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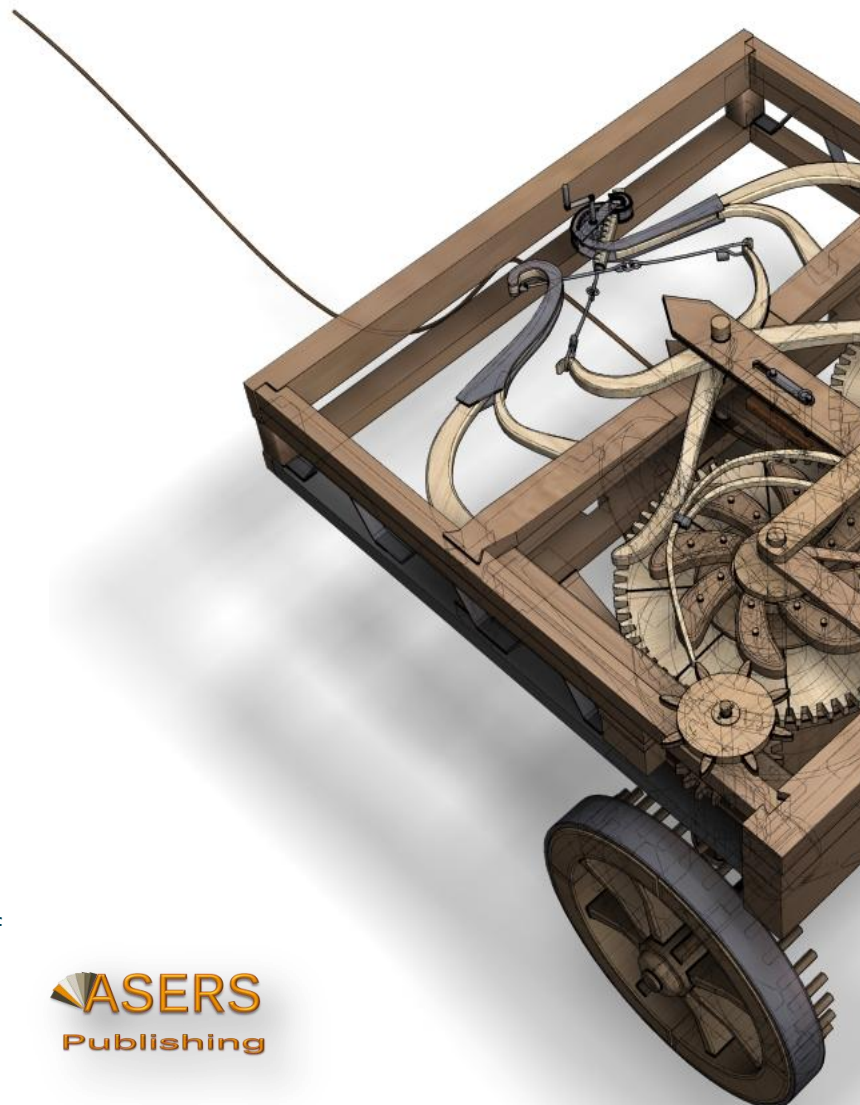
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## Networks in context: the concept of network in Manuel Castells' theory of the network society

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### Abstract:

*This article discusses the conceptualization of network in Manuel Castells' theory of network society. Networks appeared in Castells' works in the late 1980s, when he became interested in the configuration of the relationships between technology, economy, and society. The culmination of this phase was his opus magnum, The Information Age trilogy, which introduced network as a key concept of his macro theory, even though he remained laconic about the concept itself. This is paradoxical, for Castells became possibly the most prominent figure globally in adopting network terminology in macro sociological theory, but at the same time made hardly any empirical, theoretical or methodological contribution to social network analysis or network theory in general. This implies that 'network' in Castells' social theory is based on institutional network analysis. Moreover, it is not an analytical concept but rather a powerful metaphor that served to capture his idea of the new social morphology of informational capitalism.*

**Keywords:** Manuel Castells, network, network society, informationalism, The Information Age, political economy

**JEL Classification:** A13, A14, B31, B52, F60, F68, O2, P16

### 1. Introduction

The Spanish sociologist Manuel Castells created one of the most ambitious macro theories of our time, which endeavors to explain and interpret power, economy, and social life in a world transformed by globalization and informatization. Castells already rose to fame as a radical urban sociologist in the 1970s, but his international reputation is largely due to *The Information Age* trilogy published in three volumes in the latter half of the 1990s. This is a political economy-oriented macro-analysis of the tensional relationship between the instrumental networks of informational economy and historically-rooted identities and the world-wide developments conditioned by it. The concept of network entered his thinking in the late 1980s, culminating in the first volume of the trilogy, *The Rise of the Network Society* (Castells 1996).

