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Communities of Action and the Message Society

Introduction

According to Rafael Capurro we are living in a "message society." One characteristic of a message society is an excessive increase of messengers and messages of all kinds (Capurro 1999).

After having produced the best-ever genealogy of the information concept (Capurro 1978), Capurro concluded that the "message" rather than "information" is essential for the development of society. He found striking evidence that vertical messaging was partly replaced and complemented, if not outbalanced, by horizontal messaging. The former was carried out by herolds and other angels delivering messages sent by gods or god, and was typical of the communication situation until the Middle Ages. The latter is conducted among members of societies built up in a more secular and more democratic way.

Today, computerisation has made possible the so-called new information and communication technologies (ICTs), with the Internet as the most prominent representative. This entails an "ongoing transformation of the 20th century society dominated mass media with their hierarchical one-to-many structure of message distribution and consumption." (Capurro 2003a, section 6).

> With its different possibilities of distributing messages (one-to-many, many-to-one, many-to-many, one-to-one) the internet brought about a paradigm shift with regard to the hierarchical structure of mass media particularly since the widespread social use of such tools as e-mail, chat, and mailing lists. With the development of cellular phones these internet tools became ubiquitous. (Capurro 2003, section I)

Capurro asks:

> The question now is to what extent the internet creates a new angeletic space producing new synergies of messages and messengers without the hierarchical one-to-many structure of mass media, i.e. giving the receiver the opportunity to become a sender. (Capurro 2003, section I).

Actually, the trend towards the so-called "produser" – a term coined by Axel Bruns (Bruns 2008, 2) – is the most remarkable continuation of the trend towards the "prosumer" described in Alvin Toffler's book "The Third Wave" (Tofler 1980). This trend signifies the blurring of the distinction between, and the merger of, content producers and content users, highly visible in Web 2.0, the Social Web and its Social Networking Sites, and Peer-to-Peer production. An ideal proposed by the hacker culture seems close to fulfilment (here in the words of Viennese activist and founder of Public Netbase and World-Information.org, Konrad Becker, and echoed by Felix Stalder):

> Das Ziel besteht darin, neue Wege zu entwerfen, auf denen Informationen zwischen verschiedenen Orten und Menschen frei fließen können. Statt einer zunehmenden Fragmentierung sollten Information und Kultur als Ressourcen gelten, die kollektiv produziert und genutzt und nicht von jeweiligen Eigentümern kontrolliert werden. Die Menschen sollten die Freiheit haben, auf die Informationen zuzugreifen, die ihren biographischen und persönlichen Bedürfnissen entsprechen, statt auf die standardisierten Produkte von McWorld angewiesen zu sein. (Becker and Stalder „IP and the City", post on October 22, 2005, quoted in Lovink 2008, 15)

> ("The aim is to develop new ways in which information can flow between different places and people. Instead of today's increasing fragmentation, information and culture should be regarded as resources that are produced and used collectively and not controlled by particular owners. People should have the freedom to access information that fits their biographical and personal needs rather than depend on standardised products of McWorld.") (translation WH)

It no doubt represents progress if receivers turn into transmitters and messages can be exchanged more easily. "But," as Capurro correctly points out,

> we live indeed in a time of "empty angels" or "mediatic nihilism", in which we forget what message is to be sent while the messengers multiply as Peter Sloterdijk remarks: "This is the very *disangelium* of current times" (Sloterdijk 1997). Nietzsche's word "*Disangelium*" (Nietzsche 1999, 211) in contrast to *evangelium*, points in this case to the empty nature of the messages disseminated by the mass media, culminating in Marshall McLuhan's dictum: "The medium is the message." (Capurro 2003b, section II)

By addressing this issue, Capurro goes beyond a mere description of our current society and distinguishes himself from sociologist Niklas Luhmann, who made "communication" the key term denoting the exclusive elements of social systems. Capurro takes a critical stance and adds a normative dimension.

The question arises whether or not the characterisation of empty angels is not only true of the old and renewed one-to-many mass media but also holds for the few-to-few and many-to-many media used by produsers as well. It will be argued here that, despite evidence for the latter alternative, new ICTs can become meaningful technologies that foster the communities of action necessary to preserve and improve the human condition.

