



Social and Health Sustainability of 5G Technology. The Side Unpredictable Effects of the Unchallenged “Digitisation” of Society

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ABSTRACT

The newest 4.0 industrial models supported by the fifth generation of mobile communication technology (5G) imply rapid change in the social structure and in everyday life. In particular 5G is aimed to promote the economical growth, largely driven by the technological advancements in Information and Communications Technology (ICT) and Healthcare sectors. Though industry exalts only the advantages of the acceleration of the digital progress, the collateral unexpected long-term social, environmental and health side-effects of 5G could be relevant. 5G is a paradigmatic case of the “physiological” delay of the science in the assessment of the potential adverse implications of the innovations in the most varied spheres. The sociologist Zygmunt Bauman (Liquid modernity; 1999) attributed to new media (internet, social networks, e-commerce) a crucial role in the loosening of social relationships, the loss of solidarity, the crumbling of political and cultural pillars, the more and more exaggerate consumerism and individualism. More recently, by Homo deus: a brief history of tomorrow (2016), the historian of science Yuval Harari warns us about the risks of an “hibrid” society generated by unpredictable interactions between genomics, nanotechnologies, robotics, artificial intelligence just catalyzed by 5G. Actually the uncontrolled and unchallenged technological progress makes the world increasingly complex and dominated by the uncertainty, but paradoxically the scientists rely on the technology to solve the catastrophic events that they hadn’t expected, but lucidly narrated in science fiction movies and dystopic literature, in which surviving humans and populations of autonomous androids compete to access the poor resources of a desertified planet. The current coronavirus emergency is preventing people to realize disadvantages and dangerous effects of 5G that are preparing to colonize the world.

Purpose of the present paper is to problematize the theme of the pandemic risks coming from the undisputed blind race of the digitalization.

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Introduction

The current “stay-at-home” and “smart-working” anti-coronavirus measures, which sanction enormous the power of the wireless devices, are already unawares projecting us toward a new world dominated by 5G technologies. The planet will be monitored capillary and each of us probably will agree to be spied all the time and to be traceable everywhere.

The anti-coronavirus “Contact Tracing” applications (like the app Immuni powered by Italy government) seem to announce a sort of panoptic surveillance that will be just perfected by 5G. Almost a century ago

the novel Brave New World by Aldous Huxley told about a society monitored by a “Great Controller” through a combination of “hypnopedy” (by wireless remote-controlled devices) and “soma”, a free State drug making everyone “happy, nicely confused, docile and obedient”. Today curiously the Industry proclaims that 5G will make our life much easier, comfortable, fast, and above all, funny. In other terms, by mean of 5G the techno-plutocratic world governance will be able to get peacefully hold of our freedom and privacy while we will be exposed at increasingly massive doses of trivial, fake, distorted, but funny media contents making us more and more stupid, submissive and first of all conformist. But,

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in Huxley's opinion, "conformism, the uniformity, and freedom are incompatible, and the uniformity affects the mental health". So it doesn't have to be a coincidence if the "liquefaction" both of the solid political, cultural and ethical values and social ties seems associated to an occult pandemic of mind distress, schizophrenia, autism and panic attacks caused by a sudden disconnection from internet [1,2].

