Handbook of Research on Web 2.0, 3.0, and X.0:
Technologies, Business, and Social Applications

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Information Science REFERENCE

INFORMATION SCIENCE REFERENCE

Hershey • New York

Director of Editorial Content: Kristin Klinger
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Cover Design: Lisa Tosheff
Printed at: Yurchak Printing Inc.

Published in the United States of America by
Information Science Reference (an imprint of IGI Global)
701 E. Chocolate Avenue
Hershey PA 17033
Tel: 717-533-8845
Fax: 717-533-8661
E-mail: cust@igi-global.com
Web site: http://www.igi-global.com/reference

Library of Congress Cataloging-in-Publication Data

Handbook of research on Web 2.0, 3.0, and X.0 : technologies, business, and social applications / San Murugesan, editor.
p. cm.
Includes bibliographical references and index.
Summary: "This book provides a comprehensive reference source on next generation Web technologies and their applications"--Provided by publisher.
ISBN 978-1-60566-384-5 (hardcover) -- ISBN 978-1-60566-385-2 (ebook) 1. Web 2.0. 2. Social media. I. Murugesan, San.
TK5105.88817.H363 2010
025.042'7--dc22
2009020544

British Cataloguing in Publication Data
A Cataloguing in Publication record for this book is available from the British Library.

Chapter 44
Social Software and Web 2.0:
Their Sociological Foundations and Implications

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ABSTRACT

Currently, there is much talk of Web 2.0 and social software. A common understanding of these notions is not yet in existence. Also the question of what makes social software social has thus far remained unacknowledged. In this chapter, a theoretical understanding of these notions is given. The Web is seen in the context of social theories by thinkers like Emile Durkheim, Max Weber, Ferdinand Tönnies, and Karl Marx. I identify three levels in the development of the Web, namely Web 1.0 as a web of cognition, Web 2.0 as a web of human communication, and Web 3.0 as a web of cooperation. Also, the myths relating to Web 2.0 and its actual economic and ideological role in contemporary society are discussed.

1. INTRODUCTION

Several new popular websites such as Google, MySpace, YouTube, Wikipedia, Facebook, Craigslist, Classmates and Flickr present users a range of novel applications and services - social networking, wikis, blogging, tagging, social bookmarking, video sharing, or photo sharing. Many of these platforms range among the top 100 US websites in terms of estimated monthly unique visitors. For example:

- google.com (rank number 1, 137 million users),
- youtube.com (rank number 6, 73 million users),
- myspace.com (rank number 7, 72 million users),
- wikipedia.org (rank number 8, 67 million users),

DOI: 10.4018/978-1-60566-384-5.ch044

- blogspot.com (rank number 13, 44 million users),
- facebook.com (rank number 15, 40 million users),
- craigslist.org (rank number 16, 40 million users),
- blogger.com (rank number 25, 28 million users),
- wordpress.com (rank number 29, 26 million users),
- flickr.com (rank number 34, 22 million users),
- classmates.com (rank number 44, 15 million users),
- monster.com (rank number 58, 13 million users)[1].

Such sites do not focus on conventional functionalities like news and information provision or online shopping, but on applications like social networking platforms, wikis, blogs, tagging, social bookmarks, video sharing, or photo sharing.

The popular press is full of reports on what is now termed "Web 2.0" by many and which is said to constitute a qualitative shift of Internet-technologies and -usage. Here are some examples:

- "Politics 2.0 Smackdown! Will tech save democracy?" (Mother Jones, August 2007).
- "Life 2.0: We are the Web. How the Internet changes Society" (Spiegel Special No. 3/2007).
- "The New Wisdom of the Web: Why is everyone so happy in Silicon Valley again? A new wave of start-ups are cashing in on the next stage of the Internet. And this time, it's all about ... you." (Newsweek, April 3, 2006).
- "Time's Person of the Year: You (…) The new Web is a very different thing. It's a tool for bringing together the small contributions of millions of people and making them matter. Silicon Valley consultants call it Web 2.0, as if it were a new version of some old software. But it's really a revolution" (Time Magazine, December 13, 2006).
- "Web 2.0: Participatory Future" (Bild, 2007 Internet Special).
- "Chinese netizens lead web 2.0, report says. China's digital and online communities are the world's leading users of mobile communication, instant messaging (IM) and web 2.0 applications, according to a new report by the Boston Consulting Group (BCG)" (People's Daily, China, July 18, 2008).
- "The internet is destroying the world as we know it. (…) Some see the internet as an amoral monster. (…) The evolution of Web 2.0 had destroyed their market by enabling films to be downloaded and shared illegally. (…) Add to this the dark side of Web 2.0, which has enabled gambling and porn websites to expand exponentially, and you can see that what is taking place is not just regrettable, it is dangerous" (Daily Mail, June 8, 2007).
- "The future medium for watching Indian movies. (…) Easy and free availability of Hindi and other Indian regional language flicks on YouTube has become a major source of conversation, camaraderie and entertainment in desi circles especially in tech centric Silicon Valley. (…) Jaman.com is a player in this new and niche market. Besides a destination for Hindi movies, the site also offers cinema from other nations using the latest technology to bring social cinema by delivering DVD quality films to a growing online community of fans from around the world" (Hindustan Times, India, March 23, 2007).
- "Are You Taking Advantage of Web 2.0? (…) When a company embraces the possibilities of Web 2.0, though, it makes contact with its public in a more casual, less

> sanitized way that, as a result, is accepted with much less cynicism. Web 2.0 offers a direct, more trusted line of communications than anything that came before it" (New York Times, March 27, 2008). "How Obama Really Did It: The social-networking strategy that took an obscure senator to the doors of the White House. (…) Of course, many of the 2008 candidates had websites, click-to-donate tools, and social-networking features--even John McCain, who does not personally use e-mail. But the Obama team put such technologies at the center of its campaign--among other things, recruiting 24-year-old Chris Hughes, cofounder of Facebook, to help develop them. And it managed those tools well. Supporters had considerable discretion to use MyBO to organize on their own; the campaign did not micromanage but struck a balance between top-down control and anarchy. In short, Obama, the former Chicago community organizer, created the ultimate online political machine" (MIT Technology Review, September/ October 2008).

These examples show that "Web 2.0" has become an important topic all over the world. Some see it as creating new opportunities for democracy, business, or entertainment. Others consider it as risk and even a monster that will destroy culture and society. Many of these mass-mediated debates are oversimplified and one-sided. But nonetheless they show that there is an interest in the question, in which respect technologies are social tools. It comes therefore as no surprise that frequently the term "Social Software" is used as synonym for "Web 2.0". In order to assess how the Web changes society, politics, the economy, and culture today, first some basic questions have to be answered: What does "social" and "sociality" actually mean? In which respect is the Internet social? Has it become social just by now? Or has it always been social? Or something completely different? Is there something new about the Web in its current form? Is "sociality" the new aspect of the Web and the Internet?

This chapter tries to provide some basic help for finding answers to such questions. Its starting point is the suggestion that what I understand by "Web 2.0" and "Social Software" depends on how one defines the social. Therefore one needs to reconsider basic sociological concepts in the context of Internet technologies. Sociological theories are today required for finding answers to basic questions. In this chapter, various definitions of the Web and Social Software will be compared and a theoretical sociological framework will be worked out that allows categorizing such definitions.

The notions of Social Software and Web 2.0 have thus far been vague; there is no common understanding in existence. The concepts seem to be centred on the notions of online communication, community-formation, and collaboration. In some definitions only one of these three elements is present, in others there are combinations. So far it remains unclear what exactly is *novel* and what is *social* about it. This chapter wants to contribute to the theoretical clarification of these notions as regards the transformation of the Internet as a techno-social system. I try to answer the question, which understandings of Social Software and Web 2.0 exist, and how they can be typified. I analyze ideological aspects of the Internet (section 2), and sociological background theories for analyzing what is is *social* about Social Software and the Web (section 3). Based on these foundations, an integrative approach is suggested in section 4. Finally, future research directions are outlined (section 5) and some conclusions are drawn (section 6). The research method employed in this chapter is dialectical social theory construction.

