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THEORETICAL FOUNDATIONS OF DEFINING THE PARTICIPATORY, CO-OPERATIVE, SUSTAINABLE INFORMATION SOCIETY

The task of this paper is to provide a comparative and theoretically grounded discussion of the notions of sustainability, inclusion, and participation in the information society discourse. A theoretical model of society as dialectical system is introduced, in which the economic base and the political–cultural superstructure are mutually shaping each other. Based on a distinction between reductionistic, holistic, dualistic, and dialectical worldviews, four different theoretical approaches on defining the sustainable information society are distinguished, which are based on how the relationship between base and superstructure is conceived. Reductionistic approaches see ecological, technological, or economic changes as the sole driving forces of a sustainable information society. Projectionistic approaches see superstructures (polity and/or culture) as the determining forces of a sustainable information society. They are the least frequently found approaches in the literature. Dualistic approaches define multiple goals and dimensions of a sustainable information society, but do not consider if these goals are compatible and if and how they are causally linked. Dualistic models are the ones that can be found most frequently in the literature. As an alternative to these three models, the dialectical notion of the participatory, co-operative, sustainable information society (PCSIS) is introduced. Co-operation is based on an inclusive logic that establishes social systems, in which all involved actors benefit. The logic of co-operation is the binding force of a progressive society that connects its various dimensions.

Keywords social theory; social policy; regulation

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1. Introduction: a theoretical model of society

Sustainable information society (SIS), sustainable knowledge society, sustainable productive information society, sustainable networked knowledge society,

planetary sustainable information and knowledge society, participatory information society, inclusive information society, and information society for all are some of the buzzwords that have in recent years been employed in the academic and the political discourses on which society is desirable. Overall, these discourses signify a shift towards the view that not just any information society that is brought about by the diffusion of digital networked information and communication technologies (ICTs) is needed, but an information society that is actively shaped by humans in order to gain desirable qualities. Normative judgements have become more important. But, these discourses are also fragmented and are lacking a theoretical foundation that tries to give concise definitions of the categories in use. A systematic theoretically grounded comparison of such categories is still missing.

The first task of this paper is to contribute to the elimination of this deficit by constructing a comparative typology of approaches that is grounded in social theory. Furthermore, based on this discussion, a dialectical notion that describes an information society that is normatively desirable for the author and that is suggested for broader consideration is introduced. So the second task of this paper is to theoretically ground a notion of the participatory, co-operative, sustainable information society (PC SIS). The importance of this undertaking is justified by the fact that during the past few years, the insight has become common that not just any type of information society is needed, but an information society for all. In this context, the notions of participation, co-operation, and sustainability have become important in information society discourse.

First, the theoretical background is outlined (section 1), then a typology of approaches on PC SIS will be introduced (section 2), and finally, some conclusions are drawn (section 3). Methodologically, this paper is based on social theory construction and dialectical thinking. By identifying two poles that are important for social theory construction (base and superstructure), a criterion that allows the distinction of various theoretical approaches on the notion of the SIS is introduced. Four possible relations between these two poles are considered as grounding four different approaches. The last of these is considered as a dialectical approach in the sense that the two poles are different (each is characterized by the absence of qualities of the other, cf. Bhaskar 1993), but at the same time related, connected, interdependent, mediated (Hegel 1830, §116). Two poles of a dialectic are different, connected, and encroach each other (Holz 2005). The approach introduced by the author is a dialectical one and can be seen as a synthesis of the other three introduced approaches.

Models of society that privilege one part over other parts, such as economism, politicism, or culturalism, are not able to explain phenomena that show a relative autonomy. So, for example, models of society that reduce explanations to the economy cannot explain why protest movements can emerge in situations of both relative economic stability and instability (compare, for instance, the economic conditions in the era of the rise of the Nazi movement with those of

the era of the 1968 students' movement). Models of society that see society as being composed of independent subsystems, such as Luhmann's (1984) theory of functional differentiation, face the problem of explaining the phenomena that are characteristic for the global network society. So they, for example, cannot grasp that today economic logic influences and dominates large parts of society. In contrast to reductionistic and relativistic social theories, dialectical social theories have proved successful in conceiving society as being composed of relative autonomous subsystems that all have their own specificity, but nonetheless, depend on each other and influence each other. The subsystems are conceived as distinct and at the same time mutually interdependent, which is the fundamental logical figure of dialectical thinking.

Society can be conceived as consisting of interconnected subsystems that are not independent, and based on one specific function they fulfil, but are open, communicatively interconnected, and networked. As subsystems of a model of society, one can conceive the ecological system, the technological system, the economic system, the political system, and the cultural system (Fuchs 2008c, cf. Figure 1). Why exactly these systems? In order to survive, humans in the society have to appropriate and change nature (ecology) with the help of technologies so that they can produce resources that they distribute and consume (economy), which enables them to make collective decisions (polity), form values, and acquire skills (culture). The core of this model consists of three systems (economy, polity, and culture). This distinction can also be found in other contemporary sociological theories: Giddens (1984, pp. 28–34) distinguishes between economic institutions, political institutions, and symbolic orders/modes of discourse as the three types of institutions in society. Bourdieu (1986) speaks of economic, political, and cultural capital as the three types of structures in society. Habermas (1981) differs between the lifeworld, the economic system, and the political system.

Each of these three systems is shaped by human actors and social structures that are produced by the actors and condition the actors' practices. Each subsystem is defined and permanently re-created by a reflexive loop that productively interconnects human actors and their practices with social structures. An overview of the qualities of structuring and structured structures in society is given in Table 1.

The economic system can only produce goods that satisfy human needs by human labour power that makes use of productive and communication technologies in order to establish social relations and change the state of natural resources. The latter are transformed into economic goods by the application of technologies to nature and society in labour processes. The economy is based on the dialectic of natural resources and labour that is mediated by technology. We can, therefore, argue that socially transformed nature and technology are aspects of the economic system.

This allows us to make a distinction between the base and the superstructure of the society. The economic base is constituted by the interplay of labour,

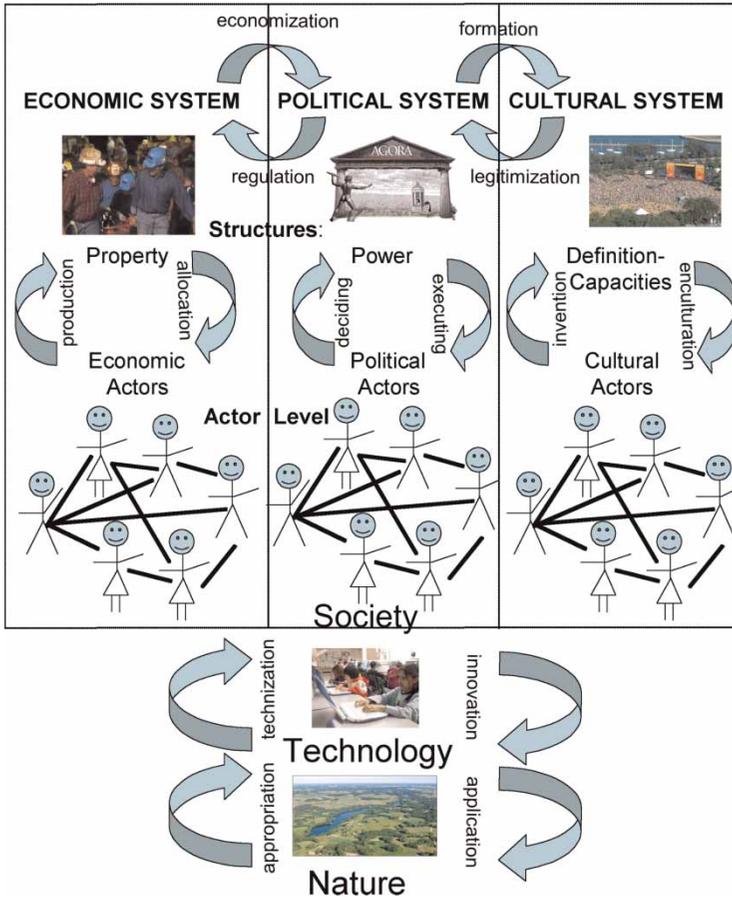


FIGURE 1 Society as dynamic, dialectical system.

