Effects of Unregulated Digitalization on Health and Democracy

A Call for Using Technology with Discernment

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For Health

Contents

I. Introduction

We are witnessing the so-called Fourth Industrial Revolution, the digital transformation of all areas of life and production. Aspects of digitalization, if implemented responsibly, can have advantages, for instance, when it comes to global connectivity, the access to information, distance learning and work. Such advantages have been broadly advertised and discussed which is why there is no need to repeat them here. Rather, this document will discuss the obscured aspects of digitalization that are all too often ignored.

In vast parts, what is being presented as digitalization today is a hype, an ideology and a guarantee for material profit and power that is not being questioned. It is sold to the public and political representatives via a progress narrative developed by the IT industry as well as other stakeholders with an interest in the Fourth Industrial Revolution such as the World Economic Forum (WEF). It is being said that if we don't welcome everything that is technologically feasible and don't digitize *every* aspect of our lives and economy, we are going to get left behind economically and will become outcasts socially. This carefully crafted narrative plays with existential angst and fear of exclusion. It is designed to make people accept unquestioningly everything that comes in the name of digitalization.

While we welcome valuable innovations, we should be clear about destructive ones and oppose their implementation. The umbrella term of *digitalization* includes a number of positive and negative innovations, the latter presenting a severe threat to health, essential human rights and democracy that must not be underestimated. The public and decision-makers need to differentiate and be careful what they welcome and what they oppose in the name of digitalization.

A sober analysis of the Fourth Industrial Revolution or Industry 4.0 shows that, in practice, people are getting left behind and harmed *because of* unregulated and unrestricted digitalization. Yet, from modern-day slaves and child workers mining the raw materials for end products under inhumane and partly deadly conditions to detrimental physical and mental health effects of certain technological products, the erosion of the essential right to privacy and informational self-determination, the flourishing of illegitimate data mining and biometric surveillance,

the projected replacement of parts of the human work force by machines, data safety concerns and threats posed by the Artificial Superintelligence arms race, real-world negative effects are being overshadowed by the shiny marketing and frenzied narratives of a trillion-dollar industry as well as ideologically invested interest groups such as the WEF. The destructive potential of the Industry 4.0, if handled in the wrong way, for the environment and the ecosystem as well as its massive wastage of energy as well as other resources are likewise being widely ignored. However, local grassroot campaigns, human rights organizations and political activists as well as renowned scientists have been increasingly successful in raising awareness about the above mentioned aspects of the digital transformation hype that warrant acute and immediate public attention.

Purpose of this document

This document provides an overview of aspects of the process of digitalization that negatively impact (public) health, essential human rights and democracy. It also contains policy recommendations to effectively address these issues and avert harm. Further, this document is meant to empower the reader to take informed decisions in their own every-day life when interacting with specific technologies and the effects of the Fourth Industrial Revolution.

I. Effects of Unregulated Digital Transformation

A. On Health

Issue 1: Wireless Technology

When it comes to human health, one of the most harmful and worrisome aspects of an unregulated digital transformation is the **steady increase of blanket radiation emitted by billions of wireless technological devices**. With plans for ever more wireless end products connected to the Internet of Things (including TVs, coffee machines or even saucepans, children's toys and diapers) and plans for the installation of millions of new 5G small cell towers in residential areas, radiation and electrosmog will increase to unprecedented levels.

The term *electrosmog* describes the totality of the electric fields, magnetic fields, and electromagnetic radiation that is present 24/7 from all electrical and electronic devices, electric wires, power lines, and wireless devices and antennas. With wired communication, information is transmitted via the wires, and the electromagnetic fields (EMFs) and radiation are unintentional. Proper engineering can reduce unwanted fields and radiation to a minimum.

By contrast, with wireless communication, the radiation *is* the product. Radiation substitutes for wires in transmitting information. Wireless *means* radiation. Mobile devices operate in the microwave spectrum (a harmful spectrum as opposed to the EMFs with healing properties), with the result that the entire planet is now subjected to microwave radiation that is millions to billions of times stronger than the radiation from the sun and stars with which life evolved (cf. Presman 1970: 31).

Life is based not only on chemistry but more fundamentally on electromagnetic fields (cf. Becker 1985; Sulman 1980). The unimpeded flow of electrons is essential to the functioning of our nerves, heart, and metabolism (cf. Sulman 1980). Interference with these electric currents can cause neurological diseases, heart disease, metabolic diseases such as diabetes, and cancer (cf. Firstenberg 2020). Organisms that have a very high metabolism, such as bees and other insects, are being decimated (cf. Cucurachi et al. 2013; Till 2020). A significant number of studies document the devastating effects of wireless radiation on mammals, birds, insects, amphibians, and forests (cf. Levitt et al. 2021).

