Manuscript
Wolfgang Hofkirchner
International Society for Information Studies
wolfgang.hofkirchner@is4is.org

The age of global challenges

The information age is the age of information societies that industrialised societies are transforming into, which is visible by the spread of new information and communication technologies (ICTs), just as the industrial age is the age of industrial societies into which agricultural societies have been transforming worldwide. However, there is still a lag of scientific development behind societal and technological development. Development in technology is not accompanied by an equally rapid growth in scientific insight, let alone foresight, as to the impacts of technology on levels of society other than that of technological organisation. Attempts to observe and understand the basic nature of this change are still second place. The public use of the notion of "information society" has been reduced to denoting a society in which applications of modern ICT are widely spread in order to facilitate the handling of what commonly is called "information". A scientific understanding of this transformation has not had time to develop. There is not yet a proper "science of the information society" or a proper "science of information".

Yet the state of the relationship between science and techno-social development of today regarding information can e.g. be compared to the state Karl Marx was confronted with in respect to labour.[1] In his time labour could become and necessarily became a matter of scientific interest, since labour as a matter of fact had gained a new role in society. It became something more abstract in social life, that is, it was treated in society irrespective of its concrete characteristics. Marx called that a "real-abstraction" – an abstraction that occurred in reality due to the real treatment of labour in emerging capitalism which became the basis for the general concept of labour in scientific thought. It was only then that the concept of labour could be stretched back to former social life in the history of humanity and that other phenomena than industrial work could be subsumed under the concept of labour, albeit as different manifestations. Making use of this notion of real-abstraction we might assume that information has gained as decisive a role in society nowadays so as to foster a new scientific conceiving and theorising – that it has turned into a real-abstraction which is the rationale for devising a general idea as well: what labour is in regard to human history as seen from the perspective of industrial society, information is in regard to history from the perspective of information society.

In August 2010, the first-ever scientific conference under the motto "Towards a New Science of Information" was held. It took place in Beijing and was organised by the Social Information Science Institute (SISI) at the Huazhong University of Science and Technology (HUST) in Wuhan, and sponsored by the Technical Committee on Artificial Intelligence Theory (TCAIT) of the Chinese Association for Artificial Intelligence (CAAI). At the conference a committee was established

to prepare the founding of an International Society for Information Studies (ISIS). Its objectives shall be to advance global and collaborative studies in the sciences of information, information technology and information society as a field in its own right, to elaborate common conceptual frameworks and to implement them in practice so as to contribute to mastering the challenges of the information age. On June 24th, 2011, the International Society for Information Studies was registered in Vienna as association by Austrian law.

The first conference of that society was hosted by Moscow Humanitarian University in May 2013. It focused on "Perspectives of Information in Global Education as a new Approach for the 21st century".

As I said in my Presidential address,

> The study and the engineering of information processes have been spreading and diversifying, while diffusing throughout the disciplines. There is a rich body of knowledge about diverse aspects of information. In many cases valuable findings have been achieved. But more often than not Information Studies are not focused on contributing to the urgent needs of civilisation in crisis and research and development is undertaken to meet short-sighted economic interests, one-sided military and political interests, and self-centered cultural interests all of which prohibit thinking big. Thus diversity still outbalances unity instead of providing the basis for Information Studies to become a science of information in its own right.[2]

Thus I called for a Summit as second conference of ISIS under the title "The information society at the crossroads – Response and responsibility of the Sciences of Information". That Summit took place in Vienna, 3-7 June 2015.

The point of departure for that conference was the following statement:

> The information society has come with a promise – the promise, with the help of technology, to restore information as a commons: generated and utilised by everyone; for the benefit of every single person and all humanity; unfettered, empowering the people, truthful and reasonable, enabling constructive ways of living and a proper understanding of the environment.
>
> The promise has not yet proven true. Instead, we face trends towards the commercialisation and commoditisation of all information; towards the totalisation of surveillance and the extension of the battlefield to civil society through information warfare; towards disinfotainment overflow; towards a collapse of the technological civilisation itself as a consequence of the vulnerability of information networks and, in the most general terms, as a consequence of ignorance of the fundamental information processes at work not only in natural systems but also in social and artificial systems.

The social and technological innovations that are intended to boost cognition, communication and co-operation are ambiguous: their potential to advance information commons is exploited for purposes of self-aggrandisement rather than concern for the overarching communities in which every human self is embedded from the family to world society. Tools – computer and other – are made for profit, power or predominance; the goal of a flourishing and thriving of humanity as a whole takes a distant second place, if it runs at all.