In this article I discuss the nature and role of the concept of network in Castells' theory of network society. The research question is: how does Castells operationalize and utilize the concept of network in his analysis of the network society? I first contextualize the discussion by briefly shedding light on the most significant events of Castells' academic career. The discussion then turns to introducing the concept of network and its role in his macro sociological theorization. Lastly, I position Castells in the field of social network analysis and assess his contribution to network theory.

## 2. Turning points of Castells' academic career

Manuel Castells Oliván was born in 1942 to a conservative family in the small town of Hellín in the autonomous region of Castilla-La Mancha, Spain. He spent most of his childhood in Barcelona, where he also started his university studies in the late 1950s. The life of Spanish people was shadowed at that time by Franco's military regime. The young Castells like many others participated in the opposition movement. When the grasp of the military government tightened, many of Castells' friends were captured and tortured; he himself was able to escape to France. (Castells and Ince 2003, 5-9; Fischer 1999; see also Castells 2009).

Castells settled in France and graduated from the University of Paris (la Sorbonne) in 1964. He was interested at that time in conducting sociological analysis of the working class, an interest shared by the famous French sociologist, Professor Alain Touraine, who eventually became Castells' academic mentor (Castells and Ince 2003, 10-12; see also Stalder 2006). In 1967 Castells took his doctoral degree and was soon nominated as an associate professor in sociology at the University of Paris (Castells and Ince 2003, 12-13). Due to his involvement in the 'May 68' movement he was deported from France. After being granted an amnesty by the French government, he was able to return in 1970, this time at the invitation of Touraine to hold an associate professorship at EHESS in Paris (*L'École des hautes études en sciences sociales*). This was the beginning of the gradual consolidation of his position in French and slowly also in international circles of urban sociology (Castells and Ince 2003, 15-16; Stalder 2006).

Academically, Castells' main objective became to combine Marxist theory, urban sociology and social movement research, the focus being on empirical research. The most important outcome of that period was *La question urbaine*, which was published in 1972 and translated into English five years later under the title *The Urban Question* (Castells 1977). The book was a great success both in France and internationally, providing considerable input to Marxist urban sociology (Castells and Ince 2003, 15-16; Castells 1977; 1978; see also Pickvance 1975; Rex 1977; Dunleavy 1977; 1980; Elliott 1980, 152; Whiteley 1980; Lowe 1986; Gurr and King 1987; Katznelson 1992; Walton 1993; Merrifield 2002, 114). Probably the most widely discussed issue around this work was the conceptualization of the city as the arena of collective consumption. The message of Castells' structural analysis was that political contradictions escalate unless they are eased by publicly organized and funded collective consumption that meets people's basic needs (Castells 1977; Lowe 1986, 2; see also Dunleavy 1980; Lojkin 1976; de Moura Costa 2007, 23; Cochrane 2003, 531).

The American universities had impressed Castells since the early years of his career. He even said that his own research orientation was more American than French, even though he clearly combined the empirical analysis typical of the American tradition with the theorization associated with the French tradition and the political activism that reflects his Spanish background (Castells and Ince 2003, 16-17; Institute of International Studies 2001). Castells' reputation as a radical reformer of urban political analysis became widely known among urban researchers. Yet his reliance on Marxism began to decline in the late 1970s and by the end of the decade had vanished (Rantanen 2005, 137). That was the time when Castells' academic career took a new turn as he was invited to take up a professorship of urban sociology at UC Berkeley, USA. He took up his post in 1979, at the age of 37. He started to pursue his intellectual passion, research on social movements, but this time in the socially diverse San Francisco (see for example, Castells and Murphy 1982). The culmination of this period was

*The City and the Grassroots*, published in 1983, which Castells himself regarded as his best work in urban studies (Castells 1983, 291-301; Castells and Ince 2003, 16-17; Fuchs 2008; Mayer 2006).