The damage done to our health and our world by the ever-increasing number of wireless devices and their infrastructure is caused not only by the microwave carrier frequencies, but also by the low-frequency modulation and pulsations that carry the transmitted information. "Thus, modulation can be considered as information content embedded in the higher frequency carrier wave that may have health consequences beyond any effect from the carrier wave directly" (cf. Blackman 2007).

This knowledge has been obscured by the subversion of scientific organizations and regulating agencies through industry and other stakeholders. The scientific debate itself has been artificially paralyzed with two teams of scientists presenting opposing conclusions. The side that insists that the radiation emitted from wireless technology is safe is closely linked to industry; the other group that explains that this technology is harmful consists mostly of industry-independent scientists. Government agencies – compromised by industry, national interests and the economic growth hype – as well as supranational entities such as the World Health Organization or World Economic Forum tow the industry line.

Dariusz Leszczynski (2022: 1–2), Professor of Biochemistry and Biotechnology as well as Chief Editor of the specialty *Radiation and Health* for *Frontiers in Public Health*, explains:

> "The evaluations of the same scientific evidence come to different conclusions depending on the scientists performing the analysis. Evaluations of the research conducted by two groups of scientists, forming the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the International Committee on Electromagnetic Safety of the Institute of Electrical and Electronics Engineers (IEEE-ICES) [both prolonged arms of industry], are used to set international safety guidelines. Both ICNIRP and IEEE-ICES claim that scientific evidence shows a lack of harmful health effects. The opinion of ICNIRP is, historically already, recommended by the World Health Organization (WHO) [...] and the majority of the national governments.
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> However, the evaluation of the same scientific evidence by other teams of scientists including the BioInitiative, the International Committee on Electromagnetic Safety (ICEMS), or the recently established International Commission on Biological Effects of the Electromagnetic fields (ICBE-EMFs) [industry-independent organizations] leads to conclusions that the scientific evidence shows definite harm to health."

Since the more independent groups are not being heard, they have taken to the courts with their evidence. Leszczynski (2022: 2) writes: "Hence, to be heard by the national radiation safety authorities and governments, scientists of these organizations and ge-

neral public activists have begun to go to courts of law to prove that their interpretation of scientific evidence is correct".

Leszczynski (2022) continues that the different sides barely ever meet to take a look at the evidence together and to consider input from all sides, except for one time. Back then, they did, in fact, agree on a given potential for harm. Leszczynski (2022: 3) explains:

> "There was only one scientific evaluation of RF-EMF studies where the gathered group of scientists represented a full spectrum of diverse scientific opinions on RF-EMF and health, cancer in particular. This diverse group of scientists gathered in May/June 2011 at the Headquarters of the International Agency for Research on Cancer (IARC) in Lyon and following intense debates came up with a recommendation that RF-EMF is a possible human carcinogen. […] *This evaluation was supported by a large majority of Working Group members*."

The position represented a compromise. In an article in *Molecular and Clinical Oncology*, Hardell and Nyberg (2020: 1) write: "The evidence has since then been strengthened by further research; thus, RF radiation may now be classified as a human carcinogen, Group 1. In spite of this, microwave radiations are expanding with increasing personal and ambient exposure." They also explain that "officials rely on the opinions of individuals within the ICNIRP and the Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), most of whom have ties to the industry." (ibid.)

Frontiers' Chief Editor on *Health and Radiation*, Dariusz Leszczynski (2017: 46–47), points to the problem that the technology in question is "very profitable" and that "a biased evaluation of the science" is used to find "an excuse for [its] unrestricted deployment". He writes: "Claims that the current safety standards protect all users are not supported by the scientific evidence". He warns: The "Precautionary Principle should be implemented – it's not 'scaremongering'" and "children should be especially protected by precautionary measures" (e.g., by schools using only wired internet). He advises users to be aware of what is going on behind the scenes and "to limit exposure [to wireless devices] whenever possible and feasible".

An appeal by over 230 renowned scientists lists under health concerns associated with wireless technology an "increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life." (Environment Health Trust 2017: 1)

Therefore, the radiation-based wireless infrastructure should not be expanded. Blackman and Forge (2019: 11–12) in a document compiled for the European Parliament concede: "Significant concern is emerging over the possible impact on health and safety arising from potentially much higher exposure to radiofrequency electromagnetic radiation arising from 5G. Increased exposure may result not only from the use of much higher frequencies in 5G but also from the potential for the aggregation of different signals, their dynamic nature, and the complex interference effects that may result, especially in dense urban areas."