Thus, the information society has reached a crossroads: without significant change, business as usual can even accelerate its breakdown. A breakthrough to a global, sustainable information society must establish an information commons as a cornerstone of a programme for coping with the challenges of the information age. [Bold text cleared, W.H.][3]

So the Summit was expected to highlight the question of a transformation of the current information societies into an alternative information society and the question of the commons.

The commons and a global sustainable information society

The transformation of current societies is a must, as we have been living since the second half of the last century in an age of global challenges. Global challenges are global because they affect humanity as a whole and because it is only humanity as a whole that can deal with them successfully. As global challenges have a 'dark' and a 'bright' side, they make up a great bifurcation that lies ahead of humanity. The dark side is the imminent danger of the breakdown of interdependent societies with extermination of civilised human life as endpoint. The bright side marks a possible transition to a higher state of civilisation, which could bring about a peaceful, environmentally sound and socially and economically just and inclusive world society. I'm used to terming the vision for the latter transformation Global Sustainable Information Society (GSIS).

The vision of GSIS depicts an overall framework consisting of three conditions that need to be fulfilled, rather than a detailed blueprint.[4]
1. GSIS needs to exist on a planetary scale, that is, it needs to be global.
2. It needs to be capable, by establishing its organisational relations, of acting upon the dangers of anthropogenic breakdown, that is, it needs to be sustainable.
3. It needs to be capacitated, by means of ICTs, to create requisite wisdom, knowledge, data, that is, it needs to be informational.

Being global implies being sustainable which, in turn, implies being informational. Informationality means there is information needed for sustainability; sustainability means there are sustainable relations needed for globality.

In order to realise the features of globality, sustainability and informationality the commons need to be addressed.

The rationale of every system is synergy. Because agents when producing a system produce synergetic effects, that is, effects they could not produce when in isolation, systems have a strong incentive to proliferate. In social systems synergism takes on the form of some social good. Actors contribute together to the good and are common beneficiaries of that good – the good is a common good, it is a commons. That good comes into being through the common effort of the actors' combined productive energies and is located on a social system's macro-level. It is a relational good that influences actors on the micro-level, since it enables or constrains the actors' participation in producing and consuming the good. All actors contribute to the emergence of that order that grants that their interactions become stable relations. The new structure relates the actors to each other.

Since the commons is an emergent quality, it cannot be fully traced down to the quantity of the contribution of each actor.[5] There is a leap in quality that is not fully determined by the initial conditions (which play the role of boundary conditions that are necessary, but not sufficient conditions). The same holds the other way round: there is less-than-strict determinism in top-down emergence. Accordingly, the commons does not have the same impact on every actor; a quantity of the commons used by one actor may yield a different qualitative result than the same quantity yields in the case of another actor. The actors have a share in the added value when producing it and they share the added value when using it; but the share the actors have does not account for the added value produced nor does the added value that is produced account for how much the actors share. This problem of the lack of reciprocal accountability between costs by, and benefits for, individual actors is an argument against measurements of transactions and exchanges between individual or aggregate actors as the basis of measures to balance their rights and duties in a justifiable way; individual input to, and individual output from, the commons is rather a matter of collective action. And for that reason, the only principle of a humane organisation of production and usage of the commons that can be supported is, in general, "from each according to their ability, to each according to their need".

At the Summit a report of Manuel Bohn, co-worker of Michael Tomasello at the Max Planck Institute for Evolutionary Anthropology in Leipzig, gave ontogenetic evidence of behaviour that resembles such a principle. In an experiment young children are prompted by a device to work together in a subtle way so as to receive an award each. The award is given to them after successfully carrying out the task. Now, if and when the awards are distributed in an uneven way, the child that receives a higher award spontaneously shares the excess part with the other child.

In heteronomic societies, however, the production and provision of commons becomes a contested field. Antagonistic relations appear. The social (cultural, political, economic) crises, the ecological crises and the scientific-technological crises we are witnessing reveal more and more that they are battles over the

whole spectrum of commons. These battles are exactly in those fields that mark the global problematique that puts the survival of humankind at risk. Thus the effort to cope with the global challenges is tantamount with the struggle for inclusion against exclusion in any of the subsystems of society.