David Beer and Roger Burrows (2007) have recently argued that a sociology of and in Web 2.0 is needed. The chapter at hand is a contribution to establishing a sociology of Web 2.0, it clarifies theoretical foundations of the notion of Web 2.0.

One of the authors has recently argued that what is primarily needed is not a phenomenology or empirical social research of the Web, but a critical theory of Internet and Society because changing societal circumstances create situations in which new concepts need to be clarified and social problems that need to be solved (Fuchs, 2008).

I identify three evolutionary levels in the development of the Internet, namely Web 1.0, Web 2.0, and Web 3.0. These notions are based on the idea of knowledge as a threefold dynamic process of cognition, communication, and co-operation (Hofkirchner, 2002; Fuchs & Hofkirchner, 2005). The evolutionary character of the Web refers in our terms to the development of the Web from a technosocial system that enhances human cognition towards a web of communication and co-operation. Cognition is the necessary prerequisite for communication and the precondition for the emergence of co-operation. Or in other words: in order to co-operate you need to communicate and in order to communicate you need to cognize.

By cognition I want to refer to the understanding that a person, on a subjective systemic knowledge,[2] connects himself to another person by using certain mediating systems. When it comes to feedback, the persons enter an objective mutual relationship, i.e. communication. Communicating knowledge from one system to another causes structural changes in the receiving system. From communication processes shared or jointly produced resources can emerge, i.e. co-operation. These processes represent thus one important dimension against which steps in the Internet's evolution have to be assessed.

Based on our understanding of knowledge as a dynamic process, I outline three evolutionary levels of Internet development. Analogous I define Web 1.0 as a tool for cognition, Web 2.0 as a medium for human communication, and Web 3.0 as networked digital technologies that support human co-operation. The latter is not yet in existence, but it shines forth already in online co-operation systems.

2. WEB 2.0: IDEOLOGY AND ACCUMULATION MODEL

In the discourse of critical approaches on media and communication, three central aspects have been stressed:

1. The media in contemporary capitalist society advance ideologies (e.g. Holzer, 1994; Horkheimer & Adorno, 1944; Knoche, 2005; Schiller, 1997)
2. The media function as realms of commodification (e.g. Garnham, 1990; Holzer, 1994; Knoche, 2005; Smythe, 1981/2006)
3. The media have a potential to produce alternative media spaces of progressive communication and politics (e.g. Downing, 2001; Atton, 2002)

What is today designated as "Web 2.0" functions both as ideology and realm of commodification. Web 2.0 as ideology functions as marketing ideology, neoliberal ideology, and political ideology. Once parts of the capitalist system enter crisis, ways have to be found of how the resolve crisis and drive accumulation. As a way out of the "new economy" crisis in 2000, new ways of securing investment in Internet-related business had to be found (Fuchs, 2008). Therefore it is likely that Web 2.0 was created to function as marketing strategy. Several authors have expressed this view: "Like with any bubble, the suggestion of sudden newness is aimed at potential investors" (Scholz, 2008). Web 2.0 would be "an overblown marketing attempt" (Reips and Matzat, 2007, p. 1).

Others add that that the rhetoric underlying Web 2.0 is also an expression of neoliberal ideology. The interactivity of Web 2.0 would be disciplining people "into a liberal ideal of subjectivity based around notions of freedom, choice and activity. (…) The Web 2.0 user thus is represented as both agential and endowed with freedom from externally derived controls. It would seem that the user being addressed in this interactive and

participatory media is the ideal, active neoliberal citizen" (Jarrett, 2008). As the stress in Web 2.0 is mainly on individual profiles, individual user contribution, and the accumulation of friends, the ideology of neoliberal individualism and competition is advanced.

One can add to these two ideological aspects, that Web 2.0 also functions as political ideology, by making use of Herbert Marcuse's category of repressive tolerance. The emergence of user-generated content as in the case of blogging or wikis can create the image that a new public sphere emerges, in which all citizens can freely express their opinion. However it is important who influences decisions, a plurality of blogged information that does not influence policy making functions as an ideology that creates the impression of free speech, although there is repressive tolerance – free speech that is unfree because it does not have any effects, is marginalized, and not heard. Web 2.0 can be appropriated by politicians, parties, corporations, and the representative political system for giving voice to the people without listening and without giving people a say in political decisions so that they can communicate political ideas and have the illusionary impression that they can make a difference, but in reality cannot influence policies. Web 2.0 under such conditions is an ideology and an expression of repressive tolerance (Marcuse, 1969): "The result is a neutralization of opposites, a neutralization, however, which takes place on the firm grounds of the structural limitation of tolerance and within a preformed mentality. (...) If objectivity has anything to do with truth, and if truth is more than a matter of logic and science, then this kind of objectivity is false, and this kind of tolerance inhuman". Repressive tolerance is constitutive for what Marcuse terms a "totalitarian democracy".

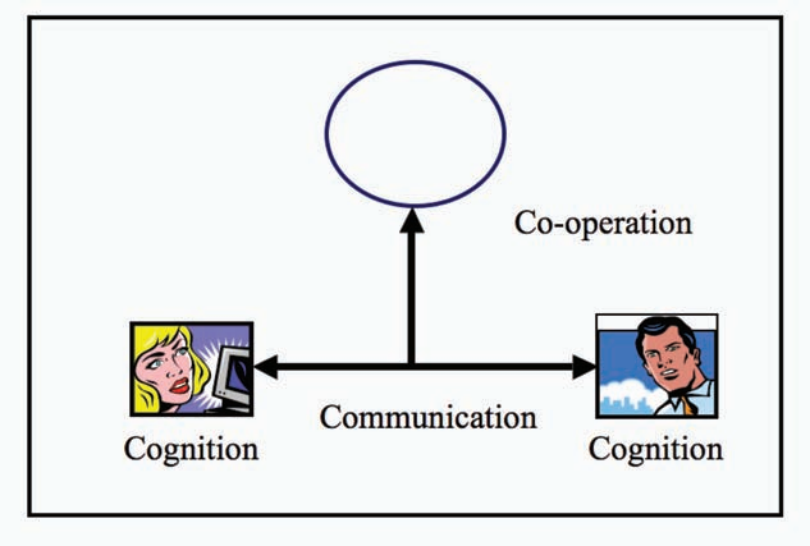
So Web 2.0 functions as ideology in a threefold sense: as marketing ideology, as neoliberal ideology, and as political ideology. A second aspect of Web 2.0 is that it also has an economic function that is supported by the ideological components. In this context, one can apply Dallas Smythe's notion of the audience commodity: "Because audience power is produced, sold, purchased and consumed, it commands a price and is a commodity. (...) You audience members contribute your unpaid work time and in exchange you receive the program material and the explicit advertisements" (Smythe, 1981/2006, pp. 233, 238).

The users who google data, upload or watch videos on YouTube, upload or browse personal images on Flickr, or accumulate friends with whom they exchange content or communicate online on social networking platforms like MySpace or Facebook, constitute an audience commodity that is sold to advertisers.

The difference between the audience commodity on traditional mass media and on the Internet is that in the latter the users are also content producers, there is user-generated content, the users engage in permanent creative activity, communication, community-building, and content-production. Due to the permanent activity of the recipients, in the case of the Internet the audience commodity is a prosumer commodity.

Web 2.0 seems to be an ideology and a business model aimed at exploiting free labour (Terranova, 2002) of Internet users. Social Internet applications like listservs, discussion boards, email, wikis are not new, they have been around for quite some time. What is new is the emergence of integrated platforms that combine many of the previously existing information, communication, and co-operation technologies and have a high degree of usability so that more and more people use the Web not only for information search, but also for communication and co-operation, whereas in former times they predominantly turned to the Web for information and used other Internet applications (like Usenet, email clients, IRC, etc.) for communication. The Web has become an integrated platform for cognition, communication, and co-operation. What is also new are business models that are oriented on a combination of open access, audience commodity, and targeted advertising; and

Figure 1. The information process



the creation of a brand name that was expected to end the crisis of the Internet economy. A Web 1.0 was part of neoliberal reasoning. The emergence of the ideology of repressive tolerance in relation to the Web also is not entirely new because already in the 1990s there was much ideological talk about digital democracy, digital agoras, public spheres on the Internet, etc.

