

Intelligence, Artificial Intelligence and Wisdom in the Global Sustainable Information Society [†]

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Abstract: The Global Sustainable Information Society is a theoretical concept describing the vision of a good society in the age of global challenges. Globality, sustainability and informationality are understood in an innovative way as essential features of a world society to come that is capable of mastering the global challenges. Regarding informationality, the distinction between informedness and informatisation is made and a law of requisite information is introduced. The terms “intelligence”, “Artificial Intelligence” (AI) and “wisdom” are discussed from the perspective of complex systems. Intelligence and AI without wisdom are not deemed sufficient to meet the conditions of a good society today.

Keywords: global sustainable information society; global challenges; social systems; self-organisation; intelligence; artificial intelligence; wisdom; metasystem transition

1. Introduction

The concept of the Global Sustainable Information Society [1] sums up the necessary conditions that need to be met if the challenges to the continued existence of humanity on Earth shall be successfully tackled. Societies are seen as social systems, the further development of which in times of global challenges needs a transformation (metasystem transition) such that they become elements of a higher-order system that expresses a new state of human co-operation. Such a state would allow for keeping the self-inflicted systemic dysfunctions below a threshold that threatens with self-annihilation. Intelligence, Artificial Intelligence (AI) and wisdom are deemed different manifestations of informational capacities. It will be argued that intelligence is a property inherent in any self-organising system (agent), that wisdom is the highest product of intelligence that social systems and actors share, and that AI is a non-agential (non-self-organising) extension of social systems and actors that needs to be designed so as to support wisdom, that is, to enable new synergy for social systems and actors but not constrain them and undermine their autonomy.

2. Discussion

Seen from a complex system’s view, the evolution of mankind faces a Great Bifurcation. Global challenges, apparent as multi-crisis cutting across technological, ecological, economic, political and cultural social subsystems, might cause the extinction of mankind. Either the social systems that together constitute mankind undergo a metasystem transition [2] onto a higher level of organisation that allows for the continuation of social evolution on Earth or they, eventually, fall apart and discontinue anthropogenesis; either they succeed in rising their complexity such that they break through to a new step in the mega-evolution [3] of humanity or there is a decline in complexity, a breakdown and devolution; either their differences can be integrated or they disintegrate themselves.

The metasystem to be achieved is a Global Sustainable Information Society, which is a framework for necessary conditions of surviving and thriving of the human species at the Great Bifurcation. In this complex system's view, globality, sustainability and informationality are properties of the new system that can and must thus be understood in a new way.

2.1. Globality

The new understanding of globality focuses on the needful expansion of social relationships from a part that does not represent the whole of mankind to that very whole such that every part can reflect the whole. Globality is the envisioned state of world society as an integrated meta- and supra-system in which social relationships will connect all parts of humanity in all fields of human life. Since the relations of organisation that structure any complex systems around a specific synergy [4], the relations of the organisation of social systems are social relationships that structure the social system around the commons [5]. The commons are the social synergy. All actors are involved in producing, reproducing or transforming commons and share the commons, albeit in different ways. Hence, the social relationships are commoning relations. These commoning relations need to be lifted onto the planetary level, and the emerging superordinate system will nest all actors and systems according to the new expanded commoning relations. By that, global governance is carried out.

2.2. Sustainability

The new understanding of sustainability [6] refers to the needful re-organisation of the world system such that global commoning is enacted to achieve stability through compliance with the principle of unity through diversity as in every complex system. Sustainability is the envisioned state of the world system that will be shaping the social relationships between all parts, and throughout any part, of humanity pursuant to the commoning relations on the higher level. Since global commoning provides the conditions for surviving and thriving of all actors and any actor, the world system is not stable unless global commoning is implemented and unless dysfunctions in the working of the organisation of the social system are kept below a threshold the transgression of which would discontinue social evolution.

2.3. Informationality

The new understanding of informationality stresses the distinction between being informed and being informatised, that is, between the social function information is needful to fulfil to master the global challenges, on the one hand, and the technological means that are used to mediate social information functions, on the other. Informationality is the envisioned state of informedness of informational actors and systems in which they will catch up with the complexity they are challenged by the Great Bifurcation to such an extent that, in an effort of collective intelligence as in any complex system, they will dispose of the capacity to recognise the causes of the global challenges in order to accordingly re-organise human life on Earth to master those challenges—an informedness that rests on proper informatisation [7]. The superficial talk of information society propagates informatisation—the diffusion of IT throughout society—and digitisation—the diffusion of so-called autonomous and intelligent systems, of so-called artificial intelligence (AI), of robots. However, informatisation and digitisation are only changes in the technological infrastructure of societies, which does not signify an essential change in the quality of society if the purpose of those tools is not considered sufficiently. Information technologies need to be matched with the purposes of assisting the establishment of a new world society. Only by global thinking can technology be assessed and shaped for the advent of a good society.

While globalisation is about the provision of world-wide commons and sustainabilisation about the provision of safeguards against the deprivation of world-wide commons, the process of shaping informationality is about the provision of social information for the installation of safeguards against the deprivation of world-wide commons.

