

THE COMMODITISATION OF TECHNO-SOCIAL NETWORKS: TECHNO-SOCIAL CAPITAL AND ORGANIZATIONS

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ABSTRACT

This paper is concerned with the commoditisation of *Techno-Social Networks* within the Digital Media Industry. Accordingly, after a brief theoretical discussion of the commoditisation concept according to Marx, an exposition of how and why *Techno-Social Networks* have been developed within the Digital Media landscape is presented. Then, in order to show how these networks can achieve market values, *Techno-Social Capital* is explained and its commoditisation revealed. Eventually, the implications of the effects that the commoditisation of *Techno-Social Networks* is having on the structure of Digital Media Organisations are addressed while some doubts and problems regarding their future development are also presented. A brief conclusion is provided at the end.

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1. INTRODUCTION

In the Digital Media Industry, network providers in the sense of pipes and cables are no longer the core business¹. As distributions platforms proliferate and new players drive prices down, power is moving away from those who own the pipes and toward the companies that control the consumer's media experience (Berman et al. 2007). Accordingly, the value of networks are not determined by its physical associated costs but by the *techno-social capital* that can be attached to them. This *Techno-Social Capital*, in turn, seems to be distributed through *techno-social networks* obeying decentralized forms of control. However, forms of centralized control persist in the way that organisations capitalise the networks' associated value, transforming it into commodities. In this way, the goal of this paper is to show how *Techno-Social Networks* have been commoditized and how their associated *Techno-Social Capital* is what Digital Media Organizations are attempting to exploit.

Accordingly, it will firstly provide a brief theoretical framework in which the issue of commoditisation according to Marx will be portrayed. Secondly, an exposition of how and why *Techno-Social Networks* have been developed within the Digital Media landscape will be offered in order to achieve a common understanding of their constitution. Thirdly, *Techno-Social Capital* will be associated with these networks in order to show how they can achieve market values and how, finally, they become commodities. Eventually, the implications of the effects that the commoditisation of *Techno-Social Networks* is having on the structure of Digital Media Organisations will also be addressed, while some doubts and problems regarding their future development will also be presented. A brief conclusion will be provided at the end.

¹ *Harbor Research Institute* (<http://harborresearch.com>); *IBM Institute for Business Value*(<http://www-935.ibm.com/services/us/index.wss>)

2. THE ISSUE OF COMMODITISATION

According to the *Cambridge Advanced Learner's Dictionary*, a commodity 'is a substance or product that can be traded, bought or sold'. Unfortunately, this definition does not explicitly distinguish between those substances or products and the discussion concerning the utility that emerges from the process of their commoditisation. Accordingly, it does not take into account a main characteristic of commoditisation, which is the transformation that being priced implies for the elements involved. A brief review is, therefore, necessary. In *Capital*, Karl Marx pointed out that 'a commodity is, in the first place, an object outside us, a thing that by its properties satisfies human wants of some sort or another' (1992; 3). In saying this, he was not concerned with the nature of those "human wants" but, rather, with the difference between the *use-value*, the *exchange-value* and the *value* of these objects. By *use-value* he meant the useful qualities of a thing that become a reality only by the use or consumption of that thing. By *exchange-value*, he meant the mode of expression (an abstraction generally expressed in prices) of something contained in a commodity, yet distinguishable from it. And by *value*, he meant the aggregation of values that allows the existence of both use-value and exchange-value.

In this way, Marx distinguished between the *use-value* of a commodity as something independent of the *exchange-value* of that product, because the first is concerned with the quality (social use) of an object while the later is concerned with its tradability among other commodities (1992; 3-6). However, although when a commodity is exchanged it is manifested as something totally independent of its use-value, and that the use-value of a commodity is independent from the labour force that was necessary for the appropriation of its useful qualities, the only common thing between those two values is that both of them are the product of human labour. Consequently, the use-values of commodities 'cannot confront each other as commodities (being exchangeable), unless the useful labour embodied in them is qualitatively different in each of them' (9).