The question is if this is just illusionary hope, or if the ideological and the economic function of the Internet have brought about actual material and usage changes. For answering this question, it makes sense to introduce a notion of information as a threefold process of (Hofkirchner, 2002, cf. figure 1):

1. Cognition (sociality 1)
2. Communication (sociality 2)
3. Co-operation (sociality 3)

According to this view, individuals have certain cognitive features that they use to interact with others so that shared spaces of interaction are created. In some cases, these spaces are used not just for communication, but for the co-production of novel qualities of overall social systems and for community-building.

In order to assess if there have been transformations of the Web, I have compared the top 20 websites used in the United States in 1998 and 2008 according to whether they technologically support cognition, communication, and co-operation. The results are shown in table 1.

One first observation is that from 1998 until 2008 in the United States, the number of unique visitors of the top 20 websites more than tripled, which is a result of the continuously increased number of Internet users. Concerning the functions of the top 20 websites, one can observe that in 1998, there were 20 information functions and 9 communication functions available on the top 20 websites. In 2008, there are 20 information functions, 10 communication functions, and 4 cooperation functions on the top 20 US websites. The number of websites that are oriented on pure cognitive tasks (like search engines) has decreased from 11 in 1998 to 10 in 2008. This shows that in 1998 the Web in its technological structure was predominantly a cognitive medium (sociality 1), although communicative features (sociality 2) were also present. In 2008, the number of web-

Table 1. Information functions of the top 20 websites in the United States (sources: Comcast Press Release January 20, 1999, Quantcast Web Usage Statistics March 16, 2008)

1998				2008			
Rank	Website	Unique users in 1000s (December 1-31, 1998)	Primary functions	Rank	Website	Unique users in 1000s (February 2008)	Primary functions
1	Aol.com	28 255	cogn, comm	1	yahoo.com	125 000	cogn, comm
2	yahoo.com	26 843	cogn, comm	2	google.com	123 000	cogn, comm
3	geocities.com	18 977	cogn	3	aol.com	56 000	cogn, comm
4	msn.com	18 707	cogn, comm	4	youtube.com	54 000	cogn, comm
5	netscape.com	17 548	cogn, comm	5	microsoft.com	51 000	cogn
6	excite.com	14 386	cogn, comm	6	msn.com	48 000	cogn, comm
7	lycos.com	13 152	cogn, comm	7	eBay.com	48 000	cogn
8	microsoft.com	13 010	cogn	8	myspace.com	46 000	cogn, comm, coop
9	bluemountain-arts.com	12 315	cogn, comm	9	wikipedia.org	44 000	cogn, comm, coop
10	infoseek.com	11 959	cogn, comm	10	mapquest.com	43 000	cogn
11	altavista.com	11 217	cogn	11	live.com	41 000	cogn
12	tripod.com	10 924	cogn	12	amazon.com	41 000	cogn
13	xoom.com	10 419	cogn	13	about.com	38 000	cogn
14	angelfire.com	9 732	cogn	14	verizon.com	34 000	cogn
15	hotmail.com	9 661	cogn, comm	15	adobe.com	30 000	cogn
16	Amazon.com	9 134	cogn	16	bizrate.com	29 000	cogn
17	real.com	7 572	cogn	17	facebook.com	28 000	cogn, comm, coop
18	zdnet.com	5 902	cogn	18	go.com	28 000	cogn
19	hotbot.com	5 612	cogn	19	answers.com	27 000	cogn, comm, coop
20	infospace.com	5 566	cogn	20	wordpress.com	27 000	cogn, comm
		260 891				961 000	

sites that also have communicative or cooperative equals the one of the pure information sites (10). This shows that the technological foundations for sociality (2) and (3) have increased quantitatively. A feature of the Web in 2008 that was not present on the top 20 websites in 1998 is the support of co-operative tasks: collaborative information production with the help of wikis (Wikipedia, answers.com) and social networking sites oriented on community-building (MySpace, Facebook).

One can also assess if subjective usage patterns have changed. The Internet has since its rising success in the 1990s been used predominantly for emailing. So e.g. in the US in March 2000, 52% of adult respondents said that they used email yesterday, in December 2007 this number had increased to 60%. As the statistics show that there is only a tiny rate of users of listserv or web-discussions for personal issues (5% in September 2002, 3% in August 2006) and of online discussions/chat (5% in March 2000, 5% in September 2005), the

data show that email is to a large extent used for interpersonal communication, not for mass communication. Other very popular tasks are using search engines (January 2002: 29%, December 2006: 41%), and getting news online (March 2000: 22%, December 2007: 37%). So concerning subjective usage, the Internet is predominantly an information system (sociality 1) and a system of interpersonal communication (sociality 2). That sociality (3) in the form of community-building becomes more important on the Web is shown by the rising importance of social networking: In February/March 2005 2% used social networking sites, in August 2006 already 9% (all data: Pew Internet & American Life Project, http://www.pewinternet.org, accessed on March 16, 2008). In the UK, 23% of Internet users have made new friends online, 16% posted messages in discussion boards, 29% used chat rooms, and 12% were blogging in 2007 (data: Oxford Internet Survey, OxIS 2007).

The Web has objective-technologically been transformed: There is today still a predominance of information sites, but the importance communicative and co-operative features has increased. Concerning Internet usage, interpersonal communication has always been the most important feature since the massification of the Internet in the mid-1990s, followed by information search. The usage of community-functions provided by social networking platforms has been rising during the past few years. These developments show that the ideology and economics of the Web have not drastically altered features and usage, but have resulted in some alterations that serve economic and ideological interests.

3. BACKGROUND: THREE NOTIONS OF SOCIALITY FOR THE ANALYSIS OF SOCIAL SOFTWARE

By reviewing definitions of Web 2.0 and Social Software, I found out that these two terms are in most cases used interchangeably and that underlying these attempts, there are different understandings and concepts of what is termed social. I will outline these notions in this chapter and work out our own understanding, which will differentiate between Social Software and Web 1.0, 2.0, 3.0, in section 3.

3.1. A Structure-Based View of Sociality and its Application to Web 2.0

The first understanding of Social Software is based on the Durkheimian notion of the *social*: All software is social in the sense that it is a product of social processes. Humans in social relations produce it. It objectifies knowledge that is produced in society, and it is applied and used in social systems. According to Durkheim, all software applications are social in the sense of "social facts". They are fixed and objectified social structures, present, even if a user sits in front of a screen alone and browses information on the World Wide Web, because, according to Durkheim, they have an existence of their own, independent of individual manifestations. Web technologies therefore are social facts. "A social fact is every way of acting, fixed or not, capable of exercising on the individual an external constraint; or again, every way of acting which is general throughout a given society, while at the same time existing in its own right independent of its individual manifestations" (Durkheim, 1982, p. 59).

Based on this Durkheimian understanding of the social, Rainer Dringenberg (2002, p. 136) argues that the Internet is a social fact because it is a structure that is cognized, internalized and about which many people interact in everyday life "In the tradition of Emile Durkheim I see the Internet as 'social fact' that is perceived by almost anybody, with the help of many of us communicate in everyday life and that we internalize" (Dringenberg, 2002, p. 136)[3]. Martin Rost (1997) argues that computer networks are social facts, because they

are types of social functions: a social reality sui generis, that has functions in and shapes society. Once created, they would fulfill certain specific functions, just like other subsystems of society. Dourish (2001, p. 56) argues that all digital systems – computer hardware, software, periphery, the Internet, etc. – are social in the sense that they objectify human intentions, goals, interests and understandings, i.e. they are social facts defined by human actors and they influence the behaviour of others. "Human-computer interaction can be thought of as a form of mediated communication between the end user and the system designer, who must structure the system so that it can be understood by the user, and so that the user can be led through a sequence of actions to achieve some end result. This implies that even the most isolated and individual interaction with a computer system is still fundamentally a social activity. The communication between designer and user takes place against a backdrop of commonly held social understandings. Even the metaphors around which user interfaces are constructed ('private' files versus 'public' ones, 'dialog' boxes, electronic 'mail', documents, wizards, and 'publishing' a web page) rely on a set of social expectations for their interpretation and use" (Dourish, 2002, p. 56).