technology, and nature so that economic goods are produced that satisfy human needs. The superstructure is made up by the interconnection of the political and the cultural systems, so that immaterial goods emerge that allow the definition of collective decisions and societal value structures. Does it make sense to speak of base (nature, technology, and economy) and superstructure (polity and culture) in society, or does this mean that one reduces all social existence to economic facts? The superstructure is not a mechanic reflection, that is, a linear mapping, of the base, that is, the relations and forces of production. It cannot be deduced from or reduced to it. All human activity is based on producing a natural and social environment; it is in this sense that the notion of the base is of fundamental importance. We have to eat and survive before we can and in order to enjoy leisure, entertainment, arts, and so on. The base is a precondition, necessary but not a sufficient condition for the superstructure. The superstructure is a complex,

TABLE 1 An overview of structures in society.

<i>type of structure</i>	<i>structure</i>	<i>definition</i>
Ecological structures	(Natural) resources	Physical matter that is extracted in labour processes from nature and that is changed by human activities
Technological structures	Tools	Artefacts, means, methods, skills of action that are used by humans in order to try to achieve defined goals
Economic structures	Property	Goods and resources that are produced, distributed, and used by humans for satisfying defined needs
Political structures	Power	The capacity and means for influencing collective decisions according to one's own will
Cultural structures	Definition-capacities	The capacity to define and acquire values, skills, and practices that shall give meaning to life and help re-create human minds and bodies

non-linear creative reflection of the base and the base a complex, non-linear creative reflection of the superstructure. This means that both levels are recursively linked and produce each other. Economic practices and structures trigger political and cultural processes. Cultural and political practices and structures trigger economic processes. The notion of creative reflection grasps the dialectic of chance and necessity/indetermination and determination that shapes the relationship of base and superstructure. There is not a content of the superstructure that is 'predicted, prefigured and controlled' by the base; the base as Raymond Williams in his famous paper on *Base and superstructure* has argued 'sets limits and exerts pressure' on the superstructure (Williams 2001, p. 165). Hall (1983) has in this context spoken of a determination in the first instance exerted by the economic system on superstructures.

2. Concepts of an SIS

Wolfgang Hofkirchner (2002) has introduced a typology of four worldviews that is based on the potential relationships between two categories: reductionism establishes identity by eliminating the difference for the benefit of the smaller, less-differentiated part; projectionism establishes identity by eliminating the difference for the benefit of the larger, more-differentiated side; dualism eliminates identity by establishing a difference of the two sides, it is a disjunctive approach; and finally, dialectical thinking integrates the two sides so that the

two sides have different and identical aspects; they yield a unity in diversity. The advantage of using this typology instead of other approaches is that it covers all logical possibilities of how two entities can be related.

Applying Hofkirchner's typology to the relationship of base and superstructure allows us to classify definitions of a PCSIS. The base is less differentiated than the superstructure because all superstructural phenomena have economic aspects, whereas not all economic phenomena have political and cultural aspects. Hence, the superstructure is more differentiated and builds upon the base. There are reductionistic, projective, dualistic, and dialectical approaches. Reductionistic approaches reduce sustainability to the economic base, i.e. they see economic, technological, or ecological aspects as the determining factors, the superstructure is deduced from the base. Projective approaches consider political or cultural aspects as the sole determining factors of sustainability, they give priority to the superstructure, and the base is derived from the superstructure. Dualistic approaches assert the existence of a variety of dimensions of sustainability, but they consider these dimensions as being independent. Dialectical thinking conceives sustainability as, on the one hand, multidimensional and, on the other hand, interdependent. Various dimensions are seen as having their own specific relative autonomies, but as being at the same time causally related in complex ways, mutually constituting, and influencing.

The reason why it might be problematic to speak of a 'sustainable information society' or a 'participatory information society' is that there is evidence that huge gaps in wealth are characteristic for contemporary society and indicate the existence of a capitalist class system that is euphemized or blanked out by the concepts of sustainability and participation (for a detailed macro-economic statistical analysis compare, Fuchs 2008c). Many Western countries have relatively high poverty rates that are well above 10 per cent of the population. So, for example, in the USA, relative poverty rose from 21.0 per cent in 1974 to 24.1 per cent in 2004 (data: Luxembourg Income Study). In the UK, it increased from 12.4 per cent in 1969 to 19.2 per cent in 2004 (Fuchs 2008c). Also, income inequality measured by the Gini coefficient has increased in many countries during the past decades. So, for example, in the USA, the Gini coefficient rose from 30.1 in 1979 to 37.2 in 2004 and in the UK in the same years from 27.0 to 34.5 (Fuchs 2008c). Milanovic (2002, 2007a, 2007b) has calculated global inequality based on household income surveys from 91 countries. He has calculated an increase in Gini inequality for the period of 1988–1993 from 62.5 to 66 and from 66 to 70 for the period of 1993–2003. The developed world accounts for approximately 25 per cent of the world's population (United Nations Human Development Report (UNHDR) 2008), but has accounted for almost more than 70 per cent of the world's wealth since 1970 (Figure 2). The least developed countries' share has dropped from above 3 per cent to a little above 1 per cent in the period from 1980 to 2007 (UNHDR 2008). The share of Sub-Saharan countries has remained continuously below 1 per cent

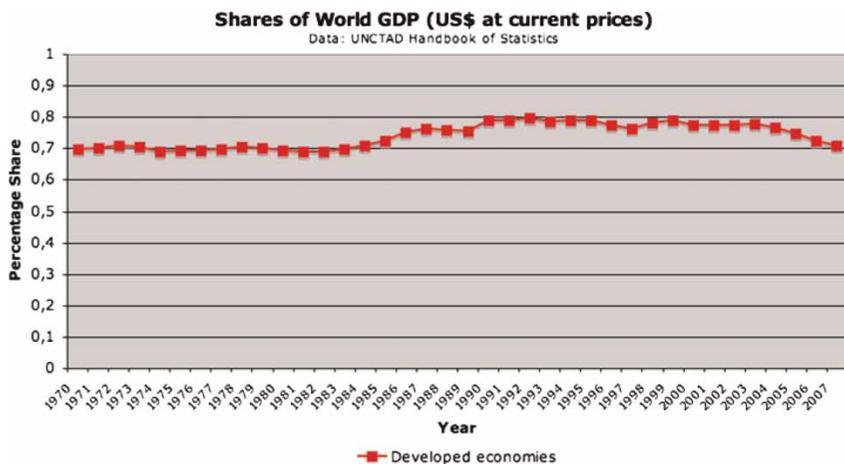


FIGURE 2 Share of developed economies in world GDP.