In the following discussion, I separate, on the one hand, the issue of the context, the content, and the configuration of messaging from the issue of media mediating messaging, on the other. This involves distinguishing the issue of the social function of communication from the issue of technical means supporting the social function of communication. The argumentation proceeds from the rather abstract to the rather concrete: the first section deals with the social aspect of messaging in general; the second adds the technological aspect of messaging in support of communities; and the last section considers messaging from the perspective of contemporary conditions.

1. Messaging in the service of co-operation

The first proposition forwarded here is that empty messages occur in human discourse when they are cast with disregard for norms and values that refer to human co-operation in a positive way. This proposition draws on distinctions made by the so-called Triple-C Model and on an evolutionary account of information (Hofkirchner 2002).

The Triple-C Model is a concept of modeling the relationship of cognition, communication and co-operation which, combined, are seen as manifestations of the human (as well as prehuman) generation and utilisation of information (Hofkirchner 2010, 99-108 and Hofkirchner 2011). The concept is based upon evolutionary systems thinking.

Evolutionary systems are systems that evolve along the following line of a so-called metasystem transition leading to a so-called suprasystem hierarchy of different dimensions:

- there is an individual phase of metasystem transitions corresponding to the elementary level of suprasystem hierarchies; this is the dimension of the individual (proto-)element;
- there is an interactional phase of metasystem transitions corresponding to the relational level of suprasystem hierarchies; this is the dimension of interactions between individual (proto-)elements;
- there is an integrative phase of metasystem transitions corresponding to the systemic level of suprasystem hierarchies; this is the dimension of the integration of the individual (proto-)elements with a system.

The first dimension focuses on the internal processes of individual systems, the second on the interrelational processes of connected individual systems, and the third on processes that are external to the individual systems (but internal to the meta-/suprasystem they integrate with).

Information generation (and utilisation) function inside these dimensions and within their relationship to each other:

- The developments in the dimension of the individual (proto-)element in terms of information processes turn out to be cognitive processes. Cognition then is the individual, internal generation (and utilisation) of information by a system.
- The developments in the dimension of interactions between individual (proto-)elements in terms of information processes are simply communicative processes. Communication then is the interactional, interfacial generation (and utilisation) of information by (co-)systems.
- And the developments in the dimension of the integration of the individual (proto-)elements with a system in terms of information processes may be denoted as co-operative processes. Co-operation is then the collective, external generation (and utilisation) of information by (co-)systems in conjunction.

The relations of these dimensions are hierarchical. Hierarchy always means that the higher level shapes the lower one, although the higher depends on the lower. Accordingly, cognition is a necessary condition for communication and communication is a necessary condition for co-operation. At the same time, given a system of systems, co-operation of these very systems shapes their communication. This, in turn, shapes the cognition in each of them. In this manner, cognition, communication and co-operation are mutually conditioned. This is the essence of the Triple-C Model.

If evolutionary systems are defined as types of subjects, then subject-object-dialectics may be applied to specify the information processes.

In cognition, which involves engaging with that part of the environment from which a perturbation comes that triggers an information process. Here, the most abstract form of information generation and utilisation is addressed: intrasubjective information. The subject-object-dialectics shows opposing

tendencies which might be labeled "subjection" and "objection". These tendencies tend to spiral up in a three-step process as follows:

- the subject acts on the object (subjection),
- the object reacts (objection),
- the subject changes its action by taking into account the reaction of the object to its past action (new subjection).

In communication, which involves engaging with another self-organising system, in particular, with a co-system, one cognitive system is coupled to another cognitive system: intrasubjective information processes are entangled to yield intersubjective ones. A number of subjects (at least two) interfere with one another. The opposing tendencies in this modified subject-object-dalectics can be termed crosswise "intersubjectification" processes showing the following steps:

- a subject A acts on a subject B (intersubjectification by A),
- subject B reacts and acts on subject A (intersubjectification by B),
- subject A reacts and changes its action by taking into account the reaction of subject B to its past action (new intersubjectification by A).

