphic interfaces presents itself as the ultimate reality of value at the same time as it tries to make other forms of social valuation subordinate and even unreal. Reflecting on the mystification of the effect of digital interfaces on social participation, the paper raises a series of questions for the analysis of the cultural effects of the mediating function of monetary interfaces by reflecting on their economic, technological and aesthetic implications. The critique focuses on the new digital architecture of the monetary system by investigating how money intervenes in information exchanges and signals the creation and transfer of economic value. The ability of payment interfaces to impose, both overtly and covertly new relations of ownership as well as new forms of surveillance, suggests their capacities as technologies of political control of the individual. The aim is a theoretical framework for the analysis of the re-organization of the economic system and its dependence on money.

Digital money rising

The revolution in information and communication technologies facilitated the emergence of electronic payment systems and the organization of new types of payment instruments. Communication has become faster, safer and considerably cheaper, leading to a more efficient system for the circulation of funds, the expansion of credit cards and of electronic money. Monetary interfaces have been developing and providing added value services to consumers, limiting the use of cash and of other paper based payment methods, effectively laying the foundations for a cashless society.

The competition from new payment networks confined the use of cash only to a fraction of the total value of monetary transactions as the data on the relative popularity of payment methods issued by the European Central Bank indicate: only in 2011 the total of non-cash payments increased by 4.4% to 24.9 billion (ECB press release). The importance of paper-based transactions continued to decrease, with the ratio of paper-based transactions to non-paper-based transactions standing at around one to five. The number of cards with a payment function in the EU remained stable at approximately 727 million, a figure that amounts to 1.44 payment cards per EU inhabitant (ECB SEPA). Chart 1 below shows the use of the main payment instruments from 2000 to 2011.

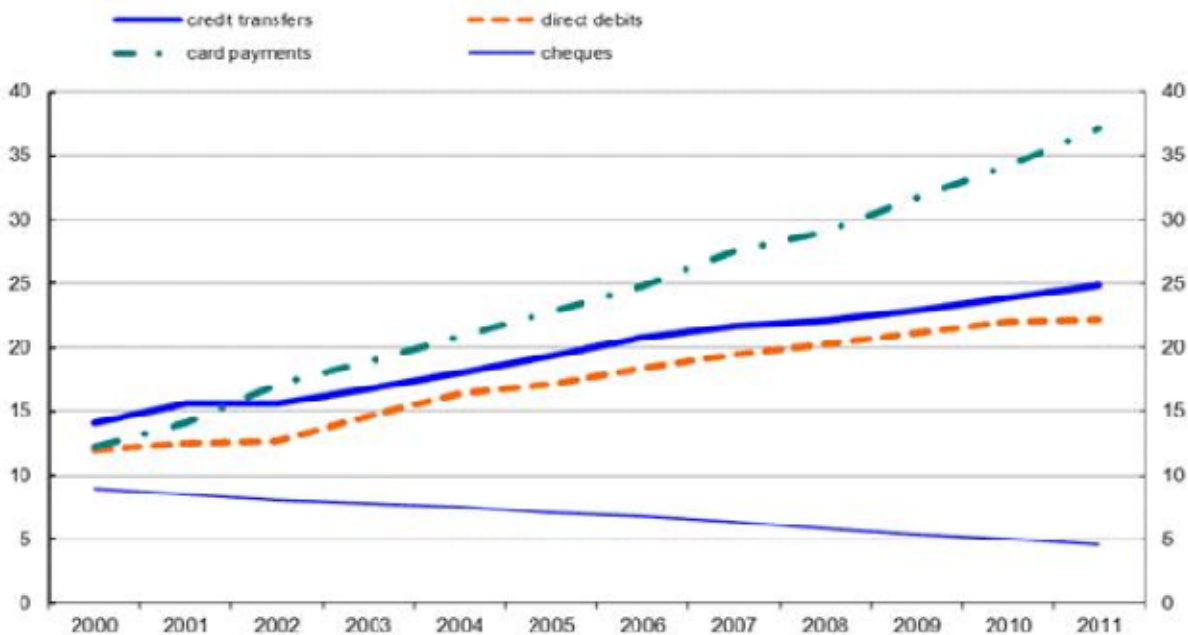


Chart 1: Use of the main payment instruments in the EU 2000 - 2011 (ECB press release)

(estimates of number of transactions in billions)

The phasing out of cash and of other paper based payment instruments raises important questions both about the nature of money and the economic relationships in the new network economy. The immaterialization of money and the progressive disappearance of cash opens new forms of political control as well as new possibilities of resistance. Interfaces, protocols and networks influence the structure of the market, the degrees of participation of different social groups and also the distribution of social wealth.