during the same time (UNHDR 2008). In Western countries, productivity increases have resulted in the past thirty years in continuously rising profit shares, but at the same time in a drop of the wage rate, which shows that capital accumulation has been driven by relative drops in total wages. In the EU15 countries, productivity increased from an index value of 49.7 in 1960 to one of 104.6 in 2009 (Annual Macro-Economic Database). During the same time, total annual corporate profits increased from 100.0 billion € to 2979.8 billion €, and the wage share dropped from 62.7 to 57.3 (UNHDR 2008). In the USA, productivity increased from an index value of 60.6 in 1960 to one of 105.7 in 2005 (UNHDR 2008). During the same time, total annual corporate profits increased from 131 billion US\$ in 1960 to 3594.8 billion US\$ in 2009, and the wage share dropped from 65.3 to 60.8 (UNHDR 2008). In Japan, productivity increased from an index value of 36.4 in 1960 to one of 112.8 in 2009 (UNHDR 2008). During the same time, total annual corporate profits increased from 6.6 billion yen to 97.2 billion yen, and the wage share dropped from 73.2 to 58.5 (UNHDR 2008). Is it really likely and reasonable to assume that societies characterized by such class divisions have potentials for becoming ‘sustainable’ in the near future?

Table 2 gives an overview of the approaches and examples that are discussed in sections 2.1–2.4. In the discussion in the succeeding chapters, examples for each of the four kinds of approaches are given.

2.1 *Reductionistic SIS definitions: base without superstructure*

Reductionistic approaches see ecological, technological, or economic changes as the sole driving forces of an SIS.

TABLE 2 Approaches on SIS.

<i>type of approach on SIS</i>	<i>examples</i>	<i>description of approach</i>
Reductionism	Britton (1996), Commission of the European Communities (2005), Hilty (2000), Lisbon European Council (2000), O'Donnell <i>et al.</i> (2003), O'Donnell (2001)	Ecology, economy, or technology is considered as the driving forces of an SIS
Projectionism	MacIntosh (2004, 2006)	Polity and/or culture is seen as the determinant force of an SIS
Dualism	Carrelli <i>et al.</i> (2000), Club of Rome (2003), Club of Rome and the Factor 10 Institute (2002), Commission of the European Communities (2000a, 2000b, 2002, 2005, 2006), European Commission (1998), Information Society Forum (1998, 2000), Radermacher (2004), Schauer (2003), World Summit on the Information Society (2005)	Multiple dimensions and goals of an SIS are identified, but not causally related to each other
Dialectic	Fuchs (2008a, b, c), Göhring (1999), Heinrich Böll Foundation (2003a, b), Ospina (2003), World Summit on the Information Society Civil Society Plenary (2005)	Multiple interrelated dimensions and goals of an SIS are identified, existing contradictions of these dimensions are analysed, and necessary changes are conceived as integral, interdependent, and systemic

O'Donnell *et al.* (2003, pp. 26ff; cf. also O'Donnell 2001) define an inclusive information society as a society that ensures that all citizens (especially the elderly, women at home, the disabled, farmers, the unemployed, etc.) have the opportunity to use ICTs to improve the quality of their lives and communities (community-building and -maintenance, eCommerce, eBusiness, eLearning, eLeisure, eHealth, and eGovernment), to contribute to a knowledge-based economy and society (improving human capital and technology-related skills, foster ICT-related economic growth, increase the use of ICTs, special support for ICT learning, and skills for disadvantaged individuals and rural areas), and to engage with government services and participate in democratic process and

that civil society is engaged with the help of ICTs in ICT training, employment, democratic participation, online content production, and the building of social capital and trust in ICTs.

This definition involves economic, political, and cultural aspects; its main problem is that its four aspects are strongly overlapping and hence have no analytical discriminatory power. It is a very technology-centred definition, led by the belief that technology access and skills alone suffice to improve the lives of all. What is missing is the insight that technology support needs to be combined with social transformations towards participatory social systems. The concept of eInclusion provided by O'Donnell *et al.* is an example of a technodeterministic-reductionistic definition of SIS.

Lorenz Hilty defines an SIS in purely ecological terms, i.e. with a focus on environmental protection. He argues that the sustainability aspect of ICTs is 'how they could help reduce the material intensity of economic processes' (Hilty 2000, p. 6). His approach is an ecological reductionistic one.

Another ecological reductionistic view is presented in a special issue of the *Journal of World Transport Policy and Practice* (Britton 1996). It is argued that ICTs support sustainability because they are revolutionary in the respect that they '(a) involve relatively small amounts of material resources, and (b) permit substantial dematerialisation in many domains' (Britton 1996, p. 12). Ecological benefits could be achieved by implementing sustainable transport as a bridging strategy that would have positive effects upon society as a whole. 'Even without some form of collective guidance, the Information Society is likely to have significant de-materialization impacts, which will work in the direct of more sustainable behavior' (Britton 1996, p. 12). Nonetheless, conscious political action would be necessary in order to tackle unsustainable tendencies. This approach is reductionistic in the sense that it is focused on ecological and transport issues and neglects a variety of other issues that are seen as being derivatives derived from transport issues.

The development initiative i2010 of the European Commission is oriented on purely economic issues, arguing that what is needed today is an 'information society for growth and employment' (Commission of the European Communities 2005). The main objectives of i2010 are technological progress ('a single European information space'), the advancement of research and innovation in ICTs, and inclusiveness (Commission of the European Communities 2005). The economic goal formulated in the Lisbon strategy 'to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion' (Lisbon European Council 2000) by 2010 has been the driving force of all such EU initiatives. In the eEurope strategy, economic goals were seen as being achievable by investment in the economy, polity, culture, and welfare. This was a dualistic strategy that identified multiple separate goals. The difference that has emerged with i2010 is that now a rather strictly economic strategy has been

introduced, defining economic goals (growth and employment) as the most important ones. The EU has shifted from a dualistic towards an economic reductionistic strategy.

2.2 *Projectionistic SIS definitions: superstructure without base*

Projectionistic approaches see superstructures (polity and/or culture) as the determining forces of sustainability. They are the least frequently found approaches in the literature.

One example is the notion of participation underlying the concept of eParticipation as defined by Ann MacIntosh. The approach focuses on ICTs for advancing the inclusion of citizens in political decision-making. eParticipation is defined as 'the use of information and communication technologies to broaden and deepen political participation by enabling citizens to connect with one another and with their elected representatives' (MacIntosh 2006, cf. also the contributions in DEMO-net 2006). For MacIntosh (2004), eParticipation consists of the three aspects of E-enabling, E-engaging, and E-empowering citizens to participate in politics. The focus is strictly on political processes, and participation in cultural or economic or technological processes is neglected. This approach is a projectionistic politicism.

2.3 *Dualistic SIS definitions: separating base and superstructure*

Dualistic approaches define multiple goals and dimensions of SIS, but do not consider whether these goals are compatible and if and how they are causally linked. Dualistic models are the ones that can be found most frequently in the literature.