Around the year 1983 Castells decided to start investigating the connection between technology, economy, and society and how these were reflected in urban structure (e.g. Castells 1985; 1989; Portes et al. 1989; Mollenkopf and Castells 1991). He later stated that at that time he felt that in Europe the magnitude of the information technology revolution had not yet been understood as it was on the other side of the Atlantic (Institute of International Studies 2001; Stalder 2006; cf. Hydén 2001). The first major outcome of this new turn was *The Informational City*, a book that opened up a new contextual view of urban reality by paying attention to the geographical impacts of informational economy (Castells 1989). Castells had earlier emphasized in his urban analyses both productive relations (Castells and Godard 1974) and consumption processes (Castells 1977), but now broader exchange, interaction, and communication processes and spaces were taken into the spotlight (Castells 1989; 2002; Stalder 2006; 1998; cf. Hassan 2004, 59). Later the project expanded into an encyclopedic endeavor resulting in the trilogy entitled *The Information Age*, its three volumes being *The Rise of the Network Society* (1996), *The Power of Identity* (1997a), and *End of Millennium* (1998). The trilogy was essentially a crystallization of Castells' ideas developed throughout the previous decades, augmented by the ample evidence he needed to be able to present a grand narrative of the structural contradiction between the Net and the Self that characterizes the world we live in. The trilogy became a huge success and confirmed Castells' position as one of the most cited social theorists worldwide (Institute of International Studies 2001; Castells and Ince 2003, 18-20).

After retiring from his professorship in UC Berkeley in 2003, Castells accepted a professorship of communication in the prestigious Annenberg School for Communication and Journalism at the University of Southern California, Los Angeles. Castells approached communication in the context of societal changes and power structures, which reveals an unbroken connection with his earlier works (cf. Waterman 1999; see also Kling 2002; Howard 2011; Allan 2007). A cornerstone of this turn was *Communication Power*, which the media analyst Jan van Dijk (2010) has described as the extension of the discussion presented in the second volume of the trilogy, *The Power of Identity* (Castells 2009; on other contributions of Castells' late career, see Carnoy and Castells 2001; Castells 2001; Castells et al. 2004; Castells 2007; Arsenault and Castells 2008a; 2008b). We may add to this one of his more recent works, *Networks of Outrage and Hope: Social Movements in the Internet Age*, which illuminates how he fuses his earlier works (e.g. Castells 1983; 1998; 2001) into an insightful analysis of recent social conflicts from the Arab Spring to the Occupy Wall Street movement that are in the spotlight of global news (Castells 2012).

Next I will take a closer look at Castells' concept of network and after that assess its use in his analysis of the network society.

### 3. The concept of network in Castells' theorization

#### 3.1. Introduction of networks in the informational city

In the light of the Marxist influence it is understandable that the concept of network did not notably figure in Castells' works of the 1970s. His approach changed in the 1980s, and more so in the following decade, however, as he started to renew his conceptual arsenal. The first significant attempt to clarify the network logic within a wider theoretical framework was *The Informational City*, which can actually be seen as the first sketch of *The Information Age* trilogy. Even if it included only a few direct references to networks, the concept itself aptly described something fundamental in the emerging social morphology and related changes in the techno-economic system. Castells (1989, 32) writes,

*"These networks, which could not exist on such a large scale without the medium provided by new information technologies, are the emerging organizational form of our world, and have played a fundamental role in ensuring the restructuring process: ---. Networks, on the basis of*

*new information technologies, provide the organizational basis for the transformation of socially and spatially based relationships of production into flows of information and power that articulate the new flexible system of production and management.”*

In the analysis presented in *The Informational City* ‘network’ remained an auxiliary concept subject to the structural framework, having only a modest role in the account of informational capitalism, at least if measured by explicit references to the concept. On the other hand, the few references made by Castells showed the tremendous explanatory power of the concept of network: it depicted the organizational basis for the transformation of production system; it provided a means for corporate system to control its inputs and expand its outputs, thus creating a new global socio-spatial division of labor; its adaptive potential became conducive to the restructuring of the capitalist economy; and it empowered the libertarian spirit of capitalism through organizational networks and information flows which were able to dissolve locales and supersede societies (Castells 1989, 32, 125). The concept of network sketched in *The Informational City* started to resonate later in *The Information Age* as a depiction of the fundamental transformative organizational logic, which relates dialectically to the informational mode of development as an enabler and globalization of the economy as the indication of the transformation of the material base of social life (Castells 1996; 1997a; 1998).

### 3.2. Networks as sets of interconnected nodes

In *The Information Age* and many subsequent works Castells defines ‘network’ explicitly as a set of interconnected nodes of which he mentions such examples as stock exchange markets and their ancillary centers of advanced financial services in the network of global financial flows; political elites in political networks, such as national councils of ministers and EU commissioners in the governance network of the European Union; broadcasting systems, studios, computer-aided communications, social network service providers in the global network of media, and so forth (Castells 1996, 470). By definition, networks do not have one center but are characterized by binary logic (inclusion/exclusion) and decentralized structures and decision-making patterns. The existence of networks is determined by the utility of the nodes of the network. If some node ceases to serve the network, it will be phased out or replaced and the network rearranges itself in the manner of cells in biological processes. The importance of each node is determined by its ability to gain trust within the network by sharing information and to program and connect networks by mastering protocols, which enable the operation of the critical switches of the network (Castells 1996, 470-471; 2000a; 2000b; 2009; Stalder 2006, 135-136).