3.2. An Action-Based View of Sociality and its Application to Web 2.0

The second understanding of sociality that is applied in definitions of Web 2.0 and Social Software, is based on Max Weber. His central categories of sociology are *social action* and *social relations*: "Action is 'social' insofar as its subjective meaning takes account of the behavior of others and is thereby oriented in its course" (Weber, 1968, p. 4). "The term 'social relationship' will be used to denote the behaviour of a plurality of actors insofar as, in its meaningful content, the action of each takes account of that of the others and is oriented in these terms" (Weber, 1968, p. 26). These categories are relevant for the discussion about Social Software, because they allow a distinction between *individual* and *social activities*: "Not every kind of action, even of overt action, is 'social' in the sense of the present discussion. Overt action is not social if it is oriented solely to the behavior of inanimate objects. For example, religious behavior is not social if it is simply a matter of contemplation or of solitary prayer. [...] Not every type of contact of human beings has a social character; this is rather confined to cases where the actor's behavior is meaningfully oriented to that of others" (Weber, 1968, pp. 22-23). Weber stresses that for behaviour being considered as social relation, it needs to be a meaningful symbolic interaction between human actors, hence communication.

According to this understanding, Social Software and Web 2.0 are oriented on applications that allow human communication. The social character is distinguished from activities such as writing texts with a word processor or reading online texts: "Social software's purpose is dealing with groups, or interactions between people. This is as opposed to conventional software like Microsoft Word, which although it may have collaborative features ('track changes') is not primarily social. (Those features could learn a lot from Social Software however.) The primary constraint of Social Software is in the design process: Human factors and group dynamics introduce design difficulties that are not obvious without considering psychology and human nature" (Webb, 2004, online).

Such understandings include a wide set of digital communication technologies; they are broad, inclusive definitions, such as the one of Shirky (2003, online): "Social software, software that supports group communications […]. Because there are so many patterns of group interaction, Social Software is a much larger category than things like groupware or online communities – though it includes those things, not all group communication is business-focused or communal. One of the few commonalities in this big category

is that Social Software is unique to the Internet in a way that software for broadcast or personal communications are not".

A similar definition is provided by Pascu et al. (2007, online) who describe "Internet 2" or "Social Computing" as technologies that "exploit the Internet's connectivity dimension to support the networking of relevant people and content". The user is an integral part in the production of content, tastes, emotions, goods, contacts, relevance, reputation, feedback, storage and server capacity, connectivity, and intelligence. The central feature is communication: "These applications build on the capacity of ICT to increase possibilities for interpersonal communication. Blogs, wiki, voice over IP, podcast, taste sharing and social networking services all increase the possibility of finding other people like us, and therefore enhance communication possibilities and their value". Coates (2005, online) gives examples for the technologies that are included: "Social Software can be loosely defined as software which supports, extends, or derives added value from, human social behaviour - message-boards, musical taste-sharing, photo-sharing, instant messaging, mailing lists, social networking".

danah boyd stresses that Social Software is about dynamic interaction: "The fact is that Social Software has come to reference a particular set of technologies developed in the post-web-bust era. In other words, in practice, 'Social Software' is about a movement, not simply a category of technologies. It's about recognizing that the era of e-commerce centred business models is over; we've moved on to web software that is all about letting people interact with people and data in a fluid way. It's about recognizing that the Web can be more than a broadcast channel; collections of user-generated content can have value. No matter what, it is indeed about the new but the new has nothing to do with technology; it has to do with attitude" (boyd, 2007, p. 17). Boyd argues that the specific characteristic of Web 2.0 is that it allows the appropriation of global knowledge in local contexts (Web 2.0 as glocalization of communication): "Web2.0 is about glocalization, it is about making global information available to local social contexts and giving people the flexibility to find, organize, share and create information in a locally meaningful fashion that is globally accessible. […] It is about new network structures that emerge out of global and local structures" (boyd, 2005, online).

3.3. A Co-Operation-Based View of Sociality and its Application to Web 2.0

A third understanding of the social is based on the notions of community and co-operation, as elaborated by Tönnies and Marx. For Ferdinand Tönnies co-operation is conceived in the form of "sociality as community". He argues that "the very existence of Gemeinschaft rests in the consciousness of belonging together and the affirmation of the condition of mutual dependence" (Tönnies, 1988, p. 69), whereas Gesellschaft (society) for him is a concept in which "reference is only to the objective fact of a unity based on common traits and activities and other external phenomena" (Tönnies, 1988, p. 67). Communities would have to do with harmonious consensus of wills, folkways, belief, mores, the family, the village, kinship, inherited status, agriculture, morality, essential will, and togetherness. Communities are about feelings of togetherness and values.

Marx discusses community aspects of society with the help of the notion of co-operation. The notion of co-operation can be traced back in its most pure form to the works of Marx and Engels who argued that co-operation is the essence of society, has become subsumed under capital in capitalism so that it is alienated labour, and is fully developed in a free society.

For Marx and Engels co-operation is the essence of the social: "By social we understand the co-operation of several individuals, no matter under what conditions, in what manner and to what end. It follows from this that a certain

mode of production, or industrial stage, is always combined with a certain mode of co-operation, or social stage, and this mode of co-operation is itself a 'productive force'" (Marx & Engels, 1846/1970, p. 50).

Co-operation would be the foundation of human being: "By the co-operation of hands, organs of speech, and brain, not only in each individual, but also in society, human beings became capable of executing more and more complicated operations, and of setting themselves, and achieving, higher and higher aims" (Engels, 1886/1960, p. 288). But co-operation would also be the foundation of capitalism: "A greater number of labourers working together, at the same time, in one place (or, if you will, in the same field of labour), in order to produce the same sort of commodity under the mastership of one capitalist, constitutes, both historically and logically, the starting-point of capitalist production" (Marx, 1867/1967, p. 322).

Capitalists would exploit the collective labour of many workers in the form of the appropriation of surplus value and co-operation hence would turn into alienated labour. This antagonism between the co-operative character of production and private appropriation that is advanced by the capitalist development of the productive forces would be a factor that constitutes crises of capitalism and points towards and anticipates a co-operative society: "The contradiction between the general social power into which capital develops, on the one hand, and the private power of the individual capitalists over these social conditions of production, on the other, becomes ever more irreconcilable, and yet contains the solution of the problem, because it implies at the same time the transformation of the conditions of production into general, common, social, conditions" (Marx, 1894/1967, p. 264).

The true species-being would only be possible if man "really brings out all his *species*-powers – something which in turn is only possible through the cooperative action of all of mankind" (Marx, 1844/1964, p. 177). For Marx a co-operative society is the realization of the co-operative Essence of humans and society. Hence he speaks based on the Hegelian concept of Truth (as the correspondence of Essence and Existence) of the "reintegration or return of man to himself, the transcendence of human self-estrangement", "the real *appropriation* of the *human* essence by and for man", "the complete return of man to himself as a *social* (i.e., human) being" (Marx, 1844/1964, p. 135). Marx speaks of such transformed conditions as "the co-operative society based on common ownership of the means of production" (Marx, 1875/2005, p. 1131) in which "the springs of co-operative wealth flow more abundantly" (Marx, 1875/2005, p. 1132).

The basic idea underlying Marx's notion of co-operation is that many human beings work together in order to produce goods that satisfy human needs and that hence also ownership of the means of production should be co-operative.

