Social Media and Self-Organization: Potentials for Knowledge Processes and Social Change

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Communication via Network Hypermedia is a basic exchange principle in the Network Society. This is accompanied by an ongoing hybridization of the human-machine interface: both elements mingle on different levels. The access to communication platforms and Social Media is ubiquitous due to multiple interfaces (Mobile Computing). The multiplication of access possibilities has highly contributed to the success of these forms of media.

The communication processes over channels of Social Media can particularly be seen as paradigmatic for realization of the Network Society. Social Media entail applications that enable a high degree of interaction with the users. Internet users publish information themselves and engage in knowledge processes (generating, distributing and applying knowledge).

The trend indicators clearly show that Social Media are becoming the dominant form of media. As of March 2011, the Social Networking Site (SNS) Facebook had 664,5 mio. users, and it still has a high growth tendency (SocialMediaSchweiz 2011). Europe-wide 77% of 13-16-year-olds have a profile on an SNS (EU Kids Online 2011).

Theory of Self Organization (TSO) enables the building of system models with the help of process-related and evolutive schemes which are more adequate for the level of complexity of these systems than causal-deterministic models. Self-organizing systems are characterized through non-linear operators which generate macroscopic stable patterns kept by a dynamic (flow-)equilibrium (Foerster 1993, 75). As ontologically neutral system science, TSO is equally becoming the core of both natural and social sciences (Götschl 2006, 55-57).

The categories of self-organization will be consequently applied to knowledge processes, which can be found in numerous forms of digital networks. An analysis of knowledge processes from a systems perspective shows the following characteristics: Systems are not in (energy and knowledge) equilibrium, they are capable of auto-synthesis and they have the (limited) capability for damage repair (e.g. vandalism), micro-processes are cooperative, they can create categories (e.g. Wikipedia) or hierarchies and they are open systems. Additionally, there is the possibility of structural coupling, which enables a higher rate of interaction, e.g. through Social Media.

There are four basic dominant characteristics in social networks (fig. 1). These characteristics need to be represented in the system and they have to be in a dynamic state of equilibrium.

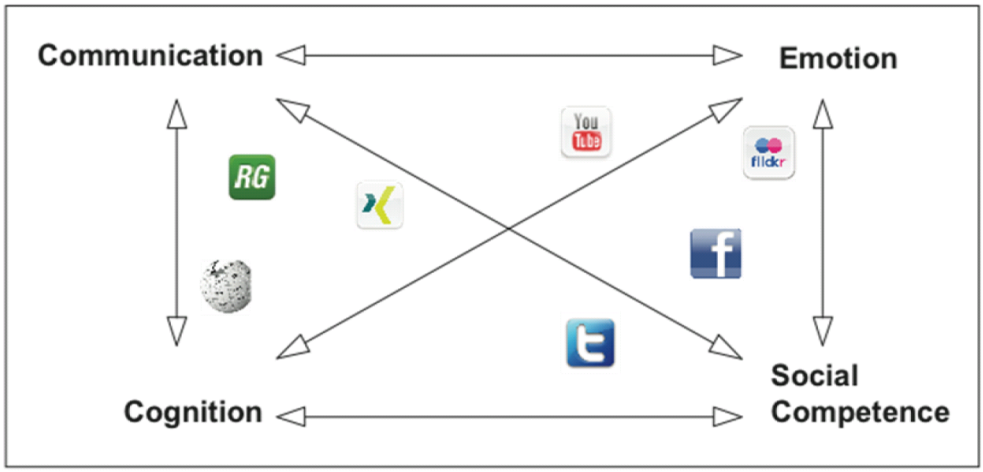

Figure 1: Basic Characteristics of Social Networks

The most successful Wiki-project worldwide is the multilingual, open-access Online-Encyclopedia Wikipedia offered in about 270 languages, where mostly anonymous volunteers take care of the content. Principally, every Wikipedia user can become a contributor (Wikipedia 2011a).

Wikipedia is an operationally closed, but an informationally open system. Even though there have been different levels of openness since the foundation of the online encyclopedia, every user can still make contributions or changes. Due to the development of hierarchies (roles) within Wikipedia, we might witness a development towards a more closed system in the future. The communication and socialization structures of Wikipedia are quite complex. An interplay can be observed between self-organization and external organization. The constant fluctuations and symmetry breaking which can be observed are possibly the presuppositions for system development and stability.