Such a formal view derives its rationality from the fact that the network concept was adjusted to a broader structural framework. The introduction of this concept was not motivated by its distinctiveness or content as such, nor did it include any particular methodological contribution, but rather served as a kind of historically grounded epochal “axiom” in a social theoretical deduction from general theoretical principles to the explanation of empirical phenomena, such as new business models, urban conflicts, or state restructuring (Castells 1996; 1997a; 1998). In this sense we may say that the concept of ‘network’ was subordinate to structural framework and its deductive logic. Castells’ insightful idea was to use the global networks of instrumental exchanges as a point of reference to the notion of network. He does not seem to be puzzled by how networks come into being, how they evolve, the nature of given network ties, or even how the information networks really function, but provides only a formal definition and a few sketchy examples, which keeps the discussion at a high level of abstraction (Castells 2000a; 2004a).

Castells assumes that technological development is the most important individual precondition for the resurgence of networks (Castells 1996; 2004b; Fuchs 2009). He supports his view with a claim that the emergence of networks as an efficient form of social organization is the result of three features that have proved their usefulness in the emerging techno-economic environment, namely flexibility, scalability and survivability (Castells 2004a, 5-6; cf. Castells 2009, 23),



*“Flexibility: they can reconfigure according to changing environments, keeping their goals while changing their components. They go around blocking points of communication channels to find new connections. Scalability: they can expand or shrink in size with little disruption. Survivability: because they have no center, and can operate in a wide range of configurations, they can resist attacks to their nodes and codes, because the codes of the network are contained in multiple nodes that can reproduce the instructions and find new ways to perform.”*

To summarize, Castells (2004a; 2009) defines networks as sets of interconnected nodes, which process financial and other value flows with the help of new technologies. The concept of network provided not only opposing model to hierarchy (Eriksson 2005) but also a view to the novel aspects of social organization that emanates from the crumbling foundations of modernity (Giddens 1992), which served perfectly the building of his grand narrative. In Castells’ theorization networks are self-configurable, complex structures of communication and power, which cooperate and compete internally and externally according to interests expressed within the nodes using ultimately a binary logic of inclusion/exclusion. They have the capability of self-renewal in the sense that they may introduce new actors and content as conditions change. Their dynamic nature makes them flexible, scalable and survivable, which are indispensable for the survival of organizations in continuously changing techno-economic environment (Castells 1996; cf. Tampere 2011).

### *3.3. Binary logic of informational capitalism*

Castells’ theory of network society takes the concept of network to a high level of abstraction, utilizing it as a concept that depicts macro level tendencies associated with the social organization in informational capitalism. He expressed the role of networks in his social theory as follows (Castells 1996, 469):

*“... dominant functions and processes in the information age are increasingly organized around networks. Networks constitute the new social morphology of our societies, and the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture. While the networking form of social organization has existed in other times and spaces, the new information technology paradigm provides the material basis for its pervasive expansion throughout the entire social structure.”*

Understanding the societal context of such networks entails returning to the political economy of the social transformation of capitalist society. Initially, as an evocation of his Marxist roots, Castells repeatedly emphasized that the network society is a capitalist society. In fact, for the first time almost the entire globe can be said to function under the conditions of the capitalist system (Castells 2000a). The most central tension of such a societal formation is that between capital and labor, as depicted in Karl Marx’s thesis of the in-built contradiction of capitalism. According to Castells, a key contradiction critical to understanding informational capitalism is the historical asymmetrization of the capital-labor relationship: while capital creates networks, labor becomes individualized (Castells 1996, 471; 1997b).

Informational capitalism is based on the informational mode of development, in which information becomes both key input and outcome of production processes and a source of productivity and growth. It makes informationalism in essential sense different from agrarian and industrial modes of development. Historically, such a new focus on information processing was accompanied by three key processes of the restructuring of capitalism that emerged in the 1980s and the following decades, those of increased capital intensity, changes in the pattern of state intervention, and accelerated globalization of all economic activities (Castells 1989; see also Schmiede 2006).