This dependence on human labour implies that in a commodity's transaction all the human labour-power that has been expended in its production becomes embodied or materialized in it (Marx 1992; 5). In this way, the product of labour becomes labour that has taken the form of an object and the process of production becomes a process of objectification which is, therefore, 'the transformation of labour into an object' (Marx 1994; 71). Hence, according to Marx, under capitalism, the worker (useful labour) has been assimilated to his product's becoming an object through a process of objectification. Consequently, an object becomes a commodity not only because it can be "treated, bought or sold", but also because the 'labour force involved in its production does not just produce commodities but also turns itself and the workers into a *commodity*' (Marx 1994; 71). This is essential to understanding Marx's idea of commodities, since if these substances or products contain human labour in their transactions as part of its use and exchange value, those who own capital easily become socially and politically dominant extending the endemic "*conflict of the classes*".

The inclusion of useful labour in the conceptualisation of commodities through objectification has a major political and economical relevance whilst, as Anthony Giddens (1971) simplified, 'the main point of Marx's discussion is that, in capitalism, the material objects which are produced become traded on a par with the worker himself' (11). The distinction between *use-value* and *value*, then, becomes theoretically vital in order to relegate some economists' assumptions that purely 'economic' relations can be treated *in abstracto* as if they could have an independent life apart from the mediation of human beings whilst this distinction makes clear that [...] the existence of a particular kind of 'economy' presupposes a definite kind of society (Giddens 1971; 10). This, eventually, will be crucial in order to understand how *Techno-Social Networks* are also becoming commodities, since it will not only be necessary to recognize them as objects but also as the product of useful labour that has taken the form of such *Techno-Social Networks*.

3. THE ISSUE OF TECHNO-SOCIAL NETWORKS

A social network is a web of social attachments, such as friendship and kinship, in which all human action (including commercial exchange) takes place (Uzzi & Gillespie; 2002). In an industrial context, these ‘concrete, ongoing systems of social relations’ (Granoveter 1985: 487) refer to ‘a firm’s set of relationships with other organizations’ (Perez Perez and Sanchez 2002, quoted in Pittaway et al. 2004: 140) whose nature ‘is dependent on its industrial context and on what a firm is seeking to use its network for’ (Pittaway *et al.* 2004: 148). In business, networks are built for a number of reasons that, in general, are referred to as network effects. These network effects are benefits that the *appropriation* of these networks produces. Among them, the most common are the demand side economies of scale, the capitalization on the network’s actors’ expectations, the creation and later the control of communicative standards and the gaining of media power (Shapiro & Varian 1998: 14). In this way, technology-based businesses, for instance, are subject to strong network effects, while they tend to exhibit long lead times followed by explosive growth as the installed base of users grows, producing a *positive feedback* that, in turn, has the result that more and more users find the adoption of that technology worthwhile (13).

One example of a technology-based industry is the Digital Media Industry (New Media) since it cannot operate without technology infrastructure suppliers and vice versa. Its business is about both information and the associated technology that make it ‘possible to store, search, copy, filter, manipulate, view, transmit, and receive information in the form of contents’ (Shapiro and Varian 1998: 9). However, Digital Media contents are not only about *bits* of information that can be stored and transmitted through cables and pipes, but also about the *context* (the Digital Media Network) in which this transmission occurs; ‘without media (and individuals) information is meaningless’ (Lash 2002; 185). So, information only becomes meaningful when it is consumed and contextualised by the Digital Media network itself (people and machines). Consequently, as a whole, the Digital Media Network has a dual nature since it is both the structure for the transmission of information and the techno-social structure that contextualizes that information.

The structure for the transmission of digital information has its origins during the early period of cybernetics² when *The Mathematical Theory of Communication* (Shannon & Weaver 1949) created the basis for the digital landscape (von Baeyer 2001; 28). In their theory, Shannon and Weaver treat information as if it could be separated from its meaning, defining it as ‘a measure of one’s freedom of choice when one selects a message’ (1949: 9). Information, then, was understood as an immaterial, isolated and conceptual element that flows through networks in which distribution channels are connecting information sources with information receptors. Hence, communication was interpreted as one message that is transformed into a signal that travels through a channel from one point to another in order to be finally interpreted by the receptor that reproduces the message. This model for communication was the basis for the development of the digital technological infrastructures of the 20th century, promoting the world’s entire interconnection through machine-to-machine (M2M) networks and making possible not only the improvement of old businesses but also the development of totally new ones.