The dominant way of using technological, environmental and human commons has turned out to be increasingly incompatible with a peaceful and harmonious future of societies. There are forceful impediments on the path to establishing sustainable international as well as intra-national relations (which exclude the use of military violence and other technological means that are detrimental to the good life); to establishing ecologically sustainable relations to nature (which excludes overuse of resources and their abuse as sinks for harmful waste); and to establishing sustainable relations amongst humans in the cultural, political and socio-economic context (which includes all producers and users in a fair production and usage of whatever is commonly produced).

In the scientific-technological subsystem of society in which actors produce scientific-technological innovations that enhance and augment human self-actuation the common good is scientific knowledge and technological means – both representing the 'how' for ever more human activities – as they are shaped by societal relations that make up the structure of the techno-social systems. This system is now a battlefield of the struggle for science as a 'communist', universal, disinterested and organised skeptical endeavour as Robert K. Merton put it in 1942 in *The normative structure of science*,[6] a struggle for technology assessment and for designing meaningful technology as against military-industrial-complex funded research and development.

In the ecological subsystem of society in which actors produce adaptations to, or of, the natural environment that support human self-preservation the common good is the whole extra-human nature and the whole human nature, the material 'who' and the material 'what', the natural object and the natural subject, of human activities, the ecology and the bodies, as they are shaped by societal relations – the structure of the eco-social systems. This system has turned into a battlefield of external and internal nature: there is the struggle for a cautious treatment of the biophysical bases of human life against their extensive and intensive colonisation.

The economic subsystem – the field of resources that is conditioned by societal relations of distribution of the means for a good life – has become the battlefield of the struggle for un-alienated working conditions and a fair share for all against the erosion of the labour force, against the pressure exerted by the financial capital, against corruption, against the Matthew principle (the rich-get-richer mechanisms) inherent in capitalist economies, etc.

The political subsystem – the public sphere that is conditioned by the power of decision processes on the conduct of a good life – has become the battlefield of the struggle for participative democracy against right wing, technocratic or populist authoritarian rule.

And the cultural subsystem – the realm of values and life styles as conditioned by the process of defining what (a) good is in a good life – has become the battlefield of the struggle for inclusive definitions of selves having in mind unity through diversity as against parochial ways of living, nationalism and fundamentalist ideologies.

In society as a whole, the common good is the inclusive community of actors that are related such that a humane social system can make for a competitive edge in the course of evolution on our planet. It consists of the social subject, the social object, and the social ways and means of human activities that include the material and natural ones but go beyond mere physicality; the commons is the sphere that allows for the unfolding of individual ingeniousness, the space that society provides for it.

Subjective factors in the transformation

As current technological, ecological, economic, political and cultural crises show, the conservative forces fall prey to an anachronistic mode of action that encloses any commons more and more. That fact was termed "idiotism".[7] Etymology shows, "idios" meant in Greek Antiquity "the personal realm, that which is private, and one's own". In Curtis' view, "idios" bears also the stamp of "being enclosed". He says, that "the creation of the private through the enclosure of public or commonly held resources has historically been the primary means by which property has been secured for private use".[8] By the term "idiotes", then, a person was denoted that is concerned with his personal realm only, with his own, and not with, say, the res publica and the fate of other human beings. Curtis convincingly demonstrates that neoliberalism, not only in ideology but also as a distinct social order, epitomises the principle of the "idiotes". And it is true, idiotism as a feature of society that functions via self-interested, self-concerned individuals goes back to Antiquity and even earlier social formations in which domination appeared that goes hand in hand with the enclosure of the commons and the denial of free access to the latter.

In contradistinction to idiotism, a transformation into GSIS requires a new cosmopolitanism that by promoting a new view of world citizens – a view from the perspective of all mankind – instigates a new behaviour down the ladder from world society over various groupings at different levels to the individual. In idiotism, the means-end-relationship in human action is characterised by an attempt to decouple the means from the ends and invent ever-new means while the ends are fixed and stay as a given. New cosmopolitanism makes means as well as ends questionable; no means, no ends shall be given unless agreed upon in common; not only shall the means be variable, but also the ends shall not be constants any more; a permanent adjustment of the means to the end and of the end to the means is assumed as feasible and mandatory; the means is open to critique, if it does not lead to the desired moral end, and the end is open to critique too, if it turns out to frustrate a higher moral end. While partial positions as to means and ends are made in idiotism into an absolute or are claimed relatively; while interests are short-sighted and do not take into consideration