In co-operation, which involves co-systems engaging with their suprasystem, communicative systems produce suprasubjective information which informs them, in turn. A quorum number of co-systems co-act, and the outcome of this co-action is a suprasystem which, in turn, constrains and enables the co-systems' agency. The resulting opposing tendencies, seen in the context of subject-object-dialectics, may be termed "objectification" and "subjectification". The three steps of a spiralling-up process are as follows:

- fellow subjects A and B and C... act conjointly on/in a collective subject (objectification),
- the collective subject reacts (subjectification),
- fellow subject A or fellow subject B or fellow subject C... changes its contribution to the joint action by taking into account the reaction of the collective subject to the past action of A and B and C... (new objectification).

This calls for examining the relation between cognition, communication and co-operation in more detail.

In cognition, a self-organising system interacts with something without specifying whether or not this something is itself a self-organising system. The system reaches out to assimilate that something. That something reacts and shows by reaction how much it affords assimilation. To the extent to which it does not afford assimilation, the system has to accommodate.

In communication, a self-organising system A reaches out to another self-organising system B. System A starts the process on a given state of cognitive information about itself, about system B and about its relation to system B. Its reaching out to system B is tantamount with transmitting a message to be received by system B. Since system B is itself a self-organising system like A, the message transmitted by A cannot be dealt with in a Shannonian way, according to which the message merely needs decoding to be understood by the receiver. The message presented to B is rather an irritation to B. It triggers a process organised by B in which B deconstructs the cognitive information it had so far about itself, about A and about its relation to A, and constructs new information. On that new basis, B produces a message that, in a feedback loop, is sent to A. This triggers a change in the cognitive basis of A, which might be the starting point for another message to B and a new round of the communication cycle.

In co-operation, there are two kinds of "self". One kind is encapsulated in the other. Like order from chaos, information emerges from the variety of communication processes between the co-systems (one kind of "self"). This information is external to the co-systems but internal to the suprasystem (the other kind of "self") they participate in. This process objectifies their communication. From the suprasystem's point of view, that information is produced by the suprasystem itself, which selects certain communication processes that trigger the deconstruction and construction of suprasystem structures. These structures are fed back to the communicating co-systems. Co-operation is stabilised because these structures are subjectified by the communication of the cognitive systems that make up the suprasystem. From their perspective, the inclusion of their relation to the suprasystem is important in their communicative and cognitive processes. Eventually, a self-organising system that co-operates with co-systems to produce a suprasystem exchanges messages with those co-systems. These messages deal with the suprasystem, the system's and co-systems' relation to the suprasystem, the relations to the co-systems, as well as about the co-systems and about itself.

Messaging is therefore part of a bigger picture – something shaped by a higher-level structure.

In human systems (social systems and individuals as elements of social systems) the phenomenon of messaging is distinct from those phenomena in prehuman systems. According to a stage model of reflectivity, the information process types depend on the type of evolutionary system behind the process. There is a fully-fledged differentiation of semiotic levels: syntactical, semantic and pragmatic (Hofkirchner 2002, 2010, 2011). These are the levels of the configuration, content and context of symbols, respectively.

Human communication uses a certain means for messaging by which expressions are made; particles of verbal and nonverbal human language are combined – that is the configuration of symbols for the message. Human communication follows a certain way of referring to something; symbols stand for this something – that is the content of the message. And human communication is carried out for a certain goal; the relationship of communicator and communicant and their intentions are essential for the message – symbols are put into a context. In an open reciprocal process, *alter* tries to understand the context, the content and the configuration of symbols which make up the messages of *ego* and vice versa. In this process, sense is constituted for *alter* and sense for *ego*.