However, although the core structures for the transmission of digital information will remain essential for the future of any network-based industry (e.g. Digital Media), they will no longer be the major interest for them. According to the *Harbor Research Institute*³ (2003), businesses that have been historically based on *core networks*, like the long distance calls from *AT&T* and *MCI*, have seen their associated margins erode since global carriage of Internet Traffic is hardly unique and, given the connectionless nature of Internet Protocol (IP), difficult to capture. A study from the *IBM Institute for Business Value*⁴ (2007) also has a similar opinion. It says that the new delivery channel alternatives and experiences (e.g. film on your PC) are commoditizing the value of “pure bandwidth”. Consequently, as distribution platforms proliferate and new players drive access prices down, power is moving further away from those who own the pipes and toward the companies that control the consumer’s media experience.

² Macy Conferences between 1946 and 1953 mainly in New York, USA

³ <http://harborresearch.com>

⁴ <http://www-935.ibm.com/services/us/index.wss>

Interestingly, this deliverance of “experience” within the digital landscape also has its roots in the early period of cybernetics where, according to Katherine Hayles (1999), a ‘control theory joined with a nascent theory of information’ was tying together information, control, and communication ‘to bring about an unprecedented synthesis of the organic and the mechanical’ (8). Within this context, for many cyberneticians the discussion of the conditions of information and their further influences on meaning and experience was one of the most important that, indeed, divided the cybernetics’ theorists into two sides. Hence, while Shannon and Weaver’s mathematical theory represented the more mechanical side, Warren McCulloch, who insisted ‘that signals have existence only if they are embodied’ (Hayles 1999: 62), represented a rather more organic side. McCulloch was followed, among others cyberneticians, by Gregory Bateson, who stressed that in cybernetics what matters is not events and objects, but the information that is “carried” by events and objects, while this information has no meaning unless it exists in a relationship (1972; 407-8). For this side of cybernetics, then, information was constrained, shaped and influenced by concrete ongoing systems of socio-technological relations.

This means that humans and technological structures coexist and co-evolve together, not as two independently given sets of phenomena but as a duality whereby technologies are drawn on in human interactions but, in so doing, social structures are produced and reproduced (Giddens 1984). Accordingly, the human interaction with technology has two analytically iterative modes: technologies as artifacts (e.g. hardware, software, networks as pipes, etc.) and technologies-in-practice which is what people actually do with the technologies as artifacts in their recurrent and situated practices (Orlikowski 2000; 408). *Techno-Social Networks*, then, are social and technological, both independently and simultaneously. They are social because of the ongoing social relations that constitute and contextualize them and they are technological because of their constituted technological infrastructure that “makes it possible to store, search, copy, filter, manipulate, view, transmit and receive information”. In this way, *Techno-Social Networks* are social and technological simultaneously as the aggregate of ‘mobile human-machine interfaces [...] in which flow finance, technology, media, culture, information, communications and the like’ (Lash 2002: 4). Consequently, it is the commoditisation of these aggregates of “mobile human-machine interfaces” that this paper is attempting to show.

4. TECHNO-SOCIAL NETWORK COMMODITISATION

4.1 *Techno-Social Networks as Capital: Techno-Social Capital*

Information Technologies can be programmed to carry out not only physical tasks (*automate*) but also to record and store information and data (*informate*) on the production process. In this way, *Information Technologies* do not just *automate* but also *informate* (Jaffee 2001, 188). In the same way, in a *Techno-Social Network*, information not only flows through the *core network*, but also the *network* itself becomes an *informative structure* when it is socially contextualized. Accordingly, two types of values can be associated with the *Techno-Social Network*: the one associated with the technology involved (*core network*) and the one associated with the social use of that technology (the network's embedded relationships). The value associated with the *core networks* represents the *Technological Capital* involved in those networks and its economic value is determined by the market depending on the *use-value* of the amount, quality, kind of information that these *core networks* can deliver. However, it is argued here, the value associated with the *embedded relationships* would not be simply the *Social Capital* involved in those relationships, but the *Techno-Social Capital* resulting from the co-presence and co-evolution of both the technological artefacts involved and the ongoing social interactions embedded in their recurrent appropriations.