6

harmful effects on other parts of the system – the are interests of self-regarding persons; in new cosmopolitanism, interests are compelled to replace short-sightedness by long-sightedness. Individual interests need not to be particularistic. They can be coherent with social relations that are concerned with, and care for, all the respective community. Actors can serve their true and best interests by acknowledging that they can do so best when in consistency with the overarching system and thus without doing harm to other system components. They can build up a unity-through-diversity relationship to the social system. But in order to be enabled to do so they need to overcome the restrictions of reflexivity they face in idiotism. Reflexions in new cosmopolitanism are compelled to make reference to commonalities. Actors need to be capacitated to reflect their own position and the position of others from the perspective of the overall social system; through collective reflexion of the actors, the system itself can be said to be reflexive about its actors when assuring the improvement of conditions for the social synergy to come and for the decrease of social frictions in the generation and utilisation of the commons. Actors need to extend their reflexions to the community and its commons.

The transformation into GSIS would necessitate a reflexive revolution. However, as I wrote in 2014, the societal development after the 68ies was not particularly conducive to the formation of strong, comprehensive, deep forces made up of agents of change in the direction of a GSIS and a mitigation of the global challenges.

> In the aftermath of the oil-crises in the first half of the seventies and on the eve of the eighties of the last century, the post-war boom and the blind trust in the continuing improvement of social life conditions lost momentum. In economy, the accumulation of industry capital decoupled the increase of wages from the increase in productivity. In technology, flexible automation displaced Fordism (mass production with mass consumption). In politics, Thatcherism and Reagonomics, the destruction of the social welfare state by liberalisation, privatisation, and deregulation were introduced. In culture, the ideology of neoliberalism, of 'make your own luck', of individualism began to become hegemonic. All of that formed a pattern that connects. It was implemented by the advised response of the ruling classes to the decline of the profit rates that had accelerated because of the accumulation of capital that could not find appropriate spheres of investments. And this implementation could capitalise the weakness of the trade union and labour movements. In the nineties, the financial capital began even to outweigh the industrial, 'material', 'productive' capital causing several bubble implosions. In the current crises, the transnational financial capital is targeting national economies and the politicians support it by administering austerity at the cost of the 80, 90 or even 99 per cent of the populations instead of starting a redistribution of wealth and income.[9]

The conditions for a subjective factor to emerge have even worsened. Pupils were trained for working as cogs for myopic economic interests and were not educated for grasping the big picture. Personal competence through political

education and engagement is neither requested nor offered, and technical and business skills and (natural) science training prevail. The economisation of education transformed pupils and students in customers. Schools and universities do not provide guidance for critical thinking nor do they provide free space for it. Even bonds to society are not established.

There is not yet empirical evidence for the spread of consciousness among the youth in the Western world concerned with the commons that need to be reclaimed for a just order of the social relations in the nascent world society. Restricted reflexion seems the dominant mode yet.

But there is still hope. All the protests of new social movements might have been contributing to the preparation of the grounds for growing political awareness, reflecting the economic background and for a will to change. Insight into the causes of the crises may have proliferated. Discourses may have realised that the current crises are expressions of a progressive enclosure of all the common goods that are generated and utilised by actors in the whole range of social systems that make up society. Battles over reclaiming the commons may be more easily identified than before.

In conclusion, there is still a foundation for hope, since social evolution inheres imponderabilia, contingencies and serendipity. Social evolution is emergent, and situations might occur that open the window to the needful transformation into a Global Sustainable Information Society.

---

[1] Wolfgang Hofkirchner, *Twenty Questions About a Unified Theory of Information* (Litchfield Park, 2010), pp. 5-6.

[2] <is4is.org>(accessed: 8 September 2015)

[3] <summit.is4is.org> (accessed: 8 September 2015)

[4] Wolfgang Hofkirchner, "Potentials and Risks for Creating a Global Sustainable Information Society", in: Christian Fuchs and Marisol Sandoval (eds), *Critique, Social Media and the Information Society* (London and New York, 2014), pp. 66-75.

[5] Wolfgang Hofkirchner, "The Commons from a Critical Social Systems Perspective"", *Recerca*, 14 (2014), pp. 71-91.

[6] Robert K. Merton, *The Sociology of Science: Theoretical and Empirical Investigations* (Chicago, 1973), pp. 267-278.

[7] Neal Curtis, *Idiotism: Capitalism and the Privatisation of Life* (London, 2013).

[8] Curtis, *Idiotism,* p.12.

[9] Hofkirchner, "The Commons", pp. 85-86.