Those messages as well as the processes of messaging are shaped by sense, which is constituted in relation to the so-called 'third'. This third is the level of social systems which, in human systems, assumes the role of suprasystems. Suprasystems are characterised by emergent structures that supervene the interaction of individual systems as elements. Co-operation is also carried out on threefold levels: the syntactical level (where a means is located) is the level of co-ordinating activities, the co-construction of *poiesis*, in which efficiency is expected from technologies; the semantic level (where a way of dealing with an object is located) is the level of collaborative work, the co-construction of *oikos*, the *umwelt*, which is nature transformed into a common house that is expected to support human life; the pragamatic level (where a goal is pursued) is the level on which action is consensualised, *eudaimonia* is co-constructed and good life in the sense of Aristotle, which is a virtue of practical wisdom, and taking up the notion of the 'third' such that it combines what is beneficial to a person with what is beneficial to the community, is expected.

'Good life' expectations, life support expectations and efficiency expectations altogether frame messages. A message connects to the 'third' in that it is, or can be made, functional for good life, life support and efficiency. This becomes manifest in values or norms with which the message is compatible. In such cases, sense is constituted in the broadest sense of the term and neither the message nor the messenger is empty. Conversely, if a message cannot be connected to the 'third', making it incompatible with values or norms endorsing 'good life' (*eudaimonia*), 'life support' (*oikos*) or efficiency (*poiesis*), each of which located on a different level, then emptiness is a property of the message and messenger.

2. Messaging by means of meaningful technology

The second proposition forwarded here is, if the medium has become the message, it needs other media to convey messages that make sense; those media are called "meaningful technologies" and they are feasible (Hofkirchner 2009). This proposition builds upon a technosocial systems approach that postulates mutual shaping of technology and society.

New media that might qualify as meaningful technologies are discussed in the context of community. Community is said to provide sense. Analogous to the dichotomy between civilisation and culture, social systems have been conceptualised in different ways: social co-operation in a weak sense is termed society, while social co-operation in a strong sense is termed community.

In the course of the development of bourgeois society, capitalism, and industry, one strand of German social thought bemoaned a loss of sense due to the demise of traditional community and the advent of modern society. Another strand was inaugurated by Karl Marx and Friedrich Engels, who welcomed the triumph of modern society over premodern forms of communities but criticised modern society at the same time:

> The transformation, through the division of labour, of personal powers (relationships) into material powers, cannot be dispelled by dismissing the general idea of it from one's mind, but can only be abolished by the individuals again subjecting these material powers to themselves and abolishing the division of labour. This is not possible without the community. Only in community [with others has each] individual the means of cultivating his gifts in all directions; only in the community, therefore, is personal freedom possible. In the previous substitutes for the community, in the State, etc. personal freedom has existed only for the individuals who developed within the relationships of the ruling class, and only insofar as they were individuals of this class. The illusory community, in which individuals have up till now combined, always took on an independent existence in relation to them, and was at the same time, since it was the combination of one class over against another, not only a completely illusory community, but a new fetter as well. In a real community the individuals obtain their freedom in and through their association. (Marx 1932; 1965/2004, 83)

Today, postmodern communities are said to overlie modern and traditional communities. Michele A. Willson provides the following taxonomy of communities:
- traditional communities "as communities of place where choice of membership does not exist" (Willson 2006, 36);

- modern communities "as being communities of choice (or alternatively, as *Gesellschaft*)" (Willson 2006, 37);
- postmodern communities "as extending the degree of choice available to participants in both traditional and modern communities" "through freedom from embodied or geographical identity" "and an increase in the possibilities of multiple community memberships" (Willson 2006, 37).

The traditional form of community is organised around face-to-face communication, the modern form around extended communication traversing geographical space, and the postmodern form around technology-mediated communication (Willson 2006, 39-41).

There are ambiguous findings as to how postmodern communities are affected by, and utilise, Computer Mediated Communication (Hofkirchner 2009a).

When addressing (e)utopian and dystopian views on the development of the Net – the view of virtual communities revitalising human communal existence and the view of physical communities being supplanted rather than being supplemented – Yochai Benkler uses the distinction between strong ties and weak ties introduced by Mark Granovetter. These are used to summarise empirical studies on ICTs, strengthening or fragmenting social relations as follows: strong ties, which relate to family and local communities, were not weakened but rather strengthened by the use of ICTs, and new weak ties were created in addition. These new weak ties have established what is known as "communities of practice" and "communities of interest". These are instrumental for the individual but will never become the dominant mode of connecting to other people. However, Benkler detects an exception to this rule: the emergence of social software and peer-production such as F/OSS (Free/Open Source Software) or Wikipedia make the group more important than the individual; they go beyond a community of mere interest in that they "allow the relationship to thicken over time" (Benkler 2006, 375).