It is interesting that Marx already had a vision of a globally networked information system. Of course he did not speak of the Internet in mid-19th century, but he anticipated the underlying idea: Marx stresses that the globalization of production and circulation necessitates institutions that allow capitalists to inform themselves on the complex conditions of competition: "Since, 'if you please,' the autonomization of the world market (in which the activity of each individual is included), increases with the development of monetary relations (exchange value) and vice versa, since the general bond and all-round interdependence in production and consumption increase together with the independence and indifference of the consumers and producers to one another; since this contradiction leads to crises, etc., hence, together with the development of this alienation, and on the same basis, efforts are made to overcome it: institutions emerge whereby each individual can acquire information about the activity of all others and attempt to adjust his own accordingly, e.g. lists of current prices, rates of exchange, interconnec-

tions between those active in commerce through the mails, telegraphs etc. (the means of communication of course grow at the same time). (This means that, although the total supply and demand are independent of the actions of each individual, everyone attempts to inform himself about them, and this knowledge then reacts back in practice on the total supply and demand. Although on the given standpoint, alienation is not overcome by these means, nevertheless relations and connections are introduced thereby which include the possibility of suspending the old standpoint.) (The possibility of general statistics, etc.)" (Marx, 1857/1858/1993, pp. 160-161).

Although Marx here speaks of lists, letters, and the telegraph, it is remarkable that he saw the possibility of a global information network, in which "everyone attempts to inform himself" on others and "connections are introduced". Today the Internet is such a global system of information and communication, which represents a symbolic and communicative level of mechanisms of competition, but also poses new opportunities for "suspending the old standpoint" (cf. Fuchs, 2008).

Tönnies' and Marx's notions of the social have in common the idea that humans work together in order to produce new qualities of society (immaterial ones, i.e. shared feelings, in the case of Tönnies and material ones, economic goods, in the case of Marx).

The third understanding of Social Software and Web 2.0 in the Tönniesian sense is focused on technologies that allow community-building online. It is related to the concept of virtual communities, which gains new relevance by the rise of social networking platforms such as MySpace, Facebook, Friendster, StudiVZ, etc. Alby gives such an understanding of Social Software: "The notion of Social Software is normally used for systems, by which humans communicate, collaborate or interact in any other way. (…) As this seems to be too broad, another criterion for Social Software is that it must advance and support the formation and the self-management of a community; such a software should allow the community to rule itself" (Alby, 2007, p. 87, translated by the author). Alby distinguishes two forms of Social Software: Social Software focusing on communication (e.g. instant messaging, chat) and Social Software in which the content is produced or enhanced by a community (e.g. Wikipedia, discussion forums).

For Howard Rheingold et al. the concept of Social Software has to do with social networks that bring people together: "Social software is a set of tools that enable group-forming networks to emerge quickly. It includes numerous media, utilities, and applications that empower individual efforts, link individuals together into larger aggregates, interconnect groups, provide metadata about network dynamics, flows, and traffic, allowing social networks to form, clump, become visible, and be measured, tracked, and interconnected" (Saveri, Rheingold & Vian, 2005, p. 22).

Also for Thomas Burg social networks are the central feature of Social Software: "Social Software comprises all of the information and communication technologies that enable the digital networking of individuals and groups. [...] Social Software enables the development of ad-hoc, (non-)centralized networks between users. This kind of network is ostensibly, to borrow a phrase from emergence theory, more intelligent than the sum of the individual parts" (Burg, 2004, p. 8-9). Social software would be software that "fosters increasingly technologically supported social networking via the Internet" (Burg, 2003, p. 93). This would particularly include weblogs. Also Fischer (2006) focuses on the idea of social networking.

The idea of goods as emergent qualities of human co-operation, as outlined by Marx, is important for the third understanding of Web 2.0 and Social Software: Tim O'Reilly stresses network effects that stem from the participation of many and collective intelligence as important features of Web 2.0. O'Reilly (2005a) mentions as the main characteristics of Web 2.0: radical

decentralization, radical trust, participation instead of publishing, users as contributors, rich user experience, the long tail, the web as platform, control of one's own data, remixing data, collective intelligence, attitudes, better software by more users, play, undetermined user behaviour. He provides the following more formal definition: "Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an 'architecture of participation', and going beyond the page metaphor of Web 1.0 to deliver rich user experiences" (O'Reilly, 2005b, online). That co-operation produces collective knowledge on the web also points towards a transformation in which readers become writers. Hence Dan Gillmor (2006) argues that the web has been transformed into a read/write-web in which users can "all write, not just read, in ways never before possible. For the first time in history, at least in the developed world, anyone with a computer and Internet connection could own a press. Just about anyone could make the news" (Gillmor, 2006, p. 24).

Based on O'Reilly several authors have developed similar concepts of Web 2.0 as platform for co-operation. For Paul Miller (2005) the central principles of Web 2.0 are freeing and remixing of data so that virtual applications that draw on data and functionalities from different sources emerge, participation, work for the user, modularity, the sharing of code, content, and ideas, communication and the facilitation of community, smart applications, the long tail, and trust. Web 2.0 is a "label applied to technologies, services and social networks that build upon the Web as a computing platform rather than merely as a hyperlinked collection of largely static webpages. In practice, services dubbed Web 2.0 reflect open standards, decentralized infrastructure, flexibility, simplicity, and, perhaps most importantly, active user-participation. Examples: blogs, wikis, craigslist.com, del.icio.us, and Flickr" (Stefanac, 2007, p. 237). The free online encyclopedia Wikipedia (2007b) defines "Web 2.0, a phrase coined by O'Reilly Media in 2003 and popularized by the first Web 2.0 conference in 2004, refers to a perceived second generation of web-based communities and hosted services – such as social-networking sites, wikis and folksonomies – which facilitate collaboration and sharing between users". Peter Simeon Swisher (2007, p. 33) speaks of Multimedia Asset Management 2.0 (MAM 2.0), which he defines as the "managed web" that allows "live collaborations between the publisher and the audience". It improves the more it is used and the more open it is: "Under MAM 2.0, open, collaborative models connect media, metadata, end users and production tools via the web in fully networked and user-driven ways. [...] It enables greater collaboration between entire communities of users; content producers and consumers will be able to learn from each other on a scale previously unimagined" (Swisher, 2007, p. 41). Kolbitsch and Maurer (2006) argue that co-operation is central to Web 2.0 in the sense that knowledge would emerge that would be larger than the sum of individual knowledge. Tapscott and Williams (2006) speak of the new web, which they define as "a global, ubiquitous platform for computation and collaboration", that is about "communities, participation, and peering" (Tapscott & Williams, 2006, p. 19).

Based on these three understandings of Social Software and Web 2.0, I summarize the main points in the table below (see table 2).

These three types of understandings discussed so far are not mutually exclusive, there are hybrid forms in all combinations. In literature we find for example definitions of Social Software as platforms for communication and co-operation: "Social software uses the web as a collaborative medium that allows users to communicate, work

Table 2. Different understandings of Social Software and Web 2.0

	Approach	Sociological Theory	Meaning of Social Software and Web 2.0
1	Structural Theories	*Emile Durkheim:* Social facts as fixed and objectified social structures that constantly condition social behaviour.	All computers and the Internet are social because they are structures that objectify human interests, understandings, goals, and intentions, have certain functions in society, and effect social behaviour.
2	Social Action Theories	*Max Weber:* Social behaviour as reciprocal symbolic interaction.	Software that enables communication over spatio-temporal distances.
3	Theories of Social Co-operation	*Ferdinand Tönnies:* Community as social systems that are based on feelings of togetherness, mutual dependence, and values. *Karl Marx:* The social as the co-operation of many humans that results in collective goods that should be owned co-operatively.	Software that enables the social networking of humans, brings people together and mediates feelings of virtual togetherness. Software that by an architecture of participation enables the collaborative production of digital knowledge that is more than the sum of individual knowledge, i.e. a form of collective intelligence.

together and share and publish their ideas and thoughts – and all this is done bottom-up and with an extremely high degree of self-organisation" (Rollett, et. al., 2007, p. 7). Social software would include wikis, blogs, and social bookmarking. There are also combinations of the features of public communication and community-building, such as "those online-based applications and services that facilitate information management, identity management, and relationship management by providing (partial) publics of hypertextual and social networks" (Schmidt, 2007, p. 32). For Schmidt not all software is per se Social Software. E-mail, e-governance and e-commerce would be mainly interpersonal, whereas tools like blogs, wikis, or social network platforms would have a *public* character. Schmidt considers only the latter as Social Software. Therefore, Social Software would be about finding, rating and sharing information (information management), presentation of oneself to others (identity management) and creating and maintaining social relationships (relationship management).