Living in a Dense Electromagnetic Cloud

Because of the implementation of superlarge bandwidth and ultrashort range microwaves frequencies, 5G will increase dramatically both the number of indoor and outdoor antennas and "smart" devices, whose use will be supposedly more and more pervasive. Therefore the 5G deployments will involve an exponential planetary growth of the "electrosmog" levels so that all the living beings will be more and more exposed to new pulsed and irregular strongly bioactive digital signals [3]. This exorbitant increase of radioemissions coming from an higher and higher amount of mobile communication networks, industrial "internet of things" (IoT) applications (including machine-to-machine (M2M) self-connections), smart objects, robots and wearables devices will put a strain on resilience of human biology and ecosystems. In other terms, not to give up the ephemeral and often unuseful technological advancements, we humans are resigning ourselves to live in a 5G electromagnetic technospere interconnecting mobile phones, sensors, videocameras, smart machines, drones, robots, unmanned vehicles, medical equipments, e-healthcare services. At the same time we will integrating the more different wireless an infosphere where the production and analyses of increasing volumes of mobile data big and the management of cloud computing technologies will feed massively the financial markets. In my book *Electrosmog, progresso, salute* (2004) I reported a long list of disorders and diseases associated with the ordinary use of analog TACS and 2G/3G digital mobile phones. But only in 2011 the WHO Agency on Cancer Research (IARC) classified as "possible oncogenic agents" (2B group) the microwaves electromagnetic fields emitted by the wireless communication systems, while safety guidelines published in 2009 by the International Commission on Non-Ionizing Radiation Protection (ICNIRP)-a self-referential 13 members privat group collaborating both with WHO and major telecom companies-orient still now EU regulations. Although an amazing number of industry-independent peer-reviewed articles, the recent US National Toxicology Program (NTP), the french CERENAT case-control

study reiterate the potential oncogenicity of wireless devices, ICNIRP keeps to deny the toxicity of the long-term exposure to microwave emissions much below the public safety limits. So, while children and young people are even incited to use massively radioemissive devices they believe like unarmful toys, the endemic problem of the conflicts of interest is particularly heavy in this commercial sector [4,5]. Rather, governments strongly support 5G, which promises performances up to 100-fold over 4G, to promote the national economic development. In a recent paper Lennert Hardell and Rainer Nyberg write: "There seems to be an "unholy" alliance between the telecom industry and certain scientists, organizations (even WHO), and some politicians, thus reducing the potential for precautionary actions" [6]. Again, because the current obsolete guidelines could even "becomes an obstacle for the deployment of 5G", ICNIRP is required to make them even much more permissive for the telecom operators. Ignoring in this case the principle of the precaution, WHO and EU are deaf to the appeals for a moratorium on this new untested technology which risks to spread a pandemic of severe diseases including brain cancers, male infertility, Alzheimer's disease, electromagnetic hypersensitivity syndrome (www.5Gappeal.eu; www.emfscientist.org) [7]. Summing, 5G is aimed to accelerate digitalization supporting the omic paradigm of the modern "liquid" economy: 3 V (volume, variety, velocity=gigabits per second; latency time of milliseconds; hundreds of simultaneous connections per surface unit) x 3 A (anyday, anywhere, anytime) [8]. Because of this more and more complex 5G based architecture (Cyber-Physical System) integrating the more different wireless devices, the exposure of the humankind to the digital pollution will worse both quantitatively and qualitatively [9].

Healthcare in the Imminent 5G Stage of Digital Era

You have long passed the eighties, but the smart mirror gives you an image of a splendid forty year old. A mix of "biological" drugs keeps an eye on a cancer you suffer from for a long time, and now you are recovering yourself because of coronary surgery performed by a robot controlled from overseas. For this reason you are using special glasses that help to make motor exercises immersed in breathtaking landscapes. Connected via bluetooth to a branded gim suit containing biosensors, a wrist device keeps you real-time informed about your health status. Suddenly a discharge of beeps heralds an arrhythmia so you take drops of a drug that a Pharma-IoT company designed just for you by crossing genomic and radiomic data. Meanwhile Robby, the humanoid