Cass R. Sunstein also arrives at a rather positive evaluation of F/OSS and Wikipedia by deliberating over how many minds can produce knowledge and avoid failures. Contrary to F/OSS and Wikipedia, the blogosphere "offers a stunningly diverse range of claims, perspectives, rants, insights, lies, facts, falsehood, sense, and nonsense" (Sunstein 2006, 187). The positive examples, however, seem to be outbalanced by negative ones because the blogosphere "runs into the usual pitfalls that undermine deliberation, sometimes in heightened forms" (Sunstein 2006, xiv).

Geert Lovink (2008), who theorises about the Internet culture is even more critical of the blogosphere. His data suggest that blogs are used primarily as instruments for managing oneself, for marketing oneself, for making P.R. for oneself. This casts doubt on whether blogs belong to groupware or social software. They are rather the follow-up generation of the homepage. He quotes from a blog that states that writers do not care about whether a community forms as result of the writing. Blogging, he states, is competing for a maximum of attention. And, we can add, this is true not only for the blogosphere. Note the striking similarity to the sphere of so-called social software platforms like Facebook: what counts is being linked. Lovink criticises the superficiality of content. In many cases, existing information is merely reproduced, he bemoans, instead of being created. At the same time, he admits that blogging, annotating and building links could be a start for defeating indifference.

In her book "Technically Together", Willson raises, like Lovink, the concern that "the quality of much of the communication that takes place through technology is questionable" (Willson 2006, 157). "As relations are mediated or become more abstracted from concrete embodied interactive forms, […] they become thinner and potentially more instrumental, thus undermining the possibilities and spaces for mutuality" (Willson 2006, 86). That explains why "postmodern communities", in which "the primary form of interaction and communication is disembodied – detached from presence and mediated through technology" (Willson 2006, 39), are prone to being objectified as a means for individual ends according to Habermas's "instrumental rationality". "Radical", that is mutualistic, intersubjectivity tends to become outweighed by instrumental relations that either project the Ego onto the Other or reduce the Other to an object (Willson 2006, 99-103). It is not technology itself that predetermines this social outcome, but "the manner in which technology is utilized, the purposes to which it is applied, and the processes that are enacted through such utilization" (Willson 2006, 225) that make the difference. This underlies her criticism of the network euphoria (Willson 2006, 58).

Michael Gurstein, the father of Community Informatics, is keen to distinguish between networks and communities. While networks are "structured around the relationships of autonomous and self-directed individual actors (or nodes) where the basic structuring is of individuals (nodes) interacting with other individuals (nodes) with linkages between nodes being based on individual choice", communities "assume collectivity or communality within a shared framework which may include common values, norms, rules of behaviour, goals and so on" (Gurstein 2008, 16). He refers to Barry Wellman's notion of "networked individualism", whose meaning he puts on a level with the meaning of the "Facebook society". He interprets Wellman's networks as externally driven ones that combine fragmented individuals, and

contrasts them with "self-initiated (self-organized) and participatory networks which inter-link individuals not on the basis of fragments of identity but on the basis of self-initiated and self-realized identities. These networks function as "communities" (whether based on physical or virtual connections) through which action may be undertaken, projects realized, reality confronted and modified" (Gurstein 2008, 20). He continues, "These communities provide a basis or a foundation element for the construction of an alternative reality" (Gurstein 2008, 20). Community Informatics then is the way to "provide the means for communities to be enabled and empowered and to effect action in the world" (Gurstein 2008, 21).