Informational economy works through global networks of instrumental exchanges. As they process flows within the fluid “space of flows,” relationships surpass places in importance in the functioning of the system. The other side of the equation, waged labor, became historically united

against capital in the form of the labor movement from the late 19th century onwards. Disillusionment with socialism, the anomalies of Marxist doctrine and real-life developments in advanced democracies caused the inevitable evanescence of the subject of revolution. Castells, like many of his post-Marxist contemporaries, called for a more subtle and nuanced interpretation of the conditions and agenda of social change. The most serious attempts to restore the actorship behind radical social change have rested on social and ecological movements and more broadly on civil society (Kling and Posner 1991, 30; see e.g. Wright 1997; 2005; Katznelson 1981; Marcuse 1964). Castells sought individual and community-level awareness, adaptability and innovativeness in a pluralist society without committing to any ideologically fixed manifesto or political program (Institute of International Studies 2001; cf. Waterman 1999; Boyraz 2008; Rantanen 2005). Thus the analysis of the network society did not aim at providing a formula for the working class to solve the contradiction between capital and labor, but rather at opening up new horizons to understand our social conditions and to challenge global instrumentality through bottom-up strategies developed by people who ultimately rely on the power of their locally-rooted socio-historical identities.

Macro level network logic comes into this picture in Castells' dramatic claim that individuals, groups, communities, and even nations are included or excluded from the networks of economic power depending on their usefulness to such networks. The processes of human life are increasingly conditioned by global economic networks that position people according to their "use value" and create sophisticated means of controlling everyday life. This creates tension, which Castells (1996, 3) expressed in one of the most widely quoted crystallizations of his theory: "Our societies are increasingly structured around a bipolar opposition between the Net and the Self." Hence the emancipatory message built into Castells' theory and the related special nature of "power of identity" as counterforce to instrumental networks.

#### 3.4. From neuropolitics to general network theory

The most recent phase of Castells' academic career has been devoted to the analysis of communication, power, and networks. Even if he adheres to topics elaborated in his earlier works, his interest in micro sociology gained ascendancy. According to van Dick (2009), Castells' main work in this area, *Communication Power*, illustrates the change of his thinking in two respects. First, tying the analysis to self and identity is not as superficial as it was in *The Information Age*, but developed a firmer psychological foundation for understanding social action. In this he relies on neuroscience, as exemplified the works of Professor Antonio Damasio (1994) of the University of Southern California, who has contributed to shifting the center of gravity in the analysis of human behavior from cognition and rationality to biology and emotions (cf. Kelly 1994). We may identify similar aspirations in Castells' attempt to apply Robert Entman's (1993) frame theory in analyzing power in communication. Another important departure from Castells' earlier approach was to take the internal power struggles of networks onto the agenda, which in his earlier works were only mentioned in passing (van Dijk 2001; 2010). Fascination with micro sociological explanatory schemes began to profoundly affect Castells' thinking (see Castells 2009).

In Castells' analysis network appears as a central structural element in the new forms of communication and in a mediatized society in general, which is manifest in the "mass self-communication" associated with social media, in the environmental movement's contribution to mitigate climate change, and in neuropolitics, which analyzes power through cognitive processes (Castells 2009; cf. Castells 2012). He became interested in biological analogies and neuroscience, which tries to explain how political affiliation and action relate to the human brain (e.g. Lakoff 2008). Castells ended up with a notion that as conscious actors we resemble organic networks with a connection to the external world of networks (Delfanti 2009). From that assumption it is only a short step to a general network theory, which makes sense of the material, psychological, and social aspects of our world,

servicing as a unifying framework for the natural sciences, humanities and social sciences in the same way as general systems theory or complexity theory were assumed to do (Castells 2009; 2010).

Castells' micro-sociological excursions have been criticized for making an excessively simplistic use of the results of brain research to explain complex phenomena, such as power and politics. It is also worth asking how useful the network metaphor actually is when taken to its extreme, i.e. to explain practically everything, as Castells eventually seems to do (see Delfanti 2009; Stalder 2006; Thompson 2003, 192). This raises an interesting question of the relation between macro and micro in Castells' theorization. The concept of network has allowed Castells to maintain his macro sociological framework while deepening his analysis along micro sociological lines.

Castells placed great faith in the network theory, proposing that it may even offer a unifying language and framework to understand nature and human society through the networks of biological, neurological, digital, and human communication (Castells 2010). While for understandable reasons he maintained his belief in his theory of network society, his recent views of the role of networks in social research would require the refinement of the fundamentals of his theory if applied to his analysis. Such an endeavor is akin not only to the previously mentioned micro sociological endeavors (Damasio 1994; Kelly 1994; Entman 1993; Lakoff 2008) but also to complexity theory and the related new network conceptions, as represented by Capra (2003) and Barabási (2002). This is a methodological project which Castells touched upon in *Communication Power* and referred to in some of his speeches (e.g. Castells 2010) but which he obviously did not set himself to complete.

