Chapter 8
Peril and Promise of Internet Technology for Future Social Order

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Abstract The author's objective is to assess threats and promises offered to humanity by the already *theoretically personified* Internet technology. Without any doubts we may say that the technology is one of the crucial key areas of human activity. Explorations of its possible evolution and ways in which its different development paths will lead us are still very important. The question of the way in which the *digital status quo* of Internet social order functions and of the principles governing it is more than justified. The future of social civilization connected with the development of modern day *ubiquitous technology* is not obvious. The crucial question: why so many aspects of the understanding of technology changed throughout the twentieth century cannot still be answered. The fact that people misunderstand proceedings of the future has already brought many very serious implications for humankind's condition. To understand a peril and a promise of Internet technology for future social order we should ask three basic questions. What did we believe in throughout the past century? How have we described the technology evolution? How have we tried to understand a process of future order emergence? Searching for answers to the above questions should, in a sense, facilitate identifying new possibilities how to redefine already functioning, often popular visions of possible implications further development of the Internet technology may bring to social life. Visualizing existing notions of future techno-social transformations may bring a myriad of new interesting variants of answers and pressing questions in the article.

Keywords Order of digital chaos · Technological transformations · Internet technology · Principles of network development · Self-organization on internet · Cyberutopias · Cyberunderground

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L.W. Zacher (ed.), *Technology, Society and Sustainability*,
DOI 10.1007/978-3-319-47164-8_8

Order of Chaos

> Chaos in not really chaos. Chaos, plainly speaking, is order pretending to be mess. This is a system in which chance and necessity, complexity and simplicity coexist and penetrate one another. Chaos has only recently been discovered by scholars. This is surprising to the extent that it is neither an abstract mathematical construction nor an intangible elementary particle which may be observed only in the interior of stars or in powerful accelerators, but the most natural and most frequently encountered form of reality (Peters Edgar 1996).

In social sciences there prevails a common conviction that a society deprived of an institutional background of formal structures responsible for keeping and protecting social order would be sentenced to chaos and annihilation. Chaos is most frequently described as a state of confusion, disturbance, darkness, disorder, a specific kind of structural mess. A state of chaos signifies lack of order. In colloquial speech chaos is described as a gradable phenomenon. Social processes are characterized by various degrees of chaos, preceding the emergence of ordered structures. Chaos is an inherent element of social order, a ubiquitous and common phenomenon.

In social sciences, however, an expression that appears more often is *social order* which is synonymous with a well-functioning social system, cooperation, consensus, social agreement. The emergence of social order enables the existence and development of a society and its structures. However, proponents of the theory of chaos maintain that it is determined linear processes, and hence those associated with a common way of understanding social order, that are exceptional (Tempczyk 2002).

Therefore, researchers conducting in-depth analyses of modern day Internet society have made the subject of their study the process of specific *cybercosmogony* endeavouring to discover the *nature* of a qualitatively new, technologically induced social order—the Internet era. Researchers of the Internet are trying to find both creators of digital order, aiming at legitimizing it, and its opponents, creative destructors, digital non-conformists of the ideology of Internet society. *Digital order* is based on networks—ontological products of digital social order and its order-creating conditions (White et al. 1976).

What is interesting, in the beliefs of primitive peoples we can find numerous similar descriptions of the emergence of the order of the universe. Examples of this are a belief in a somehow anthropomorphized creative power, very often hidden until the moment of creation, and the existence of a not quite defined *original matter* from which the world was created.

The author's objective is to assess threats and promises offered to humanity by the already *theoretically personified* Internet technology. Internet is defined in many ways: as an example of a powerful technology, a tool for collective action, a society, cyberspace, an information network. Without any doubts we may say that the technology is one of the crucial key areas of human activity. Explorations of its possible evolution and ways in which its different development paths will lead us are still very important. Future starts now. Past prophecies are useless in a great confrontation

with an approaching network order. Development stages of the technology, generally, turn into specific, nonlinear revolution phases. Categories of past, present and future coexist in heterogeneous sets of daily semantic dictionaries. A nonuniform flow of innovations impacts in a different way various fields of social order analyses.