The European Commission has advanced a dualistic view of the SIS by arguing that ICTs support economic growth, social progress, and environmental sustainability: 'Investing in knowledge is certainly the best, and maybe the only, way for the EU to foster economic growth and create more and better jobs, while at the same time ensuring social progress and environmental sustainability. In other words, it is Europe's chance to strengthen its model of society' (Commission of the European Communities 2006, p. 2). It has stressed the importance of economic growth without considering that economic accumulation has been bringing about income inequalities during the past decades. 'It is clear that with the Information Society, new opportunities are emerging which will help to achieve both global environmental sustainability and continued economic growth; to achieve social goals of employment growth and local community development within a free market framework; and to enable greater access to work, services and mobility without congestion' (European Commission 1998, p. 9). The aim of the eEurope initiative was an information society for all, understood as bringing 'everyone in Europe – every citizen, every school, every company – online as quickly as possible' (Commission of the European

Communities 2000a, b). In the first phase of this initiative (Commission of the European Communities 2000b), the focus was on advancing e-commerce, access for youth, researchers, students, the disabled, smart cards, eHealth, eTransport, and eGovernment (Commission of the European Communities 2000a). In the second phase (Commission of the European Communities 2005), the focus was on advancing eGovernment, eLearning, eHealth, eBusiness, information infrastructure, and security (Commission of the European Communities 2002). eEurope was a dualistic strategy that identified multiple separate goals without taking into consideration the issue of compatibility of the various goals.

A similar dualistic view is advanced by the World Summit on the Information Society (WSIS 2005, p. 10), which argues that ICTs can sustain 'economic growth, job creation and employability and improving the quality of life of all'.

The goal of the Global Marshall Initiative, headed by Franz Josef Radermacher, is the implementation of a worldwide eco-social market economy that is simultaneously oriented on the growth of economic value-adding and on worldwide social, cultural, and ecological solidarity (Radermacher 2004, pp. 47, 48). The worldview underlying this conception is termed ordoliberalism and is based on five aspects: international contracts, environmental protection, social balance, cultural diversity, and tolerance, and 'the intention to further open markets internationally and co-finance development matters on the content of a common observance of standards' (p. 62). Needed would also be further market openings by developed countries for the benefit of the rest of the world (p. 59) 'As has been illustrated, an Eco-Social Market Economy relies on the power of markets and competition, but it has to be subject to an eco-social regulatory framework at the same time' (p. 66). Radermacher wants to extend and intensify the dominance of economic logic (further opening markets) and at the same time advance non-economic social and ecological benefits. He does not recognize that the instrumental reason underlying economic logic has produced many of the problems that humanity is facing today (as will be shown later in this paper). An eco-social world market economy from this perspective is a *contradictio in adiecto* and what is needed is not an 'Eco-Social World Market Economy which links markets and competition to high standards ensuring the welfare of all human beings' (p. 166), but participation and co-operation as sustainable alternatives to market logic and competition.

A publication by the Information Society Forum, in which Radermacher is very influential, suggests that important economic measures for achieving an SIS are the 'extension of liberalization and competition policy to local access networks' and increasing the 'availability of risk capital for entrepreneurs' (Information Society Forum 2000). Economic crisis tendencies such as the South-East Asian crisis in 1997, the new economy crisis in 2000, and the housing market crisis in the USA in 2008 that triggered a new world economic crisis have shown that speculative finance capital based on liberalized commodity and financial markets increases economic vulnerability and is a risk for general wealth.

Given the crisis ridden nature of finance capitalism, it is almost ridiculous to make these recommendations.

Radermacher's view, which is also the one of the Information Society Forum, is that ICTs have a potential to bring about dematerialization and that the latter simultaneously helps to achieve sustainability and economic growth (Information Society Forum 1998, pp. 93, 95). Dematerialization has thus far not been successful, and it could indeed be detrimental to economic growth if reusable ICT equipment were introduced (Fuchs 2008b). In another publication, Radermacher's dualistic view is legitimated by publishing together with important persons such as information society researcher Jan Van Dijk (Carrelli *et al.* 2000). One mechanism that is specifically stressed in this paper is one of the global trading in pollution rights. The market mechanisms that have caused unsustainable development (as will be argued with the help of statistics later in this paper) are considered as solutions to the created problems – a contradiction in adiecto. The general argument is that 'free markets' must be 'complemented' (p. 50) by social, cultural, political, and ecological framework. It is not taken into account that free markets might hinder such frameworks and hence need not be complemented, but driven back and contested (as will be argued later in this paper). Another problematic aspect of this and other publications by Radermacher is that global population growth is considered as a source of unsustainable development and the shrinking of the world population as a goal. It is not taken into account that population growth is a reaction to global income inequality and that economic productivity has today reached levels that allow a good life for all people worldwide, given there is a primacy of global and national economic redistribution (which is not the case for Radermacher).

Schauer (2003) provides another dualistic approach by arguing that ICTs can advance ecological sustainability by reducing resource consumption, social sustainability by giving equal access to information, cultural sustainability by supporting cultural understanding, and economical sustainability by fostering growth: 'Information technology will be the key driver of an economic growth which is decoupled from resource consumption' (Schauer 2003, p. 32). The question whether economic growth in late-modern society is compatible with social sustainability is not considered. This definition does not see that capitalist development has hindered social equality, especially in the last decades (as will be shown below), it treats economic profitability as one major goal besides ecological, social, and cultural issues.

The Club of Rome and the Factor 10 Institute (2002) define a sustainable networked knowledge society as a society in which ICTs foster entrepreneurship and access to world markets even in the poorest regions of the world and provide higher eco-efficiency of economic growth (social sustainability), ICTs enable global communication that allows the emergence of cultural diversity, respect for human rights, and a global culture of co-operation (cultural sustainability),

ICTs support resource-use efficiency, the reduction of toxic anthropogenic material cycles, and the emergence of environmentally sustainable lifestyles (ecological sustainability), ICTs advance economic growth and profitability (economic sustainability). This approach is dualistic, it argues that 'economic sustainability' is a very important dimension and does not see that the current model of the economy and economic growth threatens sustainability. In another publication, the Club of Rome affirms this position by arguing that among various measures also the 'liberalization of information and communication network infrastructure and service provision' (Club of Rome 2003, p. 10) is important.

The reason why we question dualistic approaches is that there is evidence that late-modern society is characterized by a culminating antagonism between economic growth and social and ecological cohesion, economic freedom (of markets), and social equity. Income inequality measured as the relation of the mean income of the upper and the lower quintiles has decreased in the years 1995–2000 in the EU15 countries, but it has increased from 4.5 in 2000 to 4.8 in 2005 (Eurostat Online). The higher the measure, the higher the income disparity between the poorest and the richest. In the EU25 countries, it has increased from 4.5 in 2000 to 4.9 in 2005. In 2000, the richest 5 per cent Europeans owned 35.7 per cent of the worldwide wealth (Davies *et al.* 2006, Table 10a). The at-risk-of-poverty rate after social transfers measured by 60 per cent of median equivalenced income after social transfers has risen from 15 per cent in 1998 to 16 per cent in 2005 in the EU15 as well as in the EU25 countries (Eurostat Online). Income inequality, as measured by the Gini coefficient, has increased from 29 in 1998 to 31 in 2005 in the EU25 countries and from 29 in 1998 to 30 in 2005 in the EU15 countries (Eurostat Online). The in-work at risk of poverty rate for part time workers was 11 per cent in the EU25 and 10 per cent in the EU15 countries in 2005 (Eurostat Online). The increase in income inequality, job insecurity, and poverty risk has been accompanied by a polarization between capital and labour: the average profit rate has increased by 39.4 per cent in the years 1987–2007 in the EU15 countries (net returns on net capital stock, European Commission Annual Macro-Economic Database), whereas the wage share has in the same time span decreased by 7.5 per cent (compensation per employee as percentage of GDP at current market prices, European Commission Annual Macro-Economic Database). It is hence reasonable to assume that during the past couple of decades economic growth has been accompanied by a rise in relative wage decreases, income inequalities, and poverty risks. Hence, we assume that such a form of economic growth, i.e. the unhindered expansion of capital accumulation, is not compatible with social sustainability. The conclusion of many contemporary social analysts is that the dominance of economic logic needs to be driven back in order to achieve sustainability (e.g. Stiglitz 2003; Harvey 2005; Archer 2007) and that systemic alternatives are needed. It can