Wikipedia's definition is a combination of the dimensions of communication, community, and co-operation: "Social software enables people to rendezvous, connect or collaborate through computer-mediated communication" (Wikipedia, 2007a). Wikipedia lists the following types of Social Software: instant messaging, chat, forums, blogs, wikis, collaborative real-time editing, prediction markets, social network services, social network search engines, social guides, social bookmarking, social citations, social libraries, virtual worlds, and peer-to-peer social networks. Klobas focuses on all three dimensions – information, communication, collaboration/community-building: "Social software is software that facilitates social interaction, collaboration and information exchange, and may even foster communities, based on the activities of groups of users. In its broadest sense, Social Software includes any software tool that brings people together and 'supports group interaction'. Tools as simple as the cc: function in e-mail can be considered Social Software, but the term is more often used to refer to several separate bundles of systems that evolved in the early twenty-first century. The most frequently cited of these are social classification systems, blogs and wikis" (Klobas, 2006, p. 1).

The discussion of various definitions of Social Software and Web 2.0 shows overall that there is no clear unified understanding. The definitions are fragmented and lack a common ground. For establishing such a general view that allows to connect different definitions, social theory and social philosophy are needed in order to contribute to the grounding of an integrative view.

4. AN INTEGRATIVE VIEW OF SOCIALITY

Actually, it makes sense to develop an integrative view of these three sociality types rather than to look upon them as separate ones. There are two reasons for that: first, the structural, the action, and the cooperation type of sociality can easily be integrated in the way the Aristotelian *genus proximum* and *differentia specifica* are linked together: Durkheim's notion of the *fait social* is the most abstract notion. As such it also applies to actions that – in the sense of Weber – are directed towards other members of society and, beyond that, to the production of common goods within a community in the Tönniesian and Marxian sense.

Defining sociality in the mode Weber does can be seen as making the case for a more concrete and more particular type of sociality than the Durkheimian one: the latter underlies the former. And the Tönnies–Marx concept, finally, is still less general and a subcategory of the Weberian one. Thus they form a kind of hierarchy in which the successor is a logical modification of the predecessor: it takes place under certain constraining conditions.

Second, there is an analogous relationship between the three forms in which information processes occur in society: cognition, communication, and co-operation processes. These processes relate to each other in a way that reflects and resembles the build-up of a complex system. One is the prerequisite for the other in the following way: in order to co-operate you need to communicate and in order to communicate you need to cognise.

Therefore I suggest an integrative view of how sociality is manifested in Social Software. If the Web is defined as a techno-social system that comprises the social processes of cognition, communication and cooperation altogether, then the whole Web is Durkheimian, since it is a *fait social*. What in the most widespread usage is called Social Software – that is, that part of the Web that realizes communicative as well as cooperative societal roles – is, in addition, social in the Weberian sense, while it is the community-building and collaborative part of the Web that is social only in the most concrete sense of Tönnies and Marx too. To put it in another way: that part of the Web that deals with cognition only is exclusively Durkheimian without being Weberian, let alone Tönniesian–Marxian; that part that is about communication including cognition is Weberian and Durkheimian; and only the third, co-operative, part has all three meanings. I suggest ascribing to these parts the terms Web 1.0, Web 2.0 and Web 3.0, accordingly (see table 3). Web 1.0 is a computer-based networked system of human cognition, Web 2.0 a computer-based networked system of human communication, Web 2.0 a computer-based networked system of human co-operation.

The level of information (cognition, communication, co-operation) and the type of temporality characterize networked computer technologies. Synchronous temporality means that users are active at the same time ("in real time"), asynchronous temporality that users' actions are temporally

Table 3. Integrative and dynamic understanding of Social Software and Web 2.0

Approach	Sociological Theory	Meaning of Social Software and Web 2.0
An Integrative and Dynamic Approach	*Emile Durkheim*: cognition as social due to conditioning external social facts *Max Weber*: communicative action *Ferdinand Tönnies, Karl Marx*: community-building and collaborative production as forms of co-operation	The Web as dynamic threefold knowledge system of human cognition, communication, and co-operation: Web 1.0 as system of human cognition. Web 2.0 as system of human communication. Web 3.0 as system of human co-operation.

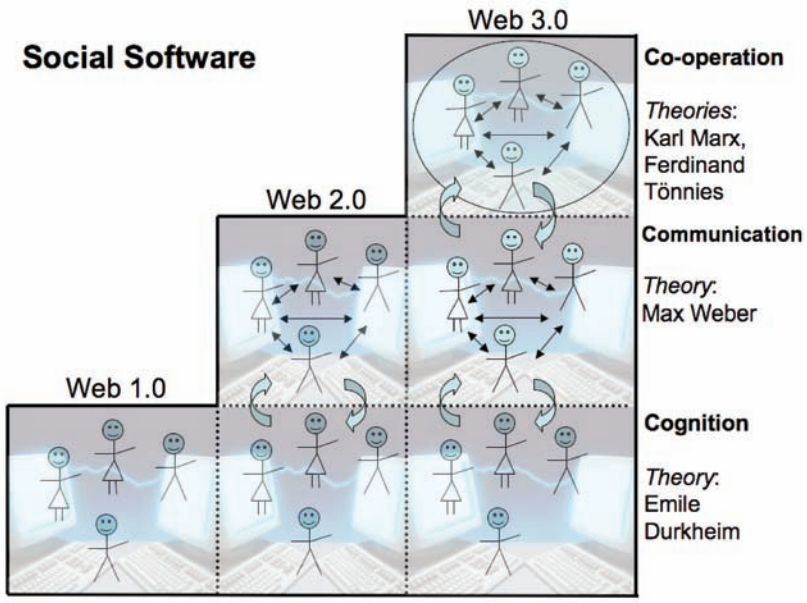
disembedded. In both cases technology enables a spatial disembedding of users. Another aspect of network technologies is the type of relationship they enable: one-to-one-relationships (o2o), one-to-many-relationships (o2m), or many-to-many-relationships. o2o technologies allow one user to reach one other, o2m-technologies allow one user to reach many others, and m2m-technologies allow many users to reach many others. The following table provides a typology of Internet technologies characteristic for each of the three aspects of information. It shows which technologies belong to the three levels of Web 1.0, 2.0, and 3.0.

Figure 2 shows how the three types of the Web are connected in an overall model. In Web 1.0, human individuals cognize with the help of data that they obtain from a technologically networked information-space. Web 2.0 as system of communication is based on Web-mediated cognition: Humans interact with the help of symbols that are stored, transmitted, and received with the help of computers and computer networks. Web-mediated cognition enables web-mediated communication and vice versa. There is no communication process without cognition. In Web 3.0, a new quality emerges that is produced by communicative

Table 4. A typology of Web technologies (Source: Fuchs, 2008)

	Synchronous	**Asynchronous**
Cognition (Web 1.0)	Peer-to-peer networks for file-sharing (o2o, m2o, o2m)	websites (o2m), online journals (o2m, m2m), alternative online publishing (e.g. Indymedia, Alternet, o2m, m2m), online archives (o2m, m2m), e-portfolio (o2m), Internet radio/podcasting (02m) social bookmarking (o2m, m2m) social citation (o2m, m2m) electronic calendar (o2m) Real Simple Syndication (RSS, o2m)
Communication (Web 2.0)	Chat (o2o, o2m, m2m), instant messaging (o2o, o2m), voice over IP (o2o, o2m, m2m), video conferencing systems (o2o, o2m, m2m)	E-mail (o2o, o2m), mailing-lists (m2m), bulletin board systems (usenet, m2m), web-based discussion boards (m2m), blogs (o2m, m2m), video blogs (v-blogs)/photo blogs (o2m, m2m), group blogs (m2m), social network services (e.g. online dating and friendship services like MySpace, o2o), social guides (o2m, m2m), mobile telecommunication (e.g. SMS and cellular phones; o2o, o2m), online rating, evaluation, and recommendation systems (e.g. tripadvisor, eBay- and Amazon Market Place-user ratings, listing of similar items at Amazon, o2m, m2m)
Co-operation (Web 3.0)	Multi User Dungeons (MUDs) (o2o, o2m, m2m), MUDs Object-Oriented (MOOs) (o2o, o2m, m2m), graphical worlds (o2o, o2m, m2m), MMORPG (Massive Multiplayer Online Roleplaying Games, o2o, o2m, m2m) Synchronous groupware (collaborative real-time editing shared whiteboards, shared application programs, m2m)	wikis (m2m), shared workspace systems (e.g. BSCW) (m2m), asynchronous groupware (m2m), knowledge communities (e.g. Wikipedia)

Figure 2. A model of social software and its three subtypes



actions. A certain cohesion between the involved humans is necessary. Web-mediated communication enables web-mediated co-operation and vice versa. There is no co-operation process without communication and cognition. The three forms of sociality (cognition, communication, co-operation) are encapsulated into each other. Each layer forms the foundation for the next one, which has emergent properties. By the term "web" is not only meant the World Wide Web, but any type of techno-social information network, in which humans are active with the help of networked information technologies.