Barry Wellman (2002) foresees the rise of "networked individualism" with computer-mediated communication. A survey he conducted determined that the more people are online, the less is their sense of belonging to an online community (Wellman et al. 2001). Thus, networked individualism means free choice of social circles, possibilities for the development of strategies or tactics for self-advancement, weak loyalties, a sense of being an autonomous individual, and the preponderance of individual status rather than social structure.

Empirical investigation yields ambiguous results, but this should not come as a surprise. ICTs bear the potential of fostering participation, democracy and community, but this potential is realised only marginally and turned into the opposite, given the preponderance of partial interests.

Manuel Castells describes this situation as follows:

> In this early 21st century we are at the crossroads of the development of the network society. We are witnessing an increasing contradiction between current social relationships of production and the potential expansion of formidable productive forces. This may be the only lasting contribution from the classical Marxist theory. The human potential embedded in new communication and genetic technologies, in networking, in the new forms of social organization and cultural invention, is truly extraordinary. Yet, existing social systems stall the dynamics of creativity […] Accepting democracy of communication is accepting direct democracy, something no state has accepted in history. Accepting a debate to redefine property rights goes to the heart of the legitimacy of capitalism. Accepting that the users are the producers of technology challenges the power of the expert. (Castells 2006, 20)

The result is "networked" individuals, in particular the young – who are, in fact, excluded from fully participating in the economic utilisation of resources, from participating in the political decision-making process, and from participating in the cultural definition of what is good and of what is a good and are engaged with the struggle for recognition in a diversity of networks. This struggle is the compensation for, and the alienated form of, the struggle for full participation in the network society from which youth is excluded. They are prototypes of "empty angels" competing for attention; they resemble – as the Japanese painter Korehiko Hino portrays the "child-zombies" of the information society – personas, masks, faces, devoid of facing the other because devoid of radical relations between the individuals.[1]

Applied to the Web, in particular to the so-called "Social Web", the Triple-C Model categorisation yields a distinction of functions the Web is able to offer. Jan Schmidt (2008, 23-24)[2] elaborated the following distinction

- "Information Management", which means the search for, retrieval of, and administrating of relevant information through usage of blogs, wikis, tagging. This refers to the category of cognition.
- "Identity Management", as Schmidt says, or "Self Management", which means the presentation of selected personal features such as interests, opinions, knowledge through usage of blogs, podcasts, videocasts. This refers to the category of communication.
- "Relationship Management", which means, mainly through the use of platforms, maintaining existing social relations and establishing new social relations as well as opting-outs. This refers to the category of co-operation.

The following can be stated about empty angels:

- In the category of information management it is up to the individual in his/her role as receiver of messages to navigate through the sea of sense and nonsense and sieve out the relevant information. In that context, the wisdom of the crowds gives weight to that information that is already weighty (Schmidt 2008, 33).
- In the role of an emitter of messages, the individual is keen on using the Web as an appropriate tool for his/her identity management with the focus on self-presentation instead of entering into true dialogues.
- With regard to relationship management, "individual freedom" tends to "involve a feeling of decreased responsibility, obligation, or commitment to the Other or to the society/community" (Willson 2006, 156-157); this makes the use of the term "community" questionable for depicting virtual or postmodern communities.

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[1] See Sennhauser 2009. Thanks to Eric Mührel for drawing my attention to this idea and to the work of Korehiko Hino
[2] The performances are presented here in a sequence that conforms to the Triple-C Model sequence.

If "communities" are entities belonging to the supraindividual level, then so-called "communities of practice" or "communities of interest" in which individual actors gather to pursue some practice – without a need to share some interest – or to pursue some personal interest are instrumental to the individual actors only. They do not qualify for the "community" label. They represent weak ties that need not thicken among individual actors networked this way. Social networks reside on the interactive level but not on the integrative level.

In virtual space, however, examples of "communities of action", as I propose to term true communities existing in today's reality, exist. These include Wikipedia, which represents co-operation for producing a world repository of knowledge, and F/OSS, which is co-operation for producing software for the world. Moreover, a minor faction of blogs is devoted to co-operation in that they want to promote a new way of thinking as an underpinning for political action in global society. From a sociological, technosocial-systems point of view, these undertakings in peer production – though some date back technologically to the time before "Web 2.0" – demonstrate the possibility of transcending networked individualism and realise "networked communities" or "community networks", as Gurstein phrased it. Nonetheless, they represent islands of an alternative reality, pointing to the level of co-operation, albeit under the prevalence of the communicative and cognitive restraints of networked individualism.