#### 4. Castells in the field of network research

Castells is a renowned social theorist, whose influence is perceptible in various ways in various academic and social discourses of our time (McCarthy *et al.* 2004; May 2006; Barney 2004, 181). His trilogy in particular introduced a long awaited social theoretical perspective on the understanding of the trends and challenges of global transformation (Fuller 2004; Giddens 1996; Cabot 2003; Heiskala 2003). If we take the concept of network to be the core of his analysis, however, the picture changes in some respects. Namely, paradoxically Castells' influence is minimal in network research even though his network society theory is one of the most widely discussed social theoretical contributions of the 1990s.

##### 4.1. Social network analysis

Castells' theorization is not imbued by references to social anthropologists who have studied social ties (e.g. Alfred Radcliffe-Brown and E.E. Evans-Pritchard), sociological classics that contributed to the network-oriented analysis of social structures and interaction (Georg Simmel, Leopold von Wiese, Norbert Elias, Herbert Blumer) or later generations of scholars who have developed social network analysis, including J. Clyde Mitchell, Harrison White, Michael Schwartz, Barry Wellman, and Mark Granovetter (on the sociology of social networks, see Freeman 2004; Pescosolido 2006; Borgatti *et al.* 2009). In its basic form social network analysis focuses on the interaction of small groups and dyadic relationships (Granovetter 1973; 1983), which are not addressed in Castells' analysis. He conceptualized "social ties" as imprecise impersonal exchange relations at a theoretically constructed whole-network level, relying on benefit-based antecedents or the utility maximization view of network formation as a reflection of instrumentality built into the logic of the capitalist system. While directing attention one-dimensionally to the formal features of network-based organization, he eventually totally excluded 'social interaction' from his network analysis.

Another noteworthy point is that in his analysis the economic sphere had a critical role as the primary locus of the network society, which is a fairly narrow slice of network theory as a whole. In this sense similarities with Castells' network conception could be sought from economic network analysis – the representatives of this approach being Christopher Freeman and Walter W. Powell – and within it especially from an approach in which the proliferation of networks is associated with technological and

economic development. More precisely, Castells' 'network' can be seen as institutionally defined concept embedded in the macro-theoretically oriented economic network analysis (Castells 1996; 2000a; 2000b; 2010). In short, for Castells its role in defining social morphology and related institutional effects (Owen-Smith and Powell 2008) are more important than the factual social relations within each network.

If Castells overhauled the traditions of the social network analysis lightly, it is not surprising that his network concept remained too sketchy for the network analysts. Castells' contribution to social research is not based on the sophistication of the network concept *per se*. Network society theory attracted attention because it afforded a rich perspective on societal change in which network was a social theoretical axiom or metaphor rather than an analytical concept. Be that as it may, social scientists who analyze network society at the macro-theoretical level have inevitably benefited from Castells' seminal work, which paves the way for a better understanding of the emerging forms of the social organization of society and their structural conditions (e.g. Barry 2001; Thompson 2003; Barney 2004; Lehmann *et al.* 2007).

#### 4.2. Remarks on network society theorizations

If we discuss the concept of 'network' at a higher level of abstraction, within macro sociology or political economy, Castells' contribution gains currency. In the 1970s the center of gravity of network research in general shifted to sociology (Borgatti *et al.* 2009). Along with this shift network society theorizations emerged as a reflection of the increased complexity and interactivity occasioned by the digitalization, informatization, and mediatization of society (Craven and Wellman 1973; Wellman 1979; Hiltz and Turoff 1978; Martin 1977; see also van Dijk 1999). Other contributions to this field came from discussions about post-industrial society (Bell 1973; Kumar 2005), various strands of information and knowledge society discourses (see Webster 1995; Stehr 1994), theorizations of reflexive or late modernity in sociology (Giddens 1992; Beck *et al.* 1994; Lash and Urry 1994), and insightful views in futures research (Toffler 1970; 1980; 1990; Naisbitt 1984) to mention just a few prominent discourses that relate to network society theorizations. In this field Castells' work stands out as an unparalleled encyclopedic, critical social-theoretical endeavor that links structural analysis of global and societal transformations with various aspects of economy, power, and everyday life.

Castells did not strongly relate his discussion to any theoretically-oriented sociological tradition but set his own agenda (see Iyer 1999; cf. Collins 1999; Smart 2000; Holton 2005). Most notably, he rejected the concepts of information and knowledge as primary explanatory categories and assigned such a role to networks. He made network a basic unit of analysis, which integrated social structures, social action, social organization, space of flows, and new technologies into a macro theoretical framework that utilizes quasi-Marxist ideas, such as the informational mode of development. With this solution he contributed to the wider acceptance of the concept of network as an interpretative norm in social sciences (Kasvio 2005; May 2006; Stalder 1998; on the network society analyses published after Castells' trilogy, see Schiller 2000; Thompson 2003; Barney 2004; Hassan 2004; McCarthy *et al.* 2004; Castells and Cardoso 2005; Lehmann *et al.* 2007; Cardoso 2007). Networks have undoubtedly been emphasized in economy and society long before Castells (Bridge and Watson 2003, 107), but none of the earlier works used network as the basic category of the analysis of capitalist system as Castells did in his theory.