therefore be hypothesized that ‘economic sustainability’ in the sense of the continued expansion of capitalist accumulation is not compatible with social sustainability and that a paradigm shift is needed. Persistent economic growth has been achieved by compromising social sustainability (e.g. by reducing the total wage labour costs and advancing precarious jobs in order to raise profits) and by externalizing economic costs to nature. It has been based on the principle of accumulation by dispossession (Harvey 2005). Less profitability and more corporate taxation are needed in order to provide financial means that can be invested in social and ecological sustainability. Economic sustainability hence should not be understood as meaning continuously rising profit rates, but should better be conceived as self-managed ownership, distributive justice, and the advancement of public goods (based on the insight that the commons are produced co-operatively and hence should be owned collectively).

Interestingly, although this alternative view is not dominant (the dualistic approach is the predominant one), it is shared by a number of institutions and authors who have given definitions of SIS. One such organization is the Heinrich Böll Foundation: ‘Sustainability of knowledge and information means firstly containing the currently dominating trend towards commodification, which is aimed at short-range use and at creating an artificial scarcity of knowledge, although, as a good, it is essentially free; the agents of commodification are not primarily interested in the long-range securing of individual and social development or for freedom in the use of knowledge and information’ (Heinrich Böll Foundation 2003b, p. 1). Another one is the United Nations Educational, Scientific and Cultural Organization (UNESCO): ‘Struggling for development is not to ensure that a few get rich at the expense of the rest, or maintaining non-viable companies or institutions. (...) Globalization currently imposed the notion of the market on everything: education, health, communication services, cultural affairs, etc., and political powers can do nothing about this. (...)’ (Ospina 2003, p. 38, 129). Such views stress a balancing of dimensions, which would require decreasing the predominant economic influence on society. They are dialectical instead of dualistic, projectionistic, or reductionistic.

2.4 Towards a dialectical definition of SIS: integrating base and superstructure

In 1987, the World Commission on Environment and Development (WCED) published the ‘Brundtland Report’ (named after its Chair, the former Prime Minister of Norway, Gro Harlem Brundtland; WCED 1987) that gave much attention to the challenge of overcoming poverty and meeting basic needs and to integrating the environment into economic decision-making. The WCED defined sustainable development as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (WCED 1987, p. 43). Applying this idea to systems design means

that with the help of technology individuals, communication processes, organizations, and societies should be managed and designed in ways that allow all three levels to develop in harmony and achieve their own goals without compromising the goals of the other levels or of other actors in the present and the future.

In the discourse on sustainability, there has been a shift from a focus on ecological issues towards the inclusion of broader societal issues. The ‘triangle of sustainability’ introduced by the World Bank has been very important in shifting discussion on sustainability from purely ecological aspects towards more integrative concepts. Ismail Serageldin, then vice-president of the World Bank, identified an economic, a social, and an ecological dimension of sustainability. ‘It is not surprising that these concerns reflect the three sides of what I have called the “triangle of sustainability”—its economic, social, and ecological dimensions’ (Serageldin 1995, p. 17). It has now become very common to identify an ecological, an economic, a social, and an institutional dimension of sustainability (as, for example, the EU and the UN do). A shift of the meaning of the sustainability notion occurred between the time of the 1992 UN Conference on Environment and Development (‘Earth Summit’) in Rio de Janeiro, Brazil, and the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa. ‘At the time of Rio, sustainable development was mainly about protecting nature, but now, in the wake of Johannesburg, it is first and foremost about protecting people’ (World Summit on Sustainable Development 2002, p. 22).

If we conceive sustainability as a complex phenomenon, then it includes various aspects that need to be achieved in sustainable social systems, such as individual well being, security, freedom, and self-determination just like collective dimensions such as wealth for all, social security for all, political participation for all, or health and education for all.

The correspondence of individual, organizational, and societal goals could also be interpreted as a contemporary form of Kant’s Categorical Imperative: ‘Act only according to that maxim by which you can at the same time will that it should become a universal law. (. . .) Act as though the maxim of your action were by your will to become a universal law of nature. (. . .) Act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only’ (Kant 1998, pp. 422, 429). Treating others with the same logic that one wants have applied to oneself means that there can be no morally privileged logic at any level. But Kant’s Golden Rule fails in situations in which people are willing to suffer, tolerate violence against them, or to die if they were in the positions of others. Hence, one assumption that might need to be added is that the logics employed at the individual, organizational, and the societal level should be guided by the spirit of co-operation and participation. This implies that the logic of co-operation is superior to the logic of competition.

How can the superiority of co-operation to competition be justified? Competition means that certain individuals and groups benefit at the expense

of others, i.e. there is an unequal access to structures of social systems. The asymmetric distribution of resources, domination, and exploitation are the typical outcomes of competition. Competition is the dominant organizational structure of modern society, modern society hence is an excluding society. Cooperation is a specific type of communication where actors achieve a shared understanding of social phenomena, make concerted use of resources so that new systemic qualities emerge, engage in mutual learning, all actors benefit, and feel at home and comfortable in the social system that they jointly construct (Fuchs 2008b). Co-operation includes people in social systems, lets them participate in decisions, and establishes a more just distribution of and access to resources. Hence, co-operation is a way of achieving and realizing basic human needs, and competition is a way of achieving and realizing basic human needs only for certain groups and excluding others. We argue that co-operation forms the Essence of human society and that competition estranges humans from their Essence. One can imagine a society that functions without competition, a society without competition is still a society. One cannot imagine a society that functions without a certain degree of co-operation and social activity. A society without co-operation is not a society, it is a state of permanent warfare, egoism, and mutual destruction that sooner or later destroys all human existence. If co-operation is the Essence of society, then a truly human society is a co-operative society, and from this insight emerges the categoric imperative to overthrow all ideas and practices in which man is not considered as the participating centre of society, but treated as enslaved to instrumental structures.

Participation means that humans are enabled by technologies, resources, organizations, and skills to design and manage their social systems all by themselves and to develop collective visions of a better future so that the design of social systems can make use of their collective intelligence (Fuchs 2008b). A participatory social system is a system in which power is distributed in a rather symmetrical way, that is, humans are enabled to control and acquire resources such as property, technologies, social relationships, knowledge, and skills that help them in entering communication and cooperation processes in which decisions on questions that are of collective concern are taken. Providing people with resources and capacities that enable responsible and critical activity in decision-making processes is a process of empowerment; participation is a process of empowering humans.