Digital Economy and the Control of Participation

The digital revolution has not exhausted all its potential, and the application of information technologies in the market seems to be still expanding, but at the same time ICT has reached a certain degree of maturity and relative stability. The new phase of network society has been described as post-digital referring to the 'post-modern' idea of the end of the Enlightenment project, but also to the post-revolutionary banalization of digital culture (Cascone, Cramer). The pervasiveness of digital technologies dispels some of the fascination and the novelty that characterized the early stage of participation in electronic networks but also is a precondition of the commercialization of the network culture. The normalization of ICT encourages also the use of uniform standards, the expansion of surveillance, and the concentration of the control of electronic network in the hands of a limited number of agents following an ingrained tendency of hierarchical networks towards ever more concentration.

One of the most visible consequence of the normalization of ICT and a cause of its further establishment is the gradual replacement of the networked computer, which is the general purpose technology that carried more of the weight of the

socioeconomic transformation, by other information processing-devices which have a more restricted domain of application (Andersen & Pold Interface Criticism). Smart-phones, e-readers, tablets, media players, and game consoles allow restricted access to content and regulate interaction around graphic interfaces that allow limited if any access to their supporting protocol. IT companies, which are simultaneously the producers of the devices, their software, and the retailers of the content, have a vested interest to prevent sharing and cooperation among users. Controlled consumption, a term used by Henri Lefebvre, to describe the bureaucratic control of supply and demand in the affluent society, has assumed a new meaning where it becomes a model of restricted and temporary access to information, conditioned by the architecture of the interface (Andersen & Pold "Controlled Consumption Culture", Striphos).

In the post-digital age, it is the interface, rather than the personal computer, that emerges as the medium of social participation and consequently as the object of analysis and critique.¹ If information becomes the main resource and the most valuable commodity, if the "new economy" is digital, the interface is the most authentic concatenation of technological, social and economic principles. The transformation of individual property rights in the digital paradigm, and the new technologies of their surveillance and their enforcement, have far reaching consequences over the individual and the economic freedom, reaching even to the fundamental right of economic as well as of political freedom. One important conclusion that should be drawn from the NSA surveillance program "Prism" is the complete failure of the rule of law to protect the privacy of citizens from the new technological capabilities of surveillance, control, and (potentially) suppression, independently of their location or the particular legal safeguards in their jurisdiction.

The emergence of the cashless society and the proliferation of payment interfaces is a vivid example of the realities of the new model of control consumption and of the surveillance mechanism that support its enforcement. Electronic banking and electronic payments in general have been instrumental in the commercialization of digital culture, both as a precondition of this development and as one of the areas of the most advanced technological innovation. Finance is an example of early adoption of information technologies as a way to ensure a comparative advantage that can be translated into profits; financial engineering and automated trading are the two most prominent examples of financial innovation that employs the most recent technologies provided by ICT. Commercial banking is also relatively progressed, developing global networks for the transfer of funds, coupled with the credit card systems that also have their own purpose-built system for the processing of payments across markets and jurisdictions. Such technologies use some of the most advanced systems of security and information processing that set the standards for electronic economic transactions.

The proliferation of networks of electronic payments and the consequent increase of the information processing capabilities, have a further, unintended consequence for the implementation of the model of controlled consumption. The information flows about economic transactions processed by banks and credit card companies do not enjoy the same degree of legal protection as private communications, because their property is shared by the transacting parties and the organization(s) that processes the transaction. The value of such information is already acknowledged and in many cases used for marketing, for the prediction of price

movements, and for the screening of transaction for potential dangers of fraud or default. Economic profiling is becoming widespread both for the creation of added value and the exclusion of the economically disadvantaged. The proprietary status of the records of digital economic transactions legally allows their use for reasons other than facilitating the completion of the transaction themselves, like profiling, market research, risk assessment, targeted marketing and advertizing. Banks and credit card companies share and often sale such information in third parties without the prior consent or even the knowledge of their clients. Such practices of economic information sharing and the consequent economic profiling may raise new barriers to participation in the official banking and monetary system, excluding first the illegal, then the migrant and potentially the poor and the precarious from accessing the financial system.