## 5. Discussion

In numerous evaluations of his trilogy, Castells is usually unquestioningly applauded for identifying the profound social trends and their inter-relationships and for describing them with illustrative concepts that are incorporated into his social theoretical framework (Giddens 1996; Wilenius 1998; Fischer 1999; Heiskala 2003). On the other hand, *The Information Age* does not critically analyze the themes it covers, why references to alternative approaches, theories and concepts remain

superficial or mostly non-existent (Iyer 1999). The thematically broad agenda of the trilogy actually includes quite a lot of conclusions, which cannot be derived from the given premises, and generalizations that are too bold. Moreover, Castells' affinity with novel, emerging forms of social life increases the sketchiness and the imprecision of his generalizations (Barney 2004). These points are good to keep in mind when assessing his way of understanding and using the concept of network.

To begin with, Castells uses network as a theoretical concept that refers to the general form of social organization and development, which can be best referred to as a network metaphor as it lacks explanatory accuracy and analytical depth concerning the dynamics of networks. As an analytical concept network is abstract, and thus unable to frame the interpretation of real-life networks, whereas as a theoretical concept network is actually an excellent crystallization of the social morphology of informational capitalism. As an upshot of the latter, the concept of network society has a certain intellectual appeal, even if it looks almost as if the formal description of the concept of network was needed only to legitimate its use as a metaphor. Concerning the hard core of the metaphor, we come to the true message of Castellsian political economy: the network in its paradigmatic form is about the nodes and connections of multinational corporations and powerful economic institutions that process flows of values in pursuit of the accumulation of capital. Such networks of instrumental exchanges are challenged by social movements and people with their historical and locally-rooted identities, which are a source of genuine human meaning as opposed to global instrumentality. Hence the fundamental tension between the Net and the Self. Such a view echoes Castells' early adherence to Marxist analysis, even if purged of ideological fixities.

Castells built an insightful analysis, which was seemingly affected by a soft version of technological determinism. It was, however, surpassed by structurally oriented social determinism as evidenced by the "axiomatic" use of network. Concerning the interplay of these two forms of determinism, it is worth noting that in the 1990s, when new technologies penetrated developed countries and appeared to shape all aspects of capital accumulation and professional and everyday life, the use of informationalism and network logic to explain novel phenomena started to produce diminishing returns. The explanatory scheme that appeared to work well with the macro theoretical analysis in *The Informational City* and *The Information Age* trilogy at a later stage became disruptive when more nuanced analyses of social reality were clearly needed. As aptly pointed out by Harris (2010, 409) in his review of Castells' book *The Internet Galaxy*, the book in question offers a distinctive antidote to the teleology and hype on Internet and ICTs but,

*"... stops short of explaining the consequences of these technologies in purely 'political' terms, relying instead on the network metaphor to unravel the complexities and contradictions of the digital age."*

In the same vain, to explain what Castells wanted to explain in *Networks of Outrage and Hope* would have required a more nuanced understanding of the Internet and social media in everyday life, as pointed out by Barassi (2013) and Fuchs (2012). Castells perceives protest movements essentially as autonomous communication networks supported by the Internet and wireless communication irrespective of the actual penetration, use, and significance of ICTs in the given real-life setting. Likewise, if everything from Facebook to protests in the streets of Seattle or New York to an interconnected stock market system is explained in terms of network logic, the ability to accurately account for their emergence, forms, and operations becomes difficult. In such analyses the metaphorical use of the concept of network appears to be a social counterpart of technological determinism with less and less relevance as a formal conceptual tool.

## Conclusion

The point of departure of Castells' intellectual conviction was Marxist urban sociology, which over the years developed into a social critique of the network society. Networks came into the picture as late

as in the latter half of the 1980s, when Castells devoted himself to the macro-theoretical analysis of the relationship between technology, economy, and society, which culminated in the breakthrough trilogy, *The Information Age* (Castells 1996; 1997a; 1998). At this point the critical role of networks for social theory became apparent. Castells came to the conclusion that the concept of information society should be replaced by the notion of network society. This solution did not necessarily go from bad to any better, as pointed out by Kasvio (2005), but showed in any case how Castells distanced himself from conventional information society theories and the sociology of knowledge.