All academic knowledge is shaped by political values. Some scholars admit this actively and talk about these values, whereas others claim that academic can and should be value-free and politically neutral. Consider for example papers that show the potentials that social software such as wikis or blogs have for transforming corporate business organization, strategies, and practices. Although some of the scholars engaging in such research will deny any political dimension, political values such as business growth, profit-orientation, productivity, etc are immanently built into such research because academic is shaped by and shaping its larger economic, political, and societal context. It therefore makes sense to actively engage with the political and normative implications of ones own work. Immanuel Wallerstein (2007) argues that all academic knowledge has an intellectual, a moral, and a political function and that all scholars are always doing all three functions. All three functions "are always being done, whether actively or passively. And doing them actively has the benefit of honesty and permitting open debate about substantive rationality" (Wallerstein, 2007, p. 174).

Andrew Keen, author of the book *The Cult of the Amateur: How Today's Internet is Killing Our Culture* (Keen 2007), argues that Web 2.0 rhetoric has a political agenda shares Marxist political goals (Keen 2006): "Empowering citizen media, radically democratize, smash elitism, content redistribution, authentic community. (…) This sociological jargon, once the preserve of the hippie counterculture, has now become the lexicon of new media capitalism. (…) Yet this entrepreneur

owns a $4 million house a few blocks from Steve Jobs's house. He vacations in the South Pacific. His children attend the most exclusive private academy on the peninsula. But for all of this he sounds more like a cultural Marxist – a disciple of Gramsci or Herbert Marcuse – than a capitalist with an MBA from Stanford.In his mind, "big media" –the Hollywood studios, the major record labels and international publishing houses--really did represent the enemy. The promised land was user-generated online content. In Marxist terms, the traditional media had become the exploitative 'bourgeoisie,' and citizen media, those heroic bloggers and podcasters, were the 'proletariat.' (…) Empowered by Web 2.0 technology, we can all become citizen journalists, citizen videographers, citizen musicians. Empowered by this technology, we will be able to write in the morning, direct movies in the afternoon, and make music in the evening. Sounds familiar? It's eerily similar to Marx's seductive promise about individual self-realization in his German Ideology: 'Whereas in communist society, where nobody has one exclusive sphere of activity but each can become accomplished in any branch he wishes, society regulates the general production and thus makes it possible for me to do one thing today and another tomorrow, to hunt in the morning, fish in the afternoon, rear cattle in the evening, criticise after dinner, just as I have a mind, without ever becoming hunter, fisherman, shepherd or critic.' Just as Marx seduced a generation of European idealists with his fantasy of self-realization in a communist utopia, so the Web 2.0 cult of creative self-realization has seduced everyone in Silicon Valley" (Keen 2006).

Keen sees Web 2.0 as a dangerous development and argues that a new Web 2.0 communism will put an end to traditional culture and society. "Without an elite mainstream media, we will lose our memory for things learnt, read, experienced, or heard" (Keen 2006). The fear that haunts him seems to be the fear that capitalism and corporate interests are challenged and could sometime cease to exist.

Personally I do not think that the Internet will bring about a new form of communism. Such an assumption is one-dimensional and techno-deterministic, it overlooks that social relations and struggles shape our technologies. Phenomena like online advertising on Web 2.0 platforms that create profits for corporations like Google, MySpace, or Facebook show that the Internet and the world of open access, open source, peer-to-peer, etc is perfectly compatible with capitalist interests. Nonetheless the Internet has certain qualities that threaten to question capitalism, while at the same time they can be used for substantiating it: The Internet allows to easily and cheaply copy, share, and globally distribute data, which has resulted in a tendency to share copyrighted materials for free so that media corporations feel threatened. Therefore to a certain extent Keen is right in his argument: There is a potential for Utopian Marxism in the Internet. But that is only one side of the story. My assessment in contrast to Keen is that this potential is not, but opens up possibilities for a truly participatory democracy beyond capitalism. There is a normative vision associated with the Internet, and it can be found in the concept of Web 3.0.

My argument is that a Marxian vision of a co-operative and participatory society is urgently needed today and that the vision of Web 3.0 is one of a co-operative, non-commercial, non-profit, non-commodified Internet. In order to be realistic one has to say that the Internet is today dominated by corporate interests and that it is far from being such a co-operative space, although some elements, systems, and platforms that anticipate Web 3.0 clearly are present. So to talk about Web 3.0 becomes a normative and political task.

Why was Marx right with his vision of a participatory democracy? Why should the Internet be freely accessible for all, non-commercial (=not advertising-based), non-profit, and non-

commodified? Why does a public access model of the Internet make sense?

A commodified, corporate, commercialized Internet is:

- **Undemocratic**: If certain parts of the Internet (such as web platforms or social networking platforms) are owned privately, then decisions on how these technologies should be shaped and developed are not taken collectively by the users, but only by the owners.
- **Exploitative**: The material profit generated by selling the audience to advertisers only benefits the private owners who accumulate capital by exploiting users. The users do not benefit materially in terms of money.
- **Unequal**: As a result of capital accumulation on the Internet, the unequal relative distribution of wealth between capitalists and the rest of society is advanced.
- **A form of surveillance**: Advertising is in need of surveillance of consumer tastes. Therefore advertisement-based platforms like Google or MySpace are large surveillance machines that pose threats to privacy.
- **Individualistic**: Advertising advances consumerism and individualism. Advertising-based platforms address users primarily as consumers, not as citizens. It is no surprise that advertising-based platforms like MySpace are strictly individually oriented (individual profiles, accumulation of friends, etc.), they advance bourgeois conservative values, whereas non-advertising-based platforms like Wikipedia can advance collective values and co-operation.
- **Representing conservative and corporate interests that can exert pressure and minimize the visibility of left-wing thought**: Advertisement platforms are based on the financing of corporations, which represent conservative business interests and therefore are likely to intervene if radical left-wing content or debate is present, which will eventually result in direct or indirect censorship. Also the immanent character of private media as capitalist institutions tends to favour values that more support than challenge existing society: Corporations have a natural interest in the status quo because they benefit from it at the expense of others. "Many firms will always refuse to patronize ideological enemies and those whom they perceive as damaging their interests, and cases of overt discrimination ad to the force of the voting system weighted by income. Public-television station WNET lost its corporate funding from Gulf + Western in 1985 after the station showed the documentary 'Hungry for Profit,' which contains material critical of multinational corporate activities in the Third World. (…) In addition to discrimination against unfriendly media institutions, advertisers also choose selectively among programs on the basis of their own principles. With rare exceptions these are culturally and politically conservative" (Herman & Chomsky, 1988, p. 17).
- **Tending towards the introduction of fees (commodification)**: There is heavy competition for advertisements. Those who loose in this race might feel the need to introduce fees for their services. Capitalism is inherently crisis-ridden. Once there is an economic crisis like the "New Economy" crisis in 2000, Internet corporations will tend to introduce fees for their services. All such commodification processes creates classes of losers and winners – those who can afford buying services and access and those who cannot or who can only afford cheaper services with less quality. "Not only does the nature of cultural production and distribution under capitalist market conditions

tend increasingly to limit diversity of provision and to place control of that provision in fewer and fewer hands and further and further from the point of consumption, the structure of the market also distributes what choice there is available in a highly unequal way. There is a tendency towards a two-tier market structure in which choice, being increasingly expensive, is offered to upper-income groups, while an increasingly impoverished, homogenized service is offered to the rest" (Garnham, 1990, p. 125).