The Payment Interface and the Constitution of the Subject

Money is a media technology in the sense that it represents reality by reducing all phenomena to the absolute quantity of value.² The informatization of money has increased the control of the principles of rationality and efficiency over the subject by adding more layers of mediation between the subject and the society, and new mechanisms of control, intensifying surveillance and normalization. The investigation of the contribution of transaction interfaces in the support of a model of controlled consumption in electronic networks may explain how the circulation of money is enacted in electronic networks. Furthermore, they can illuminate how the ideological operation of money as the master signifier of economic value is supported by its new visual identity in payment networks.

The imposition of the economic logic on social reality passes through the re-constitution of society as a market. Prices communicate the content of social constitution, organizing an order of meaning where all commodities are inserted as signifiers of economic value in accordance to their prices. Signification is regulated by money, the master signifier of economic value, which supports and quilts the signifying chain of commodities, effectively constituting the system of prices. Economic value, the ultimate signified of all commodities, remains nonetheless elusive and ambiguous, an ambiguity that is never eliminated but always remains obscured by money. The forced participation in the market, the alienation of desire by commodification, the inconsistency of the system of prices, the unjust distribution of wealth and resources, and the vacuity of the notion of economic value find their way in the simulated economic systems, in the interfaces of social media and the aesthetics of the commercialized digital culture.

Subjects relate to money on a practical level; theoretical understanding of the meaning and the functions of money comes only later, if at all (Papadopoulos, Notes). The unreflective relation to the monetary system is not limited to the quasi-automatic rule-following of the norms that regulate money, but extends to the acceptance of the dominant discourse about money and its relation to value. The subject may be agnostic about the role of money, the mysteries of economic value or the constitution of the system of prices, but the use of money is a continuous ritual of acceptance the ideological discourse. Money develops from a mere carrier of its social function, as standard of value and a means of payment, to the dominant organizing force of social interaction. Social relations are mediated and reconfigured through the intermediation of money. The signifying omnipotence of the master signifier is combined with the omnipresence of

everyday use, effectively quilting the signifying chain of the system of prices both at the level of meaning and at the level of practice.

The reliance of the economy on iconography and representation has only rarely been addressed directly, but there is extensive literature on the social function of representation that spans from social ontology, to post-structuralism, and to media theory. The new socio-technological paradigm challenges the cultural foundations of the economy encouraging new representations of value that fit the format of the new media of circulation and the symbolic universe of digital culture. The social significance of monetary interfaces is to condition participation and interaction. The relationship of interfaces to social discourse is one of figuration in which the complexities and the contradictions of ideology, are modeled and simulated out of the formal structure of protocol itself (Galloway, "Language Wants To Be Overlooked"). The functionality of the interface exacerbates and challenges the tension between the utopian and the repressive tendencies of ideology within itself; interfaces are ideology-in-code. The aesthetic analysis of monetary interfaces can uncover the ideological foundations of economic value. Flusser claims that technical images open a window to the functioning and the logic of the apparatuses that produce them; the aesthetics of payment interfaces present some impressions of the monetary apparatus from looking through this window. We could assume, as a working hypothesis, that the monetary system is indeed an apparatus in the Flusserian sense of the word.

The interfaces that support the circulation of economic value in the internet are imbued with a complex machinery for hiding things, be it the emptiness of the value form, the self-referentiality of money and its ability to mask its own history of production and the social division of labor that it generates. The success of the interface is the ability to regulate information through inscription and execution, which is no doubt both an abstraction or a re-territorialization of the circulation of value. The structure of electronic payment facilitates the global system of unequal exchange. The relationships between centre and periphery, between producers and consumers, between labor and market, between finance and society are all neutralized by the algorithms of money and networks. The ability of money to reduce all qualities in an absolute quantity is being intensified by the functionality of protocols to domesticate social relations. Protocols reproduce the same fetishistic logic of money. "Users know very well that their folders and desktops are not really folders and desktops, but they treat them as if they were - by referring to them as folders and desktops" (Galloway "Language Wants To Be Overlooked", 329); in the same fashion the semiotic flow of monetary value, be it through PayPal, through MasterCard or through Bitcoin, acquires its reliability through enforcement and representation as money via the providers of monetary interfaces.

The new graphic interfaces impose a new aesthetic, addressing the subject both at the rational and the affective level. As Anne Friedberg argues "this remade visual vernacular requires new descriptors for its fractured, multiple, simultaneous, time-shiftable sense of space and time. Philosophies and critical theories that address the subject as a nodal point in the communicational matrix have failed to consider this important paradigm shift in visual address." (Friedberg 3) Money interfaces can and should also be studied in terms of the psychological appeal to the subject, as knots affective tension, and as screens for the projection of desire and subjectivity. Representation is central for the psychological investment in

money, and so is the illustration of the idea of value in the iconographic and symbolic elements of monetary interfaces. Such representations legitimize and enforce to an extent the dominant ideologies of state, market, and culture.