The reviewers of Castells' trilogy and of a series of books that followed it (Castells 2001; 2009; 2012) have repeatedly pointed out the deficiencies of his conceptualization of network and the obvious lack of related empirical evidence. Indeed, the institutional or metaphorical use of the network concept in theory building has a tendency to reify networks and limit our understanding of their inner logic. In spite of leaving social relations within networks only implicit, Castells was nevertheless able to demonstrate the power of institutional concept of network as a constitutive element of his grand theory. Retrospectively, Castells' theory of network society served as a long awaited structural framework for understanding contemporary societies and the human condition in a globalized world. It is a source of inspiration for those wishing to develop ideas for institutional renewal and contextualize the aspects of living in the global. It paints a rich picture of contemporary society, which in the spirit of C. Wright Mills' (1959) idea of sociological imagination helps us to conceive of ourselves as humans in a rapidly changing world capable of resisting the pervasive instrumentality exuded from the pores of global informational capitalism.

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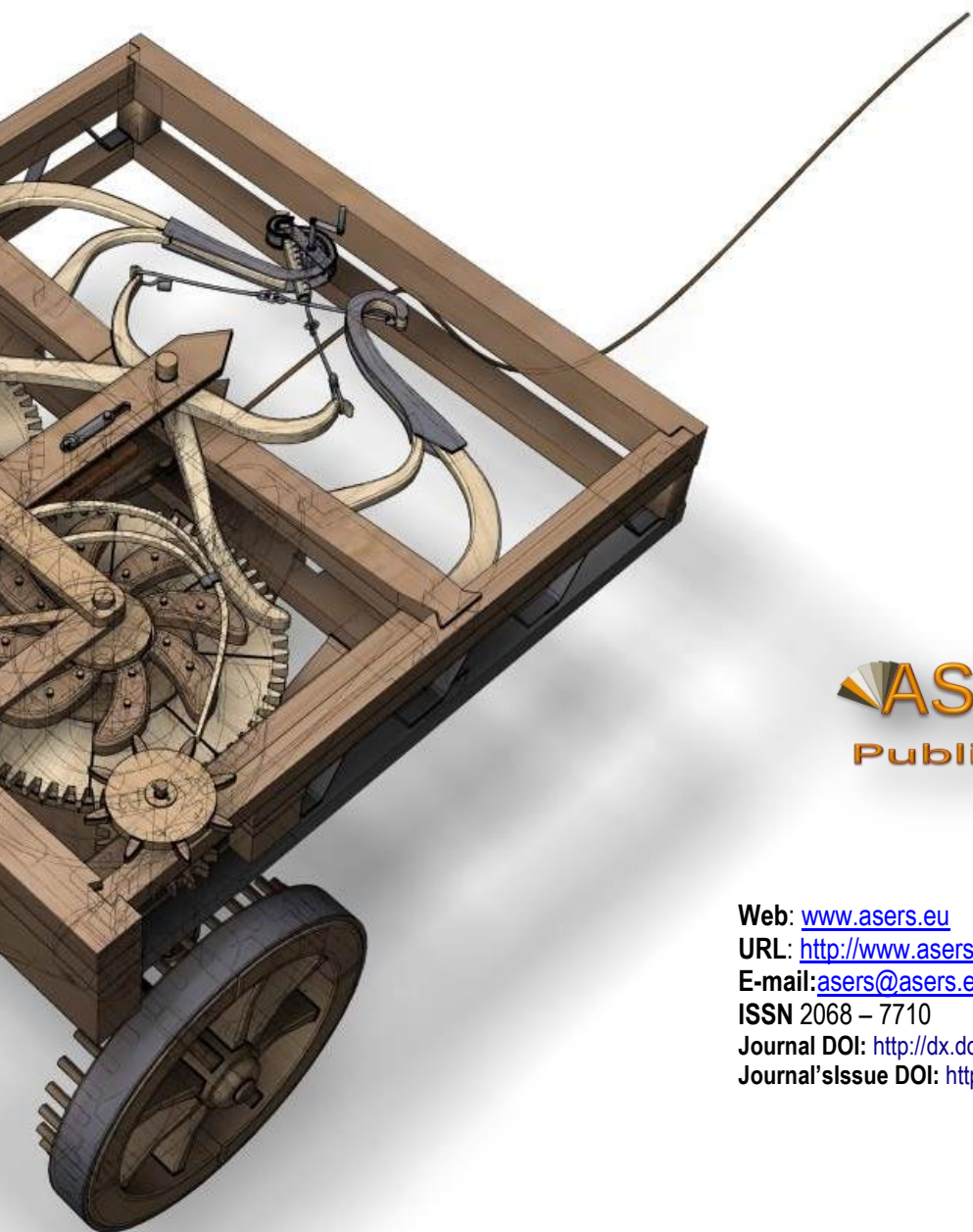
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