nurse-caregiver- lover who assist you, calles “118” ambulance service. Arrived at hospital, you insert your ID-card into the ATM on the desk and soon a robot-porter brings you at the office where a holographic nurse will pamper you while you submit to a robotized ultrasound scan. Then you can withdraw from the vending machine-like device your updated i-pill with a list of predictive check-up tests. Finally, without ever meeting a flesh and blood doctor, you come back home by a unmanned taxis. All this sounds like a science fiction imagination but these devices and equipments are already large-scale commercialized. In fact media have already universally transmitted images of robot-assisted interventions in some Italy “covid-19 hospitals” [10]. The business about viewers for augmented (AR) and virtual reality (VR), hologram projectors, wearables (gloves, watches, bracelets, suits, helmets, contact lens, glasses, backpacks), embedded (chips inserted into the things), “smart Health” is really impressive [11-13]. 5G will support medical robotics, telesurgery, teleradiology, deliveries by medical drones [14,15]. In parallel will spread laser contactless ultrasound scanners, small size portable MRI machines, surgeon robots, neural helmets, holographic imaging, computer-assisted and automated diagnosis (CAD) algorithms [16]. But one of the most distressing implications of 5G is the emergence of a “hibryd” society, in which robots, by now much more intelligent of us humans, could free themselves from our control and decide by themselves the fate of the planet [17].

The Screen-Induced Regressive Mutation of Homo-sapiens

Apparently, while objects, robots and machines become more and more “smart”, able to communicate each other autonomously and to learn by themselves, paradoxically the humans seem to can no longer live without GPS, Facebook, Google, Amazon, Wikipedia, and to have more and more difficulties to speech, to thought, to reflect in depth, to memorize, to imagine, day to dreaming. From a sociologic perspective this sort of involution of mind skills somehow associated to screen-addiction and visual culture, seems to window the main features of the contemporary atomyzed society which is disrupted by strong contradictory dynamics: omologation/hyperindividualism; overconnectivity/isolation; complexity/superspecialization; loss of bounderies between public/privat, home/work, virtual/real spheres. In parallel the hypertextual-hyperlink based structure of the web, the unceasing series of sensorial inputs (notifications, prompts, alerts, etc.) .) while

surfing the cyberspace, the “multitasking”, the repetitive switching between the online and offline status, seem to contribute affect cognitive brain areas, producing critical atrophy and loss of neural plasticity.

In a nutshell, an indefinite complex of social dynamics including the combination of the increasing social stressors, the prevalence of the visual culture, the abandon of the books, the disaffection from reading, the mcdonaldization of the work processes should be making the humankind more and more simple, trivial, childish, stupid: in a word, prehistoric. Calling me back to authors as Sartori (Homo videns, 2000), Simone (La terza fase: forme di sapere che stiamo perdendo, 2000), Galimberti (Psyche e techne, 1999), it would just seem that the “digitization” of the world is associated with a progressive weakening of the collective intelligence, the loss of the more basic cognitive skills, an homogenization and simplification of the mentality increasing masses of “video-addicted” people [9]. Affecting the alarming mass phenomenon of the “functional illiteracy” and the extinction of publishing houses, libraries and bookshops reflect this sort of regression of the globalized culture [10,11]. The next 5G digital acceleration risks to hit in the heart even the healthcare sector, where robots, self learning/ AI algorithms, smart cloud servers, more and more sopisticated smartphone health applications will make the doctors more and more unuseful and dependent on mcdonaldized procedures [18-24].

Final Consideration

A critical and offbeat analysis of the universal storytelling about 5G, would take us to have a look at the other side of coin, on the darkside of the “digitization”, whose collateral dangerous and unpredictable cathastrophic effects are still undertested, underestimated, or even masked. In far 1974 Ivan Illich (Nemesi Medica) prophesied the crisis of the business-oriented healthcare systems just because of the growth of automation, instrumentalization, and dehumanization of the practices. Much earlier Karl Marx explained as the same technical progress supporting the growth of the productivity would have caused the collapse of the market economy because of the exceeding the limits of the biosphere and the progressive alienation of the workers. By catalyzing unpredictable reactions in a breeding ground in which artificial intelligence, robotics, genetic engineering and nanotechnology are embroiled, 5G wireless technology risks to contribute to make the social system more and more unsustainable.

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