The modern introduction of the term is attributed to James Coleman in America and Pierre Bourdieu in Europe. Coleman broadly defined *Social Capital* as a 'social structure [that] facilitates certain actions of actors within the structure' (1988: 598). Bourdieu (1992), instead, defined it as 'the effective possession of a network of kinship (or other) relations capable of being mobilized or at least manifested' (35), whose value is determined by 'the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalised relationships of mutual acquaintance and recognition' (Bourdieu & Wacquant 1992: 119). Accordingly, once developed, this *Social Capital* can be exchanged for other kinds of capital, including human capital and economic capital (Bourdieu 1983).

Bourdieu's understanding of *Social Capital* is very much like what is proposed here as *Techno-Social Capital*. However, in *Techno-Social Capital*, value is not determined by the *possession* of a network but by its *control*. Accordingly, the *Techno-Social Capital* value of networks is not only determined by its physical associated costs and its institutionalized relationships, but mainly by the level of control that the *Techno-Social Network* implies in terms of enclosing the technological artefacts involved and the ongoing social interactions embedded in their recurrent appropriations. Such appropriation occurs when people actively select how the network is used (Orliowski 2000; 407) and the level of implied control will depend on the use-value that a third party can give to those uses. Consequently, the *Techno-Social Capital*, meaning the value of *controlling* the evolution of the Techno-Social Network as both digital community and society, is what determines the value of a *Techno-Social Network*.

4.2 Techno-Social Networks as Market: Techno-Social Market

One of the biggest transactions expected at present (April 2007) in the Digital Media Industry is the acquisition of Facebook.com by Yahoo.com, Viacom or another big Media Company. Facebook.com is a photo-sharing site that, according to their own Webpage, attempts to be a social utility that enables people to understand the world around them by developing technologies that facilitate the spread of relevant information through social networks. It is, therefore, a *Techno-Social Network* since through a shared technology (software) there emerges a social community that is independent and closed off to non-affiliated users. Speculations all around the Internet⁵ claim that the transaction could cost between US\$1 and 2 billions. The logical question then is what is so valuable in this Techno-Social Network that some companies would be prepared to pay so much money for it? The argument here is that a *Techno-Social Network* is neither valuable because of its *Technological Capital* (software, core network, etc.) nor because of the *Social Capital* associated with it (the communities) but because of the *Techno-Social Capital* that can be *controlled* due to the co-presence of both of them.

⁵ Sources: www.forbes.com, www.businessweek.com, www.readwriteweb.com, etc.

According to the *IBM Institute of Business Values* (2007), there is a complete redesign of the Media Industry whilst media organisations are experimenting and combining several new business models as they redesign their own businesses. They argue, however, that all media companies, including those traditional ones, will experiment with the *Platform Aggregation Model* to some extent. This model relies on both user-generated content and open-distribution platforms transforming the users' output (information data points, contents, etc.) into the aggregator's output. An aggregator, then, is an entity that 'creates a user relationship (e.g., in store, online or through another channel) and attracts an audience through aggregated content, services and features' (Berman et al. 2007; 8) in order to appropriate a *Techno-Social Network* and capitalize its Techno-Social value. Consequently, the aggregator's business is to interpret all the information that the aggregated *Techno-Social Network* produce in order to translate it into actionable business intelligence.

Their contextualization and transformation into actionable business intelligence is, therefore, what makes a *Techno-Social Network* like Facebook.com so valuable for other bigger aggregators like Yahoo.com. By acquiring it, those companies would be able to interpret Facebook's 19 million members' personal information, 2 billion Monthly-Page-views and 25 million Unique-Monthly-Visitors⁶ into trillions of data points every day that can, in turn, be translated into business actions. In this way, among other common business actions, the aggregator can achieve economic profits by controlling the advertisement (e.g. Google.com), by charging a small fee on the transactions (e.g. ebay.com), by selling the contents to a third party (e.g. Comcast and Facebook.com are producing TV series from user-content generation⁷), or by selling information (e.g. consumption trends) "produced" by the users as they "move" through the *Techno-Social Network* to concerned OEMs (e.g. CRM Softwares). Then, what aggregators do is to develop a *Techno-Social Environment* in which some commercial transactions can be *controllable*. Consequently, for organisations, to control the *Techno-Social Capital* is to control the interface with the *Techno-Social Network* as a market.