The question of the way in which the *digital status quo* of Internet social order functions and of the principles governing it is more than justified. The future of social civilization connected with the development of modern day *ubiquitous technology* is not obvious.

Metaphysical deliberations on being, chaos, potentiality and order will not be the subject of this article; however, creating a vision of the future of formation of Internet society, *a truly technological society*, a society more and more *virtualized* in the near future, requires an in-depth axiological reflection on the general condition of humanity and social effects of its future *technological encounters*.

The crucial question: why so many aspects of the understanding of technology changed throughout the twentieth century cannot still be answered. The fact that people misunderstand proceedings of the future has already brought many very serious implications for humankind's condition. To understand a peril and a promise of Internet technology for future social order we should ask three basic questions. What did we believe in throughout the past century? How have we described the technology evolution? How have we tried to understand a process of future order emergence?

Searching for answers to the above questions should, in a sense, facilitate identifying new possibilities how to redefine already functioning, often popular visions of possible implications further development of the Internet technology may bring to social life. Visualizing existing notions of future techno-social transformations may bring a myriad of new interesting variants of answers and pressing questions. This will not however fill in the semantic gap of the present time should the notions of the past not be dealt with at first.

Technological Transformations

> People who are writing about technology love a theory that says they are the most important people in society. How flattering to be told that 'you are the future', rather than train drivers or hospital workers
>
> (Barbrook 2007).

Throughout recent centuries numerous essentials technological transformations have taken place. Electricity, the telephone, the car, the computer, the mobile phone and a plethora of breakthroughs have contributed to the process of structuration of new social systems—network-based communities. In terms of value judgement great transformations have been addressed in all sorts of ways. The practical aspect of possible future application of technologies to bring about socially desirable effects was of foremost importance.

The attempts to shape the future were motivated by the faith in introducing the socially noble ideas of sustainable development, the knowledge society, counteracting social exclusion, fighting poverty, enhancing innovation (Barbrook 2007). Visionaries of the future monitored the emergence of new social rituals connected with the application of digital tools. The process of designing further technological breakthroughs was based mainly on examining social needs.

The greatest visionaries of the past decade believed in the power of computer. The practical implications and the theoretical consequences of the scenarios grounded on the belief in the unquestionable power of machines were the ambition of creating a hybrid of a man and a machine. A computer integrated with human DNA was to epitomize a grand future, a further stage in the evolution of the humankind offering new possibilities of development of humans and machines (Warwick 1998). The notions of artificial intelligence, smart software, virtual reality, markup language, hypertext markup language, microprocessors and many other high-performance tools quickly mushroomed in scholarly disputes of the twentieth century.

The faith in the power of computerization, information technology, social networks (both virtual and real) was based on the belief in the evolutionary cognitive potential of the humankind, especially the belief in the potential of the Internet technology. Exerting real influence on one's lifestyle, making independent decisions about one's place of residence or job was to be a dream come true due to the development of the Internet and the potential of a computer as a tool of the extension of the human body.

Deliberations over chaos, its origin and consequences as well as on the principles underlying contemporary social order may contribute to a serious interdisciplinary discussion on the essence of social order. Technological advancement has often been associated with the condition of chaos preceding the condition of sui generis techno-social equilibrium, sustainable development, i.e. a positive scenario in which it is the human being that creates and manages technology.

The twenty-first century saw scientists from the American Cooperative Association for Internet Data Analysis at the University of California in San Diego reach the conclusion that the Internet reminds of the human mind, or in micro-dimension even the universe as it is based on the same principles (http://zmianynaziemi.pl/wiadomosc/naukowcy-odkryli-podobienstwa-w-rozwoju-wszechswiata-internetu-ludzkiego-mozgu). At present scientists ponder whether there exist common principles of network development, irrespective of their size and type.