Monetary Interfaces and Post-digital challenges; a set of questions

The model of controlled consumption is challenged by alternative economies, of sharing, gifting, and exchanging based on different standards of value. The critique of monetary interfaces and controlled consumption should start by studying the collective representations of value in money, the technologies of their dissemination, and investigate their contribution in the constitution of subjectivity in the digital realm. The shared representations of economic value support consumption and commodification by illustrating the cultural significance of the system of prices. A post-digital critique of money can be developed following a series of questions, the most important of which is how the new visual vernacular of digital monetary interfaces informs and shapes the representations of economic value and how such representations are challenged and informed by post-digital practices? The answer to this question comes from critical theory and philosophy rather than from economics, building on the literature on the reliance of the economy on representation and signification, and on an extensive literature on the social function of representation that spans from social ontology, and psychoanalysis, to media theory and interface criticism. The new socio-technological paradigm transforms the cultural foundations of the economy encouraging new representations of value that fit the format of the new media of circulation and the symbolic universe they inhabit. A post-digital critique of electronic money should try to assemble, organize and interpret the emergent aesthetics in an attempt to construct a theoretical framework for the analysis of the new 'digital' identity of economic value investigating both its authoritative expression in the official monetary system and its alternative post-digital configurations.

The analysis of 'digital value' should be supported by the study of three interconnected themes of research combining the methodological framework of interface criticism and aesthetic analysis of monetary interfaces with a critical perspective on economic discourse. The analysis may start by looking back to the growth of the informational sector of the economy, revisiting the most important episodes, integrating them to the overall trajectory of social development tracing the relation of value and money with equivalent transformations in language and image. Such a historiography is important to contextualize the role of information in the socioeconomic system and to describe its input in social production. In this context the notion of economic value as well as its transfigurations in the networks and interfaces would be central. Equally important would be the relation between money, language and code, which will inform the analysis of the immaterialization of economy and value.

The second theme would be the issue of uncertainty and its relation to economic growth. In the recent decades the financial markets have thrived on computational models that try to reduce uncertainty to risk, making it manageable. Uncertainty could be considered in two different capacities. It denotes both the unpredictability of future outcomes given the availability of information and the resources of processing it in the present, but also points to a gap between reality and representation, where uncertainty is the part of the undomesticated real that

disrupts the relations of our theories to the world.

The third part of the analysis will address the dialectic relation between interface criticism and the further development of interfaces with a specific attention to artistic practice and political projects that aim at actual alternatives to the monetary system of valuation and exchange, both within and outside digital networks of participation. Ideally the outcome would be an archeology of digital payment media that is informed by the process of social antagonism. To that effect a critique should try to compile a typology of the aesthetic and the operational principles of monetary interfaces including both their mainstream version and the critical attempts from the edges of the economic system. The conclusion of the analysis would be a critical history of money and its current reconfigurations in the digital condition.

Interface criticism emerges as a necessary methodology in order to understand the conditions of participation in the new social paradigm. It addresses the conditioning of human behavior by new technological media with a specific emphasis on the sensible and persuasive qualities of the interface. Obviously aesthetics and its relation to economics and technology is an important part in the methodological framework that is used in interface criticism and is a necessary supplement to socioeconomic analysis. Here aesthetics is used in three interconnected meanings. Aesthetics denotes sensory perception; an interface has a sensible component in order to create meaning and allow for the interaction between the user and the system that are connected through the interface. A second dimension of the aesthetics of the interface has to do with beauty; interfaces are often designed to be appealing, pleasing, and even seductive in an attempt to address the subject and its desire and to invite interaction. The key here is that the interface is within the aesthetic (Genette), not a window or doorway separating the space that spans from here to there. It is a type of aesthetic that implicitly brings together the edge and the center, or the protocol and the node, but one that is now entirely subsumed and contained within the visual architecture of the interface. This tension brings us to the last, and most subversive possibility in the aesthetic quality of the interface, the notion of aesthetics as artistic production. Art can operate as a force of consolidation of the power of the interface as it can function disruptively, unmasking the limitation and the normativities of the system, and acting as the real form of transparency and in that sense it provides a practical solution to the challenges of commercialization and controlled consumption of digital culture. The analysis offered in the paper could be read as set of arguments that clear the ground and allow for such artistic practices to realize their full critical potential.

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