Wikipedia as an open system is generating itself through the interaction of its users. There is no preexisting scheme, neither regarding taxonomy, nor regarding the content. What we can see today in Wikipedia is to a very large extent the result of a self-organizing process. The process of sorting out unencyclopedic material is done through content guidelines (Ayers, Matthews & Yates 2008, 11). A well-documented matter which is often used against Wikipedia is vandalism (Bruns 2008, 124); however, such cases, though broadly discussed, are quite rare, because cooperative micro-processes play an important role in Wikipedia. All contributors are simultaneously users and principally interested in finding correct information. Vandalism is restrained by common effort and the content is continuously improved. What we can encounter are (un)deliberate incorrect entries which are available only for a very short time span before they are removed. Because of the structure of the system, mainly the easy to do edit process and the undo-function, there is a solid basis for ensuring that the incorrect,

or the unverifiable assertion will not stay in the system. The central characteristic of an encyclopedia is that it consists of only verified information; this demand can be met more appropriately than in traditional channels, such as an editorial office which is often closed for outside influences. The difference - seen from a systems perspective - lies in a much better possibility of structural coupling in Wikipedia.

Additionally, Wikipedia has developed guidelines which require specific validity criteria: information must be verifiable. These regulations were developed again mainly by the community itself. This shows that the system can react to outside criticism and that it can control the quality of the project in a self-organized way.

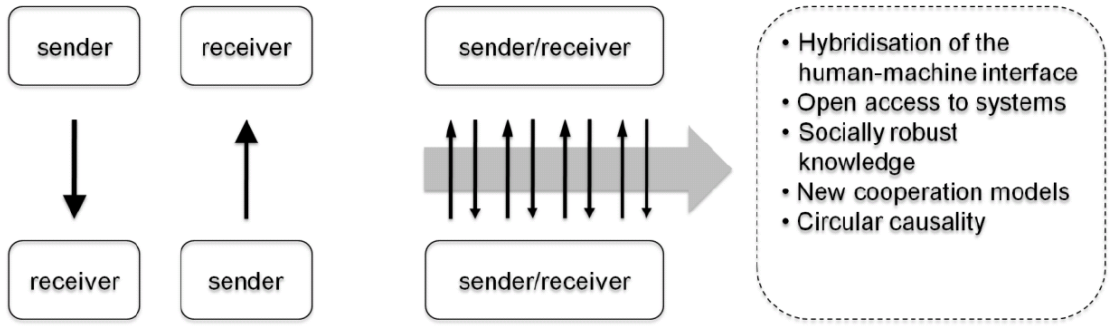

Figure 2: Circular Causality through Social Media

An increasing number of forms of bottom-up causality can be found in contemporary contexts: employee participation in companies, patient advocacy, etc. These initiatives push back the hierarchically organized top-down causality. Also the numerous initiatives in the area of transparency of data in the administration and governments fall in this category. Similarly to the TSO, when describing social phenomena, you get to the model of circular causality through combining the two chains of cause and effect. We can observe the following from the Wikipedia example: the (approximate) equality of participants as contributors reduces top-down approaches in knowledge processes (fig. 2). This presupposes the opening of the communication channels of the system, which makes (egalitarian) knowledge exchange possible in the first place and shows that structures have to be designed in a way that cooperation is possible at all (structural coupling).

Through circular causality participants become more autonomous. The participants contribute their knowledge regardless of formal and hierarchically organized competences. Although the participation still can be anonymous, it is quite clear to every user that the entries may be traced back and identified. This also implies a (restricted) portion of responsibility.

The development of Free Software is another example of collaborative knowledge work. The

developer‟s community of Free Software shows strong characteristics of self-organization. Centered around specific problems, the communities whose members are ready to provide resources for the project development. The counterpart to Free Software is proprietary software which is commonly linked to a paid license model. The source code is usually inaccessible to users (*closed source*). While with this model we have a 1:n-relation producer to user, with Open Source Free Software every user is potentially also a producer.

The Linux example shows this and makes it clear that we are dealing with a new form of development. Eric S. Raymond refers to the traditional Free Software development model as the “Cathedral” model: big software projects need central control, releases should be prepared well and they should not happen too often. On the other side, Linus Torvalds encouraged early and frequent releases. The aim of this approach was letting as many users as possible take part in the development process through feedback. Everyone can take part, that is why this method can be called the “Bazaar” (Raymond 2001, 21).

Participation is, however, only probable if there is a user-group of relevant size. Through the open source code everyone who can read it, can also spot problems and come up with possible solutions. The whole development process is usually accelerated (Raymond 2001, 27). Through this circular-causality approach, the collective knowledge of the user‟s community is used to enhance the development process.

At the same time, from a systems perspective, this example shows how communities of the Open-Source-Movement are capable of auto-synthesis and of damage repair. While with proprietary software only the producer can correct errors, the capacity for solving problems within the community may be much higher under certain conditions (e.g. sufficient size of the user community).