2.3.1. The Law of Requisite Information

In cybernetics, W. Ross Ashby introduced the law of requisite variety [8]. According to it, a system is said to be able to steer another system, if the variety it disposes of corresponds, if not surpasses, the variety of the system to be steered. That is, its options to (re)act shall correspond to the options the system has. If we connect variety to complexity, we can reformulate that law as follows: the steering side needs to be at least as complex as the challenge by which it is confronted from the side to be steered. If we connect complexity to information, we can arrive at the following conclusion: the steering side can increase its own complexity through generating information. Cases that apply here can include not only systems in the outer environment that are attempted to be steered but also the system itself (its inner environment). Thus, we can introduce a law of requisite information. Requisite information is that appropriate information a system has about the complexity of the exterior and interior environment. Requisite information safeguards the functioning of the system. Informationalisation is then, in contradistinction to mere informatisation, the transformational tendency towards informationality, enacted by informed actors and social systems whose capacities allow for the creation of requisite information, not least because of a suitable informatised infrastructure.

2.3.2. Intelligence

Intelligence can be characterised as the informational property of an agent. Any complex system is an agent, since—due to the capacity of self-organisation—it shows agency. This agency is, furthermore, co-extensive with information generation. Intelligence then capacitates to succeed in the achievement of goals that emerge in the course of its self-organisation and generating information. In particular, intelligence manifests itself by the generation of appropriate information. Appropriate information guides the successful pursuit of goals.

Every (supra-)system's intelligence is then collective intelligence: it emerges above, and supersedes, the level of the elemental intelligences on which collective intelligence remains to be based.

Intelligence reflects (on) the means–end relationship, in particular, the efficacy and efficiency of the means towards the end. The evolution of self-organising systems led to an increase in intelligence, as agency is characterised by the use of an ever-greater variety of ever more efficacious and efficient means towards an ever-greater variety of ends. Human intelligence seems to be one of the highest intelligences achieved on Earth.

2.3.3. Artificial Intelligence

Human intelligence even creates what is called AI. However, the term is misleading. AI is a feature of machine processes [9] that does not signify a feature of the machine itself. Machines function according to mechanical determinacy and can thus not be intelligent themselves. They do not self-organise and are not agents; they are patients. They only support the intelligence of human/social agents, in particular in the field of routine work, in which they can perform certain pre-given tasks in the place of actors and even better than actors, but they never can come up with emergent products. Since AI is a tool that shall afford the intelligent behaviour of actors, it shall not be given room to constrict the autonomy of actors. Autonomy is part and parcel of human intelligence.

2.3.4. Wisdom

Social information, that is, information in the realm of humans and social systems, can be categorised according to three levels in an ascending pyramid: data—knowledge—wisdom. Data is the level of syntactic information, knowledge is the level of semantic information and wisdom is the level of pragmatic information. The first level provides the necessary condition for the second level that is based upon data but re-organises data according to the meaning knowledge adds to data. It builds the necessary condition for the third level that is based upon knowledge but re-organises

knowledge according to the values and norms wisdom adds to knowledge. Wisdom reflects not only the means–end relationship but also the end in itself and makes the means dependent on the end. It is the informational property of actors and social systems that allows humanity to take steps in the direction of a good society populated by happy individuals conducting a good life.

Thus, the new understanding of informationality—of an informedness about the global challenges and of an informatisation that contributes to exactly this informedness—calls for global thinking that creates requisite data, knowledge and wisdom for a wise society that knows how to continue social evolution on Earth and acts accordingly.

3. Conclusions

Summing up, a Global Sustainable Information Society is (1) an intelligent society, as it optimises goals achievement; (2) what is more, it is an AI-society, as it makes use of AI as a tool for supporting collective and individual intelligence to optimise goals achievement; (3) what is even more and in the end decisive, it is a wise society, as it orientates the thinking and acting of all actors, including their use of AI, towards solving the global challenges as goals, which would accomplish another step of evolution of humanity.

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References

1. Hofkirchner, W. Information for a Global Sustainable Information Society. In *The Future Information Society*; Hofkirchner, W., Burgin, M., Eds.; World Scientific: Singapore, 2017; pp. 11–33.
2. The Metasystem Transition. Available online: <http://pespmc1.vub.ac.be/MST.html> (accessed on 24 February 2020).
3. Haefner, K. *Evolution of Information Processing Systems*; Springer: Berlin, Germany, 1992.
4. Corning, P. *Nature's Magic*; Cambridge University Press: New York, NY, USA, 2002.
5. Hofkirchner, W. The commons from a critical social systems perspective. *Recerca* **2014**, *14*, 73–91.
6. Hofkirchner, W. Sustainability and Self-Organisation. In *Information Ethics*; Nishigaki, T., Takenouchi T., Eds.; V2 Solution Publisher: Nagoya City, Japan, 2012; pp. 191–217.
7. Nora, S.; Minc, A. *L'informatisation de la société*; Documentation Française: Paris, France, 1978.
8. Ashby, W.R. *An Introduction to Cybernetics*; Wiley: New York, NY, USA, 1956.
9. Hofkirchner, W. Does computing embrace self-organisation? In *Information and Computation*; Dodig-Crnkovic, G., Burgin, M., Eds.; World Scientific: Singapore, 2011; pp. 185–202.



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