How are participation, co-operation, and sustainability connected? Participation is structure oriented, it is a process in which social structures are designed in such a way that individuals are included in the constitution of the social systems they live in and actually take part in these constitution processes. Co-operation is an intersubjective process within participatory structures, and participation is a logical and necessary but not sufficient precondition for co-operation. Co-operation is the social process by which sustainable systems can be produced. Sustainability concerns the long-term form and effects of a social system.

Participation means the structural enablement, co-operation the intersubjective social process, sustainability the long-term condition and effects of social systems so that all benefit and can lead a good life. Abstractly spoken, a participatory, co-operative, and sustainable society is a society that guarantees a good life for all. A PCSIS is a society in which knowledge and technology are together with social systems shaped in such ways that humans are included in and self-determine their social systems collectively, interact in mutually benefiting ways, and so bring about a long-term stability that benefits all present and future generations and social groups. Table 3 shows the various dimensions of such a society.

The dimensions of sustainability do not exist independently, but are interdependent, i.e. a lack of a certain dimension eventually will have negative influences on other dimensions, whereas enrichment of one dimension will provide a positive potential for the enrichment of other dimensions. So, for example, people who live in poverty are likely to not show much interest in political participation. Another example is that an unsustainable ecosystem advances an unsustainable society and vice versa: if man pollutes nature and depletes non-renewable natural resources problems, i.e. if he creates an unhealthy environment, problems such as poverty, war, totalitarianism, extremism, violence, crime, and so on are more likely to occur. The other way round a society that is shaken by poverty, war, a lack of democracy and plurality, and so on is more likely to pollute and deplete nature. So sustainability should be conceived as being based on dialectics of ecological preservation, human-centred technology, economic equity, political freedom, and cultural wisdom. These dimensions are held together by the logic of co-operation, i.e. the notion that systems should be designed in ways that allow all involved actors to benefit, co-operation is the unifying and binding force of a PCSIS, it dialectically integrates the various dimensions.

Elements of dialectical approaches on SIS have thus far been marginalized by the dominance of dualistic views. Nonetheless, there are some exceptions. So, for example, the UNESCO is calling for a planetary sustainable information and knowledge society (Ospina 2003). It argues for turning away from the pure focus on economic logic and towards a balanced view that takes into account integrative human rights. The goal is a society that realizes for all the right to life, right to political participation, right to legal protection, right to freedom, right to benefit of progress to all (economic, social, and cultural participation), right to minimal income for all human beings, right to subsistence income and employment, right to education, right to health, right to sexual and reproductive rights, right to nutrition and food security, right to a healthful environment, and right to housing and table human settlements (Ospina 2003, p. 180). This view is integrating the ecological, economic, political, cultural, and social dimension of human existence. There is a stress that economic interests are currently privileged and should be driven back in order to advance advantages for all. So the causal relation between the various dimensions is

TABLE 3 Dimensions of sustainability.

<i>dimension</i>	<i>definition</i>
Ecology: preservation	Under the condition of ecological preservation, nature is treated by humans in ways that allow flourishing of natural systems, i.e. the autopoiesis of living systems is maintained and not artificially interrupted or destroyed and natural resources are preserved and not depleted
Technology: human-centredness	That technology is human-centred means that technological systems should help humans in solving problems, fit their capabilities, practices and self-defined needs, support human activities and co-operation, and involve users in definition, development, and application processes
Economy: equity	Economic equity means that there is wealth for all, i.e. defined material living standards should be guaranteed for all as a right, nobody should live in poverty, and the overall wealth should be distributed in a fair way so as to avoid large wealth and income gaps between the most and the least wealthy
Polity: freedom	Freedom can in line with the critical-realist thinking of Bhaskar (1993) be conceived as the absencing of domination, i.e. the asymmetrical distribution of power, so that humans are included and involved in defining, setting, and controlling the conditions of their lives. It is the absencing of constraints on the maximum development and realization of human faculties. Freedom then means the maximum use and development of what MacPherson (1973) has termed human developmental power
Culture: wisdom	A culture is wise if it allows the universal sharing and co-operative constitution of knowledge, ideas, values, norms, and sets standards that allow literacy and the attainment of educational skills for all, physical and mental health of all, the maximization of life time in health for all, communicative dialogue in which all voices are heard and influential, a culture of understanding that allows finding common values without compromising difference (unity in diversity), the experience of entertainment, beauty, the diversity of places, mental challenge and diversity, physical exercise for all, and building communities, relations, love, and friendships for all

taken into account (other than in SIS dualism), which results in a call for the decolonization of society by economic logic. This would also apply for ICTs that according to UNESCO should not be used for purely economic ends, but for fostering planetary sustainability that benefits all humans. ‘Considering new information and communication technologies, governed at present and since their outset by the rules of the market and stock markets, must be lightened in terms of management and international democratic governance by firmly incorporating ethical principles and values that will recognize that it is only by seeking intellectual, spiritual and cultural progress for all peoples that humankind can be prepared for the advent of a more balanced, equitable, fair world, to assure a good life for all (. . .) Consequently, information and communication technologies must be used and managed in a society in order to humanize and democratize thought in society, rather than to enhance economic profitability and efficiency, achieved for better or for worse using sophisticated administrative and management programs grounded in different realities from those that were the basis for their original creation’ (pp. 70–71). There is a stress on the importance of public services in attaining sustainability (p. 77) and on co-operation: ‘harmony rather than competition, excellence, elitism, separation or isolation’ (p. 178) would be needed.

The Heinrich Böll Foundation (2003b) defines in the *Charter of Civil Rights for a Sustainable Knowledge Society* a sustainable knowledge society as a society based on free access to knowledge, knowledge as public good owned by all (the Commons), openness of technical standards and organization forms, securing privacy, cultural and linguistic diversity, diversity of the media and public opinion, the long-term conservation of knowledge, bridging the digital divide, freedom of information as a civil right to political activity and transparent administration, and securing freedom in work environment. This definition takes into account technological, economic, political, and cultural issues, missing are ecological concerns. A sustainable knowledge society would preserve and promote human rights, give unhampered and inclusive access to knowledge, provide means for preserving the natural environment, and provide access to the diverse media constituting the knowledge of the past (Heinrich Böll Foundation 2003a). The dialectic of SIS is taken into account by arguing that economization hinders sustainability: ‘The Charter is directed emphatically against the increasing privatisation and commercialisation of knowledge and information. A society, in which the protection of intellectual property transforms knowledge into a scarce resource, is not sustainable’ (Heinrich Böll Foundation 2003a).

The World Summit on the Information Society (WSIS) Civil Society Plenary (2005) argues that in the WSIS process, civil society interests were not adequately taken into account (for a critique of WSIS, see also Servaes & Carpentier 2006). In its own declaration – that is very different from the official dualistic WSIS outcome documents – the WSIS Civil Society Plenary (2003) argues for an information society that is based on 34 inclusive principles. Among

them are the promotion of free software and the establishment of a public domain of global knowledge that challenges intellectual property. The focus is on public goods and redistribution. The Plenary stresses that distributive justice is needed and that economic resources hence need not simply be produced within economic growth models, but need to be redistributed: 'We aspire to build information and communication societies where development is framed by fundamental human rights and oriented to achieving a more equitable distribution of resources, leading to the elimination of poverty in a way that is non-exploitative and environmentally sustainable' (WSIS Civil Society Plenary 2003, p. 3).