The most serious threats facing the development of the Internet technology are connected with the fear of losing control over structures responsible for maintaining social order. New questions emerge concerning future implications of *acts of creative destruction* on the Internet. Further advancement of the Internet technology may lead to very radical transformations of social order. Disruption of the longue durée structures, axiological micro-revolutions, the increased importance of technological principles in social life, disintegration of social ties, collapse of the previously recognized authorities and hierarchies are but a few consequences

of the Internet impacting network-based communities. Digital chaos may wreck havoc and disrupt commonly recognized global narration of sustainable technological development.

Digital chaos is also positively defined as a process that may lead to the emergence of a qualitatively new order often viewed in terms of value judgement as better, more modern, more effective, more future oriented. The interaction between internet technologies and social processes, as it is stressed in this paper, is not unidirectional. Social processes may also affect information and communication technologies, the way they are designed, commercialized, on the direction of development of Computational Social Science.

Assessing positives and negatives of the future development of the Internet entails methodological confusion. The leading notion, the semantic key to understanding the ongoing socio-economic network micro-transformations, seems to be the notion of self-organization. End-of-evolution prophesies, the information catastrophe or network anarchy visions remain very popular.

If however small and big network schemes of different types remain strikingly similar in their functioning, the development of network structures regulated by the similar principles seems equally plausible, though the very principles have not been yet unravelled by scientists. Although nature still eludes human understanding, further research into the Internet structures may prove useful in understanding the regulating rules of social order, with the preceding condition of chaos in the Internet network.

Further important discourse of the future was based on a popular information metaphor. The attention was focused on the practical aspects of measuring the speed, the cost and the volume of information (Toffler 1980). Technological advancement was understood in terms of enhancing the possibilities of information digitalization while minimizing the cost of digital production, its turnover and improving particular parameters. Information efficacy was to become the metaphor for the future. The Information Technology sector instantly earned the reputation of being a highly competitive one of the twentieth century.

Another meaningful transition affected the information paradigm, which transformed into the network paradigm. The resultant revolutionary semantic product of the network technology influenced the way value judgements are made about technological development (Tapscott and Wiliams 2010). Not only they have computers with Internet access affected the décor of the living room of an average user, but they also have replaced the TV sets. The most noticeable change has been acceleration of the speed of the flow of information in networks, i.e. network explosion. A new symbolic culture of digital users has thus emerged. On theoretical level, network cooperation has been viewed as a positive feature, a tool facilitating preservation of democratic values.

Not all visions portrayed bright future. Some feared the era of technological order in which technological principles were to replace the commonly recognized civilization code. A lot of authors while passing a verdict on the Internet referred to its origin as a tool used to wage a war and not a means of providing peace.

Nowadays the belief in technology as a means of extending the human body seems valid. The Internet technology does invade the human body, not only in remotely steered spaces. Contemporary society has been turning into an interactive net of relations reenacted in virtual reality. IT will become a technological base for an alternative social order. New social rituals will emerge; the biological human body will be digitally redesigned.

Self-Organization

> The principles of spontaneous order is embodied in the free market system- a system that does not yet exist in a pure form… The free market allows complex institutions to develop, encourages innovation, rewards individual initiative, cultivates personal responsibility, fosters diversity, and decentralizes power. Market economies spur the technological and social progress essential to the Extropian philosophy… Expert knowledge is best harnessed and transmitted through the superbly efficient mediation of the free market's price signals-signals that embody more information than any person or organization could ever gather (Terranova 2001).

One of the greatest promises given to humanity by the creators and engineers of the Internet is a growing faith in the possibility of discovering the laws governing social phenomena. The Internet is more and more often treated as a specific network laboratory of power, social movements, revolutionary social changes. The reason why scientists became interested in discoveries of biological and exact sciences again was the success of the theory of self-organization (Hejl 1984; Imanda 2008; Levy 1977; Mishra and Zwierlein 1994; Riedl 1984). Its creators and promoters referred to the concepts of order and organization while explaining complex phenomena of the world of nature: order, or a certain model, is the final stage of a dynamic process of changes, while organization is an example of an intentional process.