⁶ www.facebook.com

⁷ Yao, Deborah: "Comcast, Facebook to Launch Video Series." *The Associated Press*. February 6, 2007.

4.3 Techno-Social Networks as Commodities: Techno-Social Commodities

Examples of *Techno-Social Networks* that are subject to being traded in the *Digital Media Industry* abound: a computer network that links teams and employees distributing information any time and any place (e.g. *NHS Direct System*); a mobile phone network that links people making them available to communicate among each other (e.g. Orange's GSM 1800 Network in the UK); a Web site that gathers communities by giving them a tool (e.g. a software) to be connected (e.g. *Youtube.com*); etc. Examples of *Techno-Social Networks* recently traded in this industry also abound: *eBay Inc.* acquired *Skype Tech.* for US\$2.6B in September 2005; *News Corp.* acquired *MySpace* for US\$580M in May 2005; *Google* acquired *YouTube.com* for US\$1.8B in November 2006⁸; etc. These transactions can give us an idea of how these *Techno-Social Networks* have been commoditised. Nonetheless, as we saw from Marx, the essential point in order to understand these networks' commoditisation would be not merely their market prices but mainly the way in which their *use-value* became treated "on a par" with the network's users/producers in such a way that those users become embedded in the networks' value.

Hence, as has been explained before, *Techno-Social Networks* are developed by economic agents (e.g. aggregators) as markets 'that mix humans and non-humans and control their relations' (Callon 1999; 182) that are no longer 'depending on supply and demand pressures from far away, [but] on matchings of local dispersion' (White 2002; 49). Accordingly, from a Marxist perspective, *Techno-Social Networks* not only become commodities because they can be "treated, bought or sold", but also, because their techno-human 'labour [(the users)] does not only produce commodities [(information packets, etc.)] but also turns itself into a *commodity* [(the Techno-Social Network itself)]' (Marx 1994; 71). It is here, eventually, that the main point on the commoditisation of *Techno-Social Networks* from a Marxist approach resides, while this would mean not only that network and product become one single tradable object, but also the cause of the dominant relation in which those who own capital become "easily dominant".

⁸ Sources: www.Skype.com, www.nytimes.com, www.facebook.com, and others.

5. TECHNO-SOCIAL NETWORKS AND ORGANISATIONS

While the old industrial economy was driven by *economies of scale*, the new information economy is driven by the *economies of networks* in which the key concept is *positive feedback* (Shapiro & Varian 1998: 173). Unlike negative feedback, positive feedback loops ‘exacerbate initial stresses in the system, rendering it unable to absorb shocks and re-establish its original equilibrium. So, positive feedbacks occur when a tendency to change is reinforced rather than dampened down (Law & Urry 2004; 402). Consequently, in network-based businesses, the key ‘is to build a new network by linking it first to the old one’ (Shapiro & Varian 1998: 188) while the new one will easily absorb the old one. Accordingly, and as has already been explained, in the Digital Media Industry we have seen during recent years a number of *Techno-Social Networks* acquisitions that, rather than being concerned with the control of their physical structures, have been focused on controlling their *Techno-Social Capital*.

In order to exploit this capital, new business models have arisen re-configuring the organisations towards this experiential value (e.g. the aggregator platform, crowdsourcing⁹, etc.). Hence, as industrial organisations used *economies of scale* in order to expand the productive processes inwards, avoiding transaction costs, *Techno-Social-Network*-based organisations use simultaneously *economies of networks* in order to expand production outwards, to a reflection in which consumers and producers have been brought together. In the *Aggregator Platform Model* described above, for instance, consumers are outside the organisation, since they do not generally receive economic revenues, but they are simultaneously inside it, since they produce the organisation’s output (e.g. contents, information traces, etc.). In this way, organisations become an open-ended structure in which what matters is not the appropriation of the *network* but the *control* of its *Techno-Social Capital*.

⁹ See for instance www.cambrianhouse.com, www.fluevog.com, www.innocentive.com, etc.