Wolf Göhring (1999) speaks of a sustainable productive information society as a society in which humans with web support publicly plan, produce, run, maintain, repair, and take systems out of service in a collaborative way, create networked products and systems so that the free use of machinery, information, resources, free communication, and the free production of goods advances a sustainable society that benefits all. Göhring is concerned with how people have to interact and produce in order to bring about sustainability and corresponding worldviews. His approach is process- and co-operation-oriented, an SIS would be a truly post-modern society that eliminates instrumental reason.

3. Conclusion

The task of this paper was to provide a comparative and theoretically grounded discussion of the notions of sustainability, inclusion, and participation in the information society discourse. A theoretical model of society as dialectical system was introduced, in which the economic base and the political–cultural superstructure are mutually shaping each other. Based on a distinction between reductionistic, holistic, dualistic, and dialectical worldviews, four different theoretical approaches on defining the SIS were distinguished, which are based on how the relationship between base and superstructure is conceived. Reductionistic approaches see ecological or technological or economic changes as the sole driving forces of an SIS. Projectionistic approaches see superstructures (polity and/or culture) as the determining forces of an SIS. They are the least frequently found approaches in the literature. Dualistic approaches define multiple goals and dimensions of an SIS, but do not consider if these goals are compatible and if and how they are causally linked. Dualistic models are the ones that can be found most frequently in the literature.

As an alternative to these three models, the dialectical notion of the PCSIS was introduced. Co-operation is based on an inclusive logic that establishes social systems, in which all involved actors and groups benefit. The logic of co-operation is the binding force of a progressive society that connects its various dimensions. Participation means the structural enablement, co-operation

the intersubjective social process, sustainability the long-term condition and effects of social systems, in which all benefit and have a good life. Abstractly spoken, a participatory, co-operative, and sustainable society is a society that guarantees a good life for all. A PCSIS is a society in which knowledge and technology are together with social systems shaped in such a way that humans are included in and self-determine their social systems collectively, interact in mutually benefiting ways, and so bring about a long-term stability that benefits all present and future generations and social groups. As specific qualities of co-operation in a PCSIS, ecological preservation, human-centred technology, socio-economic equity, political freedom, and cultural wisdom are identified and defined.

The task of this paper was not to quantify to which degree a PCSIS has already been achieved or to suggest indicators of such measurement. This is an empirical research that needs to be tackled in the future. For doing so, a meta-theory that defines the SIS and provides arguments on which qualities such a society should have and how this could be achieved is needed. Hence, SIS studies need a theoretical and normative grounding. One such approach on socio-theoretical grounding was undertaken in this paper. Its claim is not to be the only or the ultimate theoretical meta-approach, but the debate thus far lacks a multitude of approaches, and hence this paper wants to contribute to the discourse on the theoretical groundworks of the debate on SIS.

In this paper, it was pointed out that the discourse on SIS is dominated by dualistic approaches. In dualistic approaches, various goals are proclaimed, but it is not considered whether these goals are compatible. This view has developed into an ideology that stresses various desirable goals such as social cohesion and environmental protection, but at the same time does not question the predominant economic colonization of society by instrumental reason and the logic of commodities and money capital that has caused a rise in poverty, exclusion, and the income gap during the past decades in Europe, North America, and on the global scale. The problem is that many of the dualistic authors and policy advisors do not realize that capitalistic economic growth is unsustainable as such and inherently produces an antagonism between economic freedom and social equity and that hence systemic alternatives to capitalism must be found in order to truly advance sustainability. The alternative argument made in the paper at hand was that late-modern society is characterized by a culminating antagonism between economic growth and social and ecological cohesion, economic freedom (of markets), and social equity. Less profitability and more corporate taxation are needed in order to provide financial means that can be invested in social and ecological sustainability. Economic sustainability hence should not be understood as meaning continuously rising profit rates, but should better be conceived as self-managed ownership, distributive justice, and the advancement of public goods (based on the insight that the commons are produced co-operatively and hence should be owned collectively). The alternative view

is shared by a number of institutions such as the Heinrich Böll Foundation, UNESCO, and the World Summit on the Information Society (WSIS) Civil Society Plenary.

In the current discourse, concepts such as sustainability, participation, co-operation, and corporate social responsibility have ideological character, they serve as legitimating predominant capitalist interests that present themselves as open-minded and willing to make some small changes as long as these changes do not question profitability and the capitalist system. Progressive terms that signify inclusion are used for advancing exclusion and capitalist interest (Fuchs 2008b). It is time for a critical alternative to these ideological conceptions. The alternative view of a less-capitalistic or even a non-capitalistic co-operative information society as SIS is generally marginalized and downplayed by dominant actors in discourse. Nonetheless, it is existent and the task for the future is one of academic class struggle that questions ideological dualistic positions and provides arguments that ground the necessity for the transformation towards a PCSIS, that as a precondition is non-capitalistic in character.

References

- Archer, M. (2007) 'Social integration, system integration and global governance', in *Frontiers of Globalization Research*, ed. Ino Rossi, Springer, Berlin, pp. 221–241.
- Bhaskar, R. (1993) *Dialectic: The Pulse of Freedom*, Verso, London.
- Bourdieu, P. (1986) 'The (three) forms of capital', in *Handbook of Theory and Research in the Sociology of Education*, ed. J. G. Richardson, Greenwood Press, New York, pp. 241–258.
- Britton, E. (ed.) (1996) 'Information society & sustainable development', *Journal of World Transport Policy & Practice*, vol. 2, nos 1–2, pp. 15–61.
- Carrelli, C., Dijk, J. v., Gray, J., Majo, J., Pestel, R. & Radermacher, F. J. (2000) 'Towards a global sustainable information society. A European perspective', *Concepts and Transformations*, vol. 5, no. 1, pp. 43–63.
- Club of Rome (2003) *Towards a New Age of Information and Communication for All*, Club of Rome, Hamburg.
- Club of Rome and Factor 10 Institute (2002) *Where Are We Going? Where Do We Want To Be? How Do We Get There? Visions and Roadmaps for Sustainable Development in a Networked Knowledge Society*, European Commission, Brussels.
- Commission of the European Communities (2000a) *eEurope 2002: An Information Society for All. Action Plan*, Commission of the European Communities, Brussels.
- Commission of the European Communities (2000b) *eEurope: An Information Society for All. Communication on a Commission Initiative for the Special European Council of Lisbon, 23 and 24 March 2000*, Commission of the European Communities, Brussels.