Researchers of self-organization are interested in spontaneous processes of social order creation (Strogatz 2003). The offered vision of order breaks with the popular premises of the possibility of external control over transformation of chaos into a certain type of organization. The theory of self-organization is based on four principles of synergetics: fluctuation as a source of order, preference for creative individuals, acceptance for chaos, non-recognition of a control centre.

In future, comprehending the process of self-organization can open the door to so far unexplained laws of the nature, defying rational assessment of the scientific world, to discovering one of the greatest mysteries of living systems. The still unresolved questions of the *workings* of evolution, of the order of nature, of human consciousness and the possibilities of its development and practical use, of artificial intelligence and of complicated hybrid socio-technical systems are currently being reformulated and once more raised during serious scientific discussions. The adopted assumption of the common occurrence of self-organization processes at all levels of the world's complexity, from physical systems to cultural ones, is not without an impact on the increasing attractiveness of the discourse.

Will research conducted on self-organization on the Web allow us to understand the process of life and to find out the civilization code of the future? Can we compare ways of organization of nature, its tools of self-reflection, self-reference, self-production, self-maintenance and finally self-organization, which guarantee nature stability, survival and development processes, to the description and characterization of socio-technical systems?

The answer to the question posed is not unambiguous; it depends very much on the context. Transformation of Internet technology at the turn of the twenty-first century led to an increase in interest in potential threats to social order coming from cyberspace. A fear of new, so far unknown categories of threats cyberviolence, cybercrime, cybersurveillance, cyberterrorism, cyberwar gained strength along with attempts to control cyberspace by state authorities and market institutions. *Technology of freedom* is today more and more frequently identified with control, birth of a new quality of cyberauthoritarianism, marketing cybertotalitarianism, symbolic information violence. We are witnesses to another revolutionary change of meaning.

In the twentieth century Internet technology was described in the categories of a new social tissue, a structure creating bonds, a social binder, a technical base increasing a theoretical possibility of peacefully uniting man and a machine into one irreducible whole – a system deprived of a familiar cultural and biological context of reference. In the twenty-first century the Internet is undergoing sharp criticism.

The historical context in which the technology was created is referred to while attempting to answer the question of the degree to which the Web structure affects the formal and informal shape of communication structure, power and diffusion of knowledge in a networked society, in which the technical infrastructure is becoming the dominant link of communication processes (Castells 2000, 2001; Gladwell 2000). There is an enormous capacity for controlling a society which is technicalized and dependent on the Internet to such an enormous extent.

Thus key socio-economic information channels assume a completely new meaning. A dematerialized world of cybersymbols is to an ever greater degree affecting the material dimension of human existence. Internet technology brings with it a serious threat to the democratic principles according to which a networked system should function. There looms a threat of the onset of mega-cyberpanopticon. Modern day Internet users have long become members of a cyberpanoptic system of network control (Krzysztofek 2011).

However, the analysis of the way the Internet is organized, of its network structure, gives certain hopes for a change of direction of its development. It seems that in future Internet technology should promote self-organization in a natural way. Characteristics of the technology itself potentially encourage both this type of actions, as well as the formation of decentralized structures, deprived of a control centre (Benkler 2006; Zacher 2006, 2012).

Cyberchaos, cyberanarchy, destabilization of social order can take on completely new civilization meanings. Widespread glorification of chaos as a process is, however, not very probable in the future. Admittedly, the Internet facilitates a spontaneous formation of large structures and reduces the costs of coordinating activities; nevertheless, the issue of lack of exterior control over the activities

remains debatable (Shirky 2008). Is Smart Mob really a wise choice? Was the so-called Egyptian Spring an unplanned cyberproject?