The challenges of a contemporary analysis lie in the homogenization between scientific-technological progress and the realization of the humankind‟s potential for humanization. We are looking for transitions between information- and knowledge dynamics, on the one hand, and the change of ethics, on the other hand. Some aspects of the change of knowledge processes indicate that the humankind realizes greater humanistic potentials. A more knowledgeable person reacts in a more respectful and a more sensitive way to problems and to fellow men. In societies with greater knowledge and higher educational standards, consensual decision patterns are more stable and more sustainable. The notion of responsibility itself seems to be closely linked to the knowledge of the actors. The one who knows more about the consequences of their own actions will act more cautiously. Consequently, the knowledge and conscience aspects are closely connected according to second order cybernetics (Foerster 1993). Furthermore, conscience can be seen as a part of knowledge, because considering the moral evaluation of the action, there is nothing more

expressed by conscience but the subjective state of mind. What has been done has to be judged on the basis of the action itself and the knowledge of the actor. From a cybernetics perspective, the quest for ethical principles is knowledge-based, including the aspect of sociality. It turns out that conscience as a specific form of knowledge enables actors to evaluate the consequences of their actions within a social context. Additionally, because of this fact, there seems to be convergence between the categories of knowledge and humanitarianism.

Societies which enable free access to knowledge (including data bases) are more democratic and show more consideration for human rights. New Media are promoting these democratic tendencies. Similarly to other contexts, it can be observed that Social Media have a role in raising the levels of personal freedom in the long run exactly because they enable action according to Heinz von Foerster´s ethical imperative, namely to act so as to increase the number of choices (Foerster 1993, 147).

This is widely in concordance with the socio-political governance models of society, which tendencially have to acknowledge loss of power of centrally controlled politics in favour of polycentric control systems, mainly organized as social self-governance (Willke 2001, 333). Here you can find many competing guiding ideas whose relevance is determined by the ongoing communication processes. The possibility of structural coupling within highly networked communication systems allows more opportunities for interaction. In this way, networks can contribute to the ethical upvaluation of our environment.

When we look at the basic principles of Theory of Self-Organization and the digital networks, which are relevant for knowledge processes as well as socio-dynamic change-processes, we can deduce some basic principles for shaping a more open and democratic Internet. Following von Foerster‟s ethical imperative, we should always be skeptical of restrictions. The described network effects and their consequences can only be reached if we do not limit the capacity for Self-Organization. The capacity for Self-Organization arises out of a high level of system-complexity regarding the number of systems elements, but even more influential, the quality of relation between these elements. The (knowledge) processes which can be found in digital networks comply with these requirements to a large degree. We should be wary regarding the tendencies towards the reduction of openness. This sometimes includes accepting risks and asks for a certain degree of confidence in the potentials of self-organization and self-control of systems. The developments so far in the digital network society let cautious optimism seem justified.

Numerous projects are being done: Open Government Data, whistle-blower databases, citizen-participation platforms, and, of course, innumerable networks of interest within Social Networking Sites. The omnipresence of these forms of media influences the socio-political

change processes. The Network Society has greater access to information, more opportunities for freedom of speech, and more possibilities when it comes to collective forms of action. In the meantime, there is a well-documented history of political activism, which is based partly on mobile phone networks, lately increasingly also on Social Networking Sites (Shirky 2011).

What has changed with organizational forms through network typology is decentralism. While political protest movements mostly have central form of control, usually through established special interest groups, respectively in oppressive regimes also illegal groups, today they are organized through swarm intelligence. The individuals who do not even claim to represent the whole movement coordinate political activities through Social Media. The need for tight relations between the actors has been weakened. Digital networks allow coordination of distributed actors, which can be relevant triggers for political change. As with knowledge networks, we can also observe here a high level of Self-Organization.

A number of authoritarian regimes have meanwhile experienced the power of Social Media and have reacted by restricting and controlling them. It is not so much the issue of access to the big broadcast media on the web, but the potential driven by interaction between citizens. The discussion processes made possible through Social Media let the call for freedom and democracy emerge: “Access to information is far less important, politically, than access to conversation.” (Shirky 2011) An example for this process are the protests in the Arabic world in 2010/2011. Numerous indicators show that the media networks among protesters greatly contributed to the empowerment and, at least partly, to the success of the movement.

It can hardly be foreseen how the New Media will influence our identity. We know, however, that every media revolution has radically changed our self-perception. We also know that the media do not necessarily lead to humanization. The examples from propaganda and manipulation practices are too numerous for us to completely support this statement. However, since the beginning of the Gutenberg-Galaxy there is a trend which not only leads to distribution of the ideas of enlightenment, but which has also contributed to their origin. Finally, the same can also be said for the Computer-Galaxy in which these processes have been drastically accelerated during our Internet-age.

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