Angeletics can thus inform both technology assessment and the design of the technology of messaging, yielding meaningful technology. This calls for considering not only what is possible but what is desirable. This approach is critical because it includes not only an account of the potential that is given with the actual, but also an evaluation of the potential which sorts out the desired. Thus, philosophy embraces an ascent from the potential given now to the actual to be established in the future , as well as an ascent from the 'less-good-now' to the 'better-then'. Combined, this yields the Not-Yet in the sense of Ernst Bloch (1967). Using the category of the Not-Yet helps legitimise hope. The future of societal affairs is open: it is both a risk and a chance, a threat and an opportunity,.

3. Messaging for GSIS

The third proposition forwarded here is that communities of action, supported by computer technology, are the preferred strategy in an age of global challenges. This proposition is based upon the vision of a Global Sustainable Information Society.

Given the challenges of our time, we more than ever need a) a technology that responds to social needs and effects community building by helping establish reciprocal relations between individuals, a characteristic feature of communities (see e.g. Willson 2006); b) a dialogue in the sense of Daniel Yankelovich (2001) that shapes the form of computer-mediated communication rather than debate, discussion, deliberation, negotiation, or any other form, because dialogue is the only form that brings about community; c) a global conversation (Scott 2009), enabled by social media, in which conversation about possible solutions is the first step to possible solutions. This is so because global challenges, which are self-inflicted problems of humanity, put the further development of humanity at stake; they affect all of humanity and can only be solved by all of humanity, if at all. Business as usual is no longer possible.

The Not-Yet humanity in the age of global challenges is called upon to bring about is a Global Sustainable Information Society (GSIS). A GSIS is the overall framework of conditions promising a future without the danger of anthropogenic breakdown. A GSIS is a society in which information is used to safeguard sustainable development on a global scale.

In 1910, Paul Klee painted the "Angelus Novus". In 1940, Walter Benjamin, in one of his last works (Thesis on the Philosophy of History, IX), rather pessimistically interpreted the painting, although he longed for envisaging the demise of Nazism:

> A Klee painting named 'Angelus Novus' shows an angel looking as though he is about to move away from something he is fixedly contemplating. His eyes are staring, his mouth is open, his wings are spread. This is how one pictures the angel of history. His face is turned toward the past. Where we perceive a chain of events, he sees one single catastrophe which keeps piling wreckage upon wreckage and hurls it in front of his feet. The angel would like to stay, awaken the dead, and make whole what has been smashed. But a storm is blowing in from Paradise; it has got caught in his wings with such violence that the angel can no longer close them. This storm irresistibly propels him into the future to which his back is turned, while the pile of debris before him grows skyward. This storm is what we call progress. (Benjamin 1999, 249)

In his play "Der Auftrag", Heiner Müller baptised the angel of history as the angel of despair because the angel was unable to change the course of history (Müller 1981). Joachim Schloemer took that name as a title for his production with dancers, singers and musicians, the premiere of which took place in 2010 at the

Festspielhaus St. Pölten[3]. That production offered a way out: the angel demonstrates that it is possible to turn around and look ahead instead of looking back. This idea became a leitmotif in the "compositionist manifesto" Bruno Latour presented in his lecture on the occasion of receiving the Kulturpreis of the Münchener Universitätsgesellschaft in 2010:

> Was die Modernen "ihre Zukunft" nannten, wurde nie von Angesicht zu Angesicht gesehen, da es die Zukunft von jemandem war, der seiner Vergangenheit rückwärts entflieht, und sie nicht vorwärts bedacht wurde. Deshalb war ihre Zukunft, wie ich vorher betont habe, immer so unrealistisch, so utopisch. […] Die Modernistischen Utensilien müssen eines nach dem anderen neu gemacht werden, für die Aufgaben, die nun vor uns liegen und nicht mehr hinter uns. […] Es ist Zeit […] Kompromisse einzugehen, sich zu kümmern, sich langsam zu bewegen, vorsichtig und mit Vorsorge. Das sind schon einige neue Fertigkeiten, die man lernen muss: Stellen Sie sich vor, man erfindet wie nie zuvor, aber mit Vorsicht! (Latour 2010)

> (What the Modernists called "their future" was never seen face-to-face, since it was the future of somebody who escapes his past backwards and does not confront it. Because of that, as I noted before, their future has always been unrealistic and utopian. […] The Modernist implements have to be remade for the tasks that lie ahead of us and not behind us. […] It's time […] to compromise, to be cautious, to proceed slowly, with prudence and precaution. These are new skills that need to be acquired: imagine inventing as never before - but with caution! (translation WH)

Turning the eyes to the future, as Schloemer's angel does, is the prototype of messages we must urgently transmit and receive in the age of global challenges. The ideology of linear progress, the hubris of omnipotence, the dictatorship of feasibility over wishfulness have to replaced by deliberate activism. That activism must be willing and competent to take responsibility for the future and feel obliged to apply a precautionary principle. Precisely those messages whose content is shaped by a concern for the future of humankind are not empty.

According to Western thinking, the role that science and technology has played in society since the days of Francis Bacon has been for a better life. Today, however, the apparent effects have come to jeopardise those aims that the inventions and innovations originally pursued. Civilisation itself is at stake. Bacon's programme must be overhauled in the light of his own ideals, and rationality must be criticised from the perspective of reason. In this situation, reshaping science and technology is a task whose time has come.

It is a shared value to improve, or at least to maintain, living conditions for the human race on this planet. The purpose of scientific and technological efforts is to provide a means of pursuing these values and coping with global problems. We need self-reflection in scientific and technological progress. This means applying scientific endeavour to scientific endeavour itself. In order to redirect scientific-technological progress and to help overcome the fundamental failures of modernity, research and development methods must be applied to science and technology to better control them. Science and technology can do justice to their original purpose – to alleviate human suffering and generally make life more pleasant – but only when they are no longer left to pursue their seemingly natural course. Instead of being left to their own dynamics, they should be put into operation deliberately, after appropriate reflection and careful consideration. They should be managed with conscious control, their programme executed with respect to the ideals of the survival of humanity in a future which is worth living in, and with a constant control of the results of the programme's implementation. Science must devote careful consideration to its technological consequences in society, must anticipate possible desired or undesired effects, and must carry out all appropriate readjustments or reorientations.

Informatisation – the spread of ICTs, computers and the Internet – has to be reshaped as a means for *informationalisation*. This involves raising the problem-solving capacity of world society to a degree of shared intentionality, to a level of collective intelligence and to an intensity of collective action that successfully tackles the problems that arise from society's own development. Informationalisation helps establish computer-supported communities of action in contradistinction to mere communities of practice or communities of interest. Communities of action share common goals for the development of world civilisation and act collectively to alleviate global challenges. Messaging can work for the advent of a GSIS. Angeletics can recast ICTs as "technologies of co-operation" (Rheingold 2005), for transculturalism, transnationalism, transdisciplinarity. Messages can turn people into informed world citizens; make civil society capable of using the informational network to include everyone; outbalance the spread of disinfotainment via mediated mass manipulation; empower people against surveillance and infowars and establish agoras for the new millennium; halt proprietarisation, commodification and commercialisation of knowledge and respect such knowledge, instead, as a commons; reduce the frictions in material and energy flows through society, thereby optimising the use of resources and; draw the proper conclusions from the vulnerability of society, which means to accept to cease to behave like a bull in a china shop.

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[3] Programm Engel der Verzweiflung. Niederösterreichische Kulturszene.

The promise of a GSIS is that it becomes the ingredient that turns empty messages into meaningful ones. Its application transforms empty media into meaningful technology. And empty messengers become responsible actors creating sense in a world that needs to be endowed with sense.

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