A decentralized structure of the Internet based on the principles of self-organization is very seriously entangled in the market context. Great changes are spreading like viruses in cyberspace. An "epidemic of co-operation" permeating all aspects of social and economic life is a great promise to a future social order. In future, the development of Internet technology will have a significant impact on the approach to problems of networkness. The Internet opens up new ways of exploring the issues of production and distribution of knowledge in an economy and society, and of social self-organization processes. The same hopes, depending on the context of an analysis, can bring many dangers which will ruin the well-known social order.

Cyberutopias

> Dear Patient (first name, last name)! You are presently located in our experimental state hospital. The measures taken to save your life were drastic, extremely drastic (circle one). Our finest surgeons, availing themselves of the very latest achievements of modern medicine, performed one, two, three, four, five, six, seven, eight, nine, ten operations (circle one) on you. They were forced, acting wholly in your interest, to replace certain parts of your organism with parts obtained from other persons, in strict accordance with Federal Law (Rev. Stat. Comm. 1-989/0-001/89/1). The notice you are now reading was thoughtfully prepared in order to help you make the best possible adjustment to these new if somewhat unexpected circumstances in your life, which, we hasten to remind you, we have saved. Although it was found necessary to remove your arms, legs, spine, skull, lungs, stomach, kidneys, liver, other (circle one or more), rest assured that these mortal remains were disposed of in a manner fully in keeping with the dictates of your religion; they were, with the proper ritual, interred, embalmed, mummified, buried at sea, cremated with the ashes scattered in the wind—preserved in an urn—thrown in the garbage (circle one). The new form in which you will henceforth lead a happy and healthy existence may possibly occasion you some surprise, but we promise that in time you will become, as indeed all our dear patients do, quite accustomed to it. We have supplemented your organism with the very best, the best, perfectly functional, adequate, the only available (circle one) organs at our disposal, and they are fully guaranteed to last a year, six months, three months, three weeks, six days (circle one). Of course you must realize that …
>
> Stanisław Lem, from: The Futurological Congress.

Visions of the future based on a strong belief that it is really possible to achieve the postulates of sustainable social development thanks to a growing symbiosis between people and machines are currently undergoing a surprising transformation. Numerous prognoses are still referring to ideas of evolutionism popular in the past. Cyber-Darwinism takes on the role of a new ideology. Once again, people announce ideas of the end of evolution and the onset of an era of perfect superhuman beings, liberated from their biological oppression (compare with: "The body needs to be repositioned from the psycho realm of the biological to the cyber zone of the interface and extension-from genetic containment to electronic extrusion. Strategies towards the post-human are more about erasure, rather than affirmation- an

obsession no longer with self but an analysis of structure", STELARC 2001, p. 560). Will digital technology really substitute an imperfect human body in the future?

The question is not likely to arouse much controversy. The issues of belief in the might and speed of calculating power of Internet carriers are much more problematic. In its digital version the most interesting of social rituals, gathering information, also seems to be naïve. Well-known present day scenarios of the future are based on utopian assumptions. The onset of a cyberorder will not lead to creation of a digital society of equality. The Internet will imply a process of forming new, so far unknown social divisions.

The process of transformation of digital utopias was taking place in the background of IT development and changes. The phrase that entered for good the dictionary of Internet terms was the name Web 1.0. Web 1.0 was a one-way model in which the leading role was played by a service creator, who was its founder and editor. The structure assumed a passive participation of remaining users whose role was reduced to reading and receiving information, rendering it impossible to interfere with the text. Web 1.0 showed no signs of interaction, just like other media before it—books, magazines and television, up until a certain point.

A breakthrough in the development of the Internet was the implementation of Web 2.0 model, which took most creative privileges away from service programmers in order to increase users' influence on the way of managing the content. The main idea behind the second generation of the Internet was interactivity and communication. Web 2.0 was an attempt at solving one of the greatest problems concerning the Internet: an overload of content, which is not ordered and properly catalogued. A boom of networking structures draw attention to an interesting feature of collective actions on the Web. Internet structure promoted processes of information and knowledge exchange and sharing.