- Commission of the European Communities (2002) *eEurope 2005: An Information Society for All. Action Plan to be Presented in View of the Sevilla European Council, 21/22 June 2002*, Commission of the European Communities, Brussels.
- Commission of the European Communities (2005) *i2010. A European Information Society for Growth and Employment*, Commission of the European Communities, Brussels.
- Commission of the European Communities (2006) *Communication from the Commission: Building the ERA of Knowledge for Growth*, Commission of the European Communities, Brussels.
- Davies, J. B., Sandstrom, S., Shorrocks, S. & Wolff, E. N. (2006) 'The world distribution of household wealth', [Online] Available at: <http://www.wider.unu.edu/research/2006-2007/2006-2007-1/wider-wdhw-launch-5-12-2006/wider-wdhw-report-5-12-2006.pdf> (21 September 2007).
- DEMO-net (2006) *Demo-net: The eParticipation Workshop: Mapping eParticipation. White Papers*.
- European Commission (1998) *1998 Status Report: Toward a Sustainable Information Society*, Commission of the European Communities, Brussels.
- Fuchs, C. (2008a) *Deconstructive Class Analysis: Theoretical Foundations and Empirical Examples for the Analysis of Richness and the Class Analysis of the Media and the Culture Industry*. ICT&S Research Paper No. 4, ICT&S Center, Salzburg. ISSN 1990-8563. [Online] Available at: <http://icts.sbg.ac.at/media/pdf/pdf1666.pdf> (20 November 2009).
- Fuchs, C. (2008b) *Internet and Society: Social Theory in the Information Age*, Routledge, New York.
- Fuchs, C. (2008c) 'The implications of new information and communication technologies for sustainability', *Environment, Development and Sustainability*, vol. 10, no. 3, pp. 291–309.
- Giddens, A. (1984) *The Constitution of Society. Outline of the Theory of Structuration*, Polity Press, Cambridge.
- Göhring, W. (1999) *The Productive Information Society: A Basis for Sustainability*, GMD – Forschungszentrum Informationstechnik GmbH, Sankt Augustin.
- Habermas, J. (1981) *Theorie des kommunikativen Handelns*, vol. 2, Suhrkamp, Frankfurt/Main.
- Hall, S. (1983) 'The problem of ideology: Marxism without guarantees', in *Marx: A Hundred Years On*, ed. B. Matthews, Lawrence & Wishart, London, pp. 57–84.
- Harvey, D. (2005) *A Brief History of Neoliberalism*, Oxford University Press, Oxford.
- Hegel, G. W. F. (1830) *Enzyklopädie der philosophischen Wissenschaften im Grundrisse. Erster Teil: Die Wissenschaft der Logik. Werke, Band 8*, Suhrkamp, Frankfurt/Main.
- Heinrich Böll Foundation (2003a) *Charter of Civil Rights for a Sustainable Knowledge Society*, version 2.0, May 2003, [Online] Available at: <http://www.worldsummit2003.de/en/web/375.htm> (19 September 2007).
- Heinrich Böll Foundation (2003b) *Towards a Charter of Human Rights for Sustainable Knowledge Societies*, [Online] Available at: http://www.itu.int/dms_pub/itu-s/md/03/.../S03-WSISPC2-C-0065!!MSW-E.doc (20 November 2009).

- Hilty, L. (2000) *Towards a Sustainable Information Society*, *Informatique*, August 2000, pp. 2–9.
- Hofkirchner, W. (2002) *Projekt Eine Welt*, LIT, Münster.
- Holz, H. H. (2005) *Weltentwurf und Reflexion: Versuch einer Grundlegung der Dialektik*, J. B. Metzler, Stuttgart.
- Information Society Forum (1998) ‘Forum Info 2000: challenges 2025 – on the way to a sustainable world-wide information society’, in *1998 Status Report: Toward a Sustainable Information Society*, ed. European Commission, Commission of the European Communities, Brussels, pp. 91–97.
- Information Society Forum (2000) *A European Way for the Information Society*, [Online] Available at: <http://www.poptel.org.uk/nuj/mike/isf/ew.html> (19 September 2007).
- Kant, I. (1998) *Groundwork of the Metaphysics of Morals*, Cambridge University Press, New York.
- Lisbon European Council (2000) *Presidency Conclusions, 23–24 March 2000*.
- Luhmann, N. (1984) *Soziale Systeme*, Suhrkamp, Frankfurt am Main.
- MacIntosh, A. (2004) ‘Characterizing e-participation in policy-making’, in *Proceedings of the Thirty-Seventh Annual Hawaii International Sciences (HICSS-37)*, Big Island, Hawaii, 5–8 January.
- MacIntosh, A. (2006) ‘eParticipation in policy-making: the research and the challenges’, in *Exploiting the Knowledge Economy: Issues, Applications, Case Studies*, eds P. Cunningham & M. Cunningham, IOS Press, Amsterdam, pp. 364–369.
- Macpherson, C. B. (1973) *Democratic Theory: Essays in Retrieval*, Oxford University Press, Oxford.
- Milanovic, B. (2002) ‘True world income distribution, 1998 and 1993: first calculation based on household surveys alone’, *Economic Journal*, vol. 112, pp. 51–92.
- Milanovic, B. (2007a) *An Even Higher Global Inequality than Previously Thought: A Note on Global Inequality Calculations using the 2005 ICP Results*, [Online] Available at: <http://ssrn.com/abstract=1081970> (22 May 2008).
- Milanovic, B. (2007b) ‘Globalization and inequality’, in *Global Inequalities*, eds D. Held & A. Kaya, Polity, Cambridge, UK, pp. 26–49.
- O’Donnell, S. (2001) *Towards an Inclusive Information Society in Europe: The Role of Voluntary Organisations. IST Study Report Research Programme European Commission*, Models Research, Dublin.
- O’Donnell, S., McQuillan, H. & Malina, A. (2003) *eInclusion: Expanding the Information Society in Ireland*, Itech Research, Dublin.
- Ospina, G. L. (2003) *Planetary Sustainability in the Age of the Information and Knowledge Society. For a Sustainable World and Future. Working Toward 2015*, UNESCO, Paris.
- Radermacher, F. J. (2004) *Global Marshall Plan: For a Worldwide Eco-Social Market Economy*, Global Marshall Plan Initiative, Hamburg.
- Schauer, T. (2003) *The Sustainable Information Society: Vision and Risks*, Universitätsverlag Ulm, Ulm.

- Serageldin, I. (1995) 'The human face of the urban environment', in *Proceedings of the Second Annual World Bank Conference on Environmentally Sustainable Development: The Human Face of the Urban Environment*, Washington, D.C., 19–21 September, 1994, eds Is. Serageldin, M. A. Cohen & K.C. Sivaramakrishnan, World Bank, Washington, D.C., pp. 16–20.
- Servaes, J. & Carpentier, N. (eds) (2006) *Towards a Sustainable Information Society. Deconstructing WSIS*, Intellect, Bristol.
- Stiglitz, J. E. (2003) *Globalization and its Discontents*, Norton, New York.
- United Nations Human Development Report (UNHDR) (2008) *Human Development Report 2007/2008*, Palgrave Macmillan, Basingstoke.
- Williams, R. (2001) *The Raymond Williams Reader*, ed. John Higgins, Blackwell, Malden.
- World Commission on Environment and Development (WCED) (1987) *Our Common Future*, Oxford University Press, Oxford.
- World Summit on Sustainable Development (2002) *The Jo'burg Memo. Fairness in a Fragile World*, Heinrich Böll Foundation, Berlin.
- World Summit on the Information Society (WSIS) Civil Society Plenary (2003) *Civil Society Declaration to the World Summit on the Information Society: Shaping Information Societies for Human Needs*, [Online] Available at: http://www.worldsummit2005.de/download_en/WSIS-CS-Dec-25-Feb-04-en.pdf (21 September 2007).
- World Summit on the Information Society (WSIS) (2005) *Outcome Documents: Geneva 2003 – Tunis 2005*, ITU, Geneva.
- World Summit on the Information Society (WSIS) Civil Society Plenary (2005) *Much More Could Have Been Achieved: Civil Society Statement on WSIS*, [Online] Available at: http://www.worldsummit2005.de/download_en/WSIS-CS-summit-statement-rev1-23-12-2005-en.pdf (21 September 2007).

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