- **Tending towards economic concentration**: Capitalist competition generates concentration and monopolies, also in the realm of the Internet (e.g. Google). Monopolies can control public opinion, consumer tastes, values, etc.
- **Based on class-divided (1) physical connection:** If physical connection to the Internet costs money, there will be a class-divided access structure. The rich will have more access than the poor and will have the best access possibilities.
- **Based on class-divided (2) usage and benefit access:** Internet content and platforms are not all freely accessible. Many services cost money, sometimes the basic features are for free, advanced features not. This generates a class-separation – the rich have access to more and better services from which they can better benefit.
- **Based on class-divided (3) visibility:** The rich tend to have better education, more and better contacts, more prestige, visibility, influence, etc. Therefore they are more visible on the Net, also on platforms like MySpace, which increases their visibility, which can increase their reputation and material resources, which can in turn again increase their visibility on the Net, etc. This vicious cycle tends to enforce existing class relations. Dominant classes will be much more visible on the Internet than others.
- **Separating the public and minimizing the chances for the emergence of a universal political public sphere**: If there are many competing platforms, then users will be distributed across these platforms. Political public spheres require the equal access to one medium of debate. Commercialism and competition will fragment the public. As a consequence, no political public sphere will be possible on the Internet.

Creating a public access model of the Internet requires non-commodified social spaces. Public access models are superior to market and commodity models of media, culture, and communication because it provides "all citizens, whatever their wealth or geographical location, equal access to a wide range of high-quality entertainment, information and education" (Garnham, 1990, p. 120).

5. FUTURE RESEARCH DIRECTIONS

The sociology of the Web and new media is a growing research area. Various categories have been suggested for giving a label to this field: new media research, information society studies, Internet research, or social informatics. In a network meeting at the University of Salzburg in June 2008, 50 international scholars who are active in this field, agreed that Information and Communication Technologies & Society (ICTs & Society) best describes the new emerging field. Thus far, ICTs & Society research is mainly oriented on micro-level empirical studies, basic philosophical and theoretical questions are hardly asked and tried to answer. Nonetheless such work is urgently needed because many new categories have emerged that are used in the public and by academia in order to describe how ICTs shape society and vice versa: Web 2.0, social software,

digital economy, Internet economy, Wikinomics, online politics, digital democracy, eParticipation, information war, online public sphere, cyberprotest, cyberactivism, electronic surveillance, virtual community, cyberstalking, cybercrime, cybersex, cyberpornography, cyberculture, cyberhate, cyberlove, social networking platforms, etc. In order to provide definition of basic terms and to answer basic philosophical and ethical questions that relate to ICTs, the whole history of philosophy and social theory needs to be reassessed and parts of it can be applied to ICTs & Society (cf. Fuchs, 2008), which will also require to further develop these approaches. Much work remains to be done in the field of ICTs & Society theory and philosophy.

6. CONCLUSION

In this chapter, I have outlined three evolutionary levels of Internet development, namely Web 1.0 as a tool for thought, Web 2.0 as a medium for human communication and Web 3.0 technologies as networked digital technologies that support human co-operation.

This means that I distinguish between a cognitive Web, a communicative Web, and a co-operative Web. The discussion in part 2 of this chapter has shown that when people speak of Social Software or Web 2.0 what they normally mean is that the Internet now is dominated by communication and co-operation (including community-formation). In order to distinguish between these two aspects I have suggested the distinction between Web 2.0 and Web 3.0. Hypertext is a Web 1.0 technology, blogs and discussion boards are Web 2.0 technologies, wikis are Web 3.0 technologies. Web 1.0 is based on an understanding of the social as Durkheimian social facts, Web 2.0 adds the Weberian idea of communication, Web 3.0 the Marxian idea of collective co-operative production and Tönnies' idea of communities. I have argued that the social on the Web is evolving from a Durkheimian conception towards a Weberian one and eventually in the future towards a Marxian and Tönniesian understanding. Web 3.0 expands the understanding of the social from Durkheim and Weber to Tönnies and Marx, it is a system of online collaboration that enables the formation of virtual communities, co-operative knowledge, co-operative labour.

What I argue for is that the turn towards Web 3.0-technologies that foster co-operation should not only remain a technological turn, as for example the Semantic Web or wikis, but needs to be accompanied by a transformation towards a fully co-operative society (cf. Fuchs, 2008). What is desirable is, that the Internet is networking individuals, organizations, institutions and societies at a global level and thus provides the glue by which cohesion of the emerging world society can be supported. The Internet provides the material underpinning of the consciousness that is inherent to the social system that may emerge. Eventually, its role may be that of a catalyst of global consciousness in a global society. But at the same time, it catalyzes social antagonisms already there. The Internet does not automatically bring about co-operative social systems and a co-operative society. In order to reach a "co-operative society based on common ownership of the means of production" (Marx, 1875/2005, p. 1131) in which "the springs of co-operative wealth flow more abundantly" (Marx, 1875/2005, p. 1132), humans need to actively create co-operative systems that transcend domination. In this context, the Internet can help to create such change, but at the same time it today also helps to deepen domination. The Web will become truly co-operative only if humans establish a truly co-operative society in the Tönniesian and Marxian understanding, in which society and technology mutually shape each other in a sustainable way.

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KEY TERMS AND DEFINITIONS

Co-operation: Co-operation is a sociological term that on the one hand has the meaning of the production of new qualities and structures by many people who act together. On the other hand the term is frequently opposed to competition and individualization. Karl Marx saw co-operation as a central feature of all societies. In modern, capitalist society, technology would bring about new potentials for co-operation, but these could not be fully realized due to the dominance of private property and capital. He spoke in this context of the antagonism between the productive forces and the relations of production. Marx's vision was a co-operative society that he envisioned as a participatory democracy

Community: Community is a key sociological term that is used in normative and political contexts. The German sociologist Ferdinand Tönnies defined a community as a system that is shaped by the consciousness of belonging together and the affirmation of the condition of mutual dependence.

Social action: Social action is a key term in action sociology. Its founder was the German sociologist Max Weber, who defined social action as behaviour that takes into account and gives meaning to the behaviours of others. It is action that is oriented on the actions of others

Social facts: Social fact is a key category in functionalist and structuralist sociology. The French sociologist Emile Durkheim introduced the term. For Durkheim, social facts are ubiquitous social structures that are independent of the individual and constrain human thinking and action

Social software: This category brings up the theoretical question which software should be considered as social. Based on a broad notion of Durkheimian sociality, all software is social because it is a social fact. Based on a Weberian understanding, only software that allows communication is social. Based on a Tönniesian understanding, only software that supports virtual communities is social. Based on a Marxian approach on sociality, only software that supports co-operation is truly social. An integrative view sees these notions as encapsulated and connected and distinguishes various levels of sociality of the software and ICTs

Web 1.0: Web 1.0 is a techno-social system of cognition. Networked information technologies are used as medium that allows humans to publish their ideas and to engage with the ideas of others. Examples are html-based websites.

Web 2.0: Web 2.0 is a techno-social system of communication. Networked information technologies are used as medium that allows humans to interact. Examples are e-mail, chat, or discussion forums

Web 3.0: Web 3.0 is a techno-social system of co-operation. Networked information technologies are used as medium that allows humans to produce something new together or to form cohesive social relations that are bound by feelings of togetherness and belonging. An example for the first are wikis and for the second social networking platforms.

ENDNOTES

1 Source: http://www.quantcast.com/top-sites-1, last accessed on September 18th, 2007.

2 The cognitive structural patterns that are stored in neural networks within the brains of individual human agents can be termed subjective knowledge.

3 Translated from German by the author: "In der Tradition Emile Durkheims sehe ich das Internet als ‚soziale Tatsache' (fait social), die fast jeder wahrnimmt, über die viele von uns sich im täglichen Umgang austauschen, die wir *internalisieren*" (Dringenberg, 2002, p. 136).