However, a fundamental problem arises in the attempt to control *Techno-Social Networks* as commodities, which does not mean that they cannot be commodities, but that they, like any commodity, are constantly de-contextualized and re-contextualized in order to have exchange value and be alienated (Thomas, 1991; 39). This means that, as we saw is currently happening in the Digital Media Industry, *Techno-Social Networks* have to be framed as such before being priced. Nonetheless, it is precisely by this process of framing *Techno-Social Networks* as commodities that a derivative frame is produced which cannot be immediately controlled – manipulated, organised, transmitted and stored in digital form as information services and information products – by the controller organisation. This process is what Michel Callon (1999) denotes as “overflowing” which is the impossibility of the total framing of a *Techno-Social Network* as a market, while socio-technical associations are continuously overflowing their own possibilities.

An example of overflowing in the Digital Media Industry can be taken from Youtube.com, which is the leader in online video and the premier destination to watch and share original videos worldwide through a Web experience. Youtube allows people to easily upload and share video clips on www.Youtube.com and across the Internet through websites, mobile devices, blogs and email. Its aim is to “empower *everyone* to become the broadcasters of tomorrow”. However, as Youtube is framed for specific commercial purposes commanded by their controllers (Google.com), there are social behaviours that are not allowed because they can add moral or cultural values which are considered negative for Youtube’s *Techno-Social Capital*. But, based on *positive feedback loops*, networks are always open, which means that they can take new unpredictable and uncontrollable forms. In this case, there has already emerged Youporn.com, a Youtube spore that gathers together all those Youtube members that want to upload and share porn videos. Consequently, although Youporn’s organisation is techno-socially related to Youtube’s organisation, the latter has no control over the former’s *Techno-Social Capital*. This implies that controlling one present form of *Techno-Social Capital*, in some cases, offers no certainty of control over future forms that this capital could take.

Hence, although *Techno-Social Network* based organisations are undergoing great transformation, the overflowing process has a special relevance for them while based on *positive feedback loops*, they remain always open (unframed) and therefore never fully ‘stabilized or “complete,” even though we may choose to treat them as fixed, black boxes for a period of time’ (Orliwosky 2000; 411). This instability, as Manuel Castells (1996) has pointed out, means that ‘organizations and institutions can be modified, and even fundamentally altered, by rearranging their components’ (62). This does not mean that *Techno-Social Networks* are not commoditisable, but that the exchange-value/use-value couple can be replaced by an immanent plane ‘of cultural objects and material objects, that are generally disembedded and not at all necessarily re-embedded’ (Lash 2002; 9). Consequently, *Techno-Social Networks* based organisations can be seen simultaneously as commodities by those who control them and as open-ended structures and as power-decentralized entities by those users whose “labour” becomes embedded in the organisation output. Which structure will predominate is, however, a question for a future work.

6. CONCLUSIONS

Within the Digital Media Industry, *Techno-Social Networks*, as “mobile human-machine interfaces in which flow finance, technology, media, culture, information, communications and the like”, have been constantly traded during recent years. As a result, the value of *controlling* (rather than *appropriating*) the evolution of these *Techno-Social Networks* as both digital communities and societies has emerged as *Techno-Social Capital*. Accordingly, it has been argued that the formation of these *Techno-Social Networks* within the environment of Digital Media Organisations is neither a social nor a technological process independently, but a technocratic process of wealthy production. This process, it has been concluded, has the characteristic of a commoditization process, because *Techno-Social Networks* not only can be bought or sold, but also, their techno-human labour (users) has been turned into a *commodity*.

Digital Media Organisations, therefore, have been interested in developing *Techno-Social Networks* in order to achieve economic profits through new business models based on the continuous economic exchange of *Techno-Social Capital*. Accordingly, having blurred political distinctions between freedom and control, new structures for these organisations have arisen. In them, a common characteristic is that their users appear in an ambiguous economic equivalence and non-equivalence, while their social, commercial and political relations are constantly being transformed into these homogeneous objects, the *Techno-Social Networks*. Some doubts, like the problem of “overflowing”, however, cloud the horizon of the organisational stability of the *Techno-Social Networks* as commodities. Accordingly, further research on the political and economical status of the *Techno-Social Networks*, as well as on the full integration of their associated capital with their on-going commercial activities, may lead to a deeper understanding of the future of both the *Techno-Social Networks* and of those organisations that are currently basing their sustainability on them.

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