The future of Internet technology is associated with a new model of semantic network Web 3.0 (O'Reilly 2004). It is assumed that there is a possibility of creating a digital meta-base of human knowledge by connecting all single databases, all computers, users, digital resources. Users and Webs will start co-operating with one another, without the need for keyboards, without the need for computers, telephones thanks to the use of, e.g. brain implants. Computer programmes will find necessary data and commands in a semantic way (combined according to meaning and not without a context). This solution is to deal with the greatest modern problem of a flood of information and an ineffective use of all resources known to humanity. A centralized digital meta-base of human knowledge will enable every participant—man, a programme, a machine—access to all information at any time. At present, most information on the Web can be read only by people.

In practice, this model assumes centralization of so far decentralized structures, conversion of 2.0 system into a model of an independent meta-database, specific mental collectivization of information, digital meta-totalitarianism, a capacity for full control of all users. No one knows on what specific lines the 3.0 Web would function. For the time being, it is a vision putting which into practice, for technical reasons, will take humanity a long time. However, combining this type of vision with the idea of sustainable development seems in itself to be dangerous.

Another scenario of development based on a belief in the power of digital chaos appears to be more probable.

Exit-Node: Cyberunderground

> We are Anonymous. We are Legion. We do not forgive. We do not forget. Expect us (The Anonymous Slogan)

The Onion Router emerges as a competitor of total clear Internet, the cyber-Panopticon enabling identification of each user through IP and sending segmented advertising messages (http://www.onion-router.net/Publications.html; Singel 2006). This virtual computer network created in 2004 has become fertile soil breeding the cyberunderground (http://torstatus.blutmagie.de/). The Onion Router implements the second-generation onion routing thanks to which the net prevents analysing Internet traffic thus providing almost anonymous access to the Internet resources (Perkins 2012).

Onion routing relies on multi-layered encryption of messages which makes it possible for the users to escape content filtering, censorship and other limitations. This comes as a response to the increasing censorship and surveillance of the Internet users. Onion routing has been developing in parallel to the classical network. Though in practice it is not that quick as its classical counterpart and less popularized, onion routing attracts interest. The belief in the speed of the Internet is a thing of the past.

The future may bring a more striking division amongst the Internet users into those who have been consciously or unconsciously subjected to surveillance and those who have escaped into the cyberunderground (Betlej 2012b). The axiological aspect will also change. The right to privacy, to remain anonymous and enjoy the freedom of communication, will reappear in a new context in the public debate[1] (http://english.ruvr.ru/2012_10_22/One-mans-criminal-is-another-mans-freedom-fighter-Anonymous-EXCLUSIVE-interview-part-2/).

The cyberunderground may disrupt the future social order. "Shadow Internet" may breed new types of crime (Sienkiewicz 2012). The Internet black market may become a serious threat to the traditional agendas. One might presume this will

[1]Compare with: "One man's criminal is another man's freedom fighter"—Anonymous, EXCLUSIVE interview, part 2:
Robles: "What is the underlying philosophy of Anonymous?"
Anonymous: Freedom. And the defence of the Internet because it is the greatest tool of liberation in the history of humanity.
Robles: "What would you say to people who say you are criminals?"
Anonymous: What would I say to them? I would shrug and decline the semantic argument. One man's criminal is another man's freedom fighter. Whichever label you choose to attach to us says far more about you than it does Anonymous±.

be the path of development of the Internet in the future. It is extremely difficult to assess the potential threats and opportunities of the IT for the social order and stability as previous forecasts have proved outdated (Betlej 2012a). It does not seem valid to assume that the Internet will become a means of freedom. These are personal aims and intentions of users that will decisively shape the final judgement on the Internet as a communication tool.

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