Leszczynski (2017: 47) calls for a "**moratorium on 5G**". Lennart Hardell (medical doctor and Professor at the Department of Oncology, Faculty of Medicine and Health, Örebro University, Sweden) is one of more than 230 renowned scientists from 41 nations—all of whom have published peer-reviewed research on the biological or health effects of radiation – that have signed an Appeal to halt 5G and look carefully at the health effects of wireless radiation in general. Hardell says: "Scientific studies from years ago, along with many new studies, are consistently identifying harmful human health impacts when wireless products are tested properly using conditions that reflect actual exposures. With hazards at those exposures, we are very concerned that the added exposure to 5G radiation could result in tragic, irreversible harm." (Environmental Health Trust 2017: 1) Co-signatory and award winning scientist Joel Moskowitz (public health researcher and Director of the Center for Community Health, University of California) states: "Peer-reviewed research has documented industry influence on studies of the health impacts of wireless radiation. We are insisting on a moratorium on 5G […]." (ibid.: 1)

Beatrice Golomb (Professor of Medicine, University of California) calls for the implementation of an alternative to wireless technology in general. She writes: "**Let our focus be on safer, wired and well shielded technology – not more wireless**." (ibid.: 1) A move towards wired and shielded technology in the digital transformation will eventually decide on the quality of life and health of a significant number of people, animals and the ecosystem.

One group that is suffering tremendously consists of people that are highly sensitive to the effects of radiation. In 2018, the French Agency for Food, Environmental and Occupational Health Safety (ANSES) estimated that in Europe alone the prevalence of electromagnetic hypersensitivity (EHS) affects 5% of the general population. In total, it is estimated that 0,65% of the population are restricted in where they can go due to the blanket radiation experienced, especially in urban areas.

The French agency ANSES states that "the complaints (pain, suffering) expressed by [these] people […] correspond to an experienced reality and these people need to adapt their daily lives to cope with them. The symptoms […], as well as the psycho-social isolation experienced by some of them, require and justify appropriate care by health and social care providers". Some scientists believe that this group of people is more sensitive to the overproduction of free radicals caused by certain kinds of radiation with the result of inflammatory diseases (oxidative cell stress). The author Arthur Firstenberg describes his own experiences in the following way:

Leaving No One Behind

"In 1996, when I was living a normal life in Brooklyn, T-Mobile came and put 600 antennas on rooftops throughout New York City and turned them on on November 14. None of them were on the rooftop of my building or any of the nearby buildings. Within 6 days I could not eat, sleep, or breathe. I left town on the morning of the 7th day to save my life. I had to leave my family, my friends, and everything I knew. I had to borrow a car to get the hell out of New York and at least have a vehicle to sleep in.

We put a small classified ad in a free weekly newspaper to find out how widespread the problem was. Hundreds of people answered the ad. All had woken up on about November 15, 1996 thinking they were having a stroke, a heart attack or a nervous breakdown. They became the initial members of the Cellular Phone Task Force. The very first man to answer the ad, an airline employee in the Bronx, died of a stroke 5 months later because unlike me he did not get out of New York. I got weekly mortality statistics from the CDC. The introduction of 2G had caused an immediate rise in mortality in each city on the day digital wireless broadcasting began in 1996 or 1997, and killed at least 10,000 people. I hired someone with a spectrum analyzer to go down to my apartment to take measurements. The exposure level that was *lethal* to me and thousands of others was less than 1 microwatt per square meter (less than 0.0001 microwatts per square centimeter), a level that everyone who is in denial today thinks is safe.

There is nowhere on earth I can go today to live a life without pain and participate in society. I cannot travel. I cannot stay in a hotel. I cannot go to a restaurant or a coffee shop. I cannot go to the movies or to a concert. I cannot stand in line at the grocery store or the post office. Why? Because everyone has a mobile phone and it hurts to get anywhere near them. It does not matter whether they are talking or texting or it is on airplane mode or it is turned off as long as the battery is in it. It hurts and it has deprived me of all of the rights and liberties guaranted to me as an American citizen."

The wireless industry has faced effective opposition by local communities that seek to contain the industry's blanket radiation. A variety of places – including suburbs Silicon Valley's IT moguls themselves call home – and cities such as Brussels or Geneva have successfully blocked the installation of the industry's newest product – 5G – due to extensive health concerns.

In order to counter local opposition to its products, the wireless industry and its political affiliates on different sides of the political spectrum have made attempts to seize full control over the digitalization process by centralizing decision-making and thereby taking away the voices of communities that are directly affected.

In the United States, for instance, the wireless industry is behind legislation in at least 20 states and at the federal level. In 2017, California Gov. Jerry Brown vetoed a measure "that would have gutted local control and put the interests of the wireless industry over those of California residents. A broad coalition of cities, counties, environmental, labor and consumer advocates opposed SB 649 by Sen. Ben Hueso (D-San Diego). The bill would have given wireless providers unfettered ability to install bulky cellular equipment on any street light or traffic signal as well as public libraries and other public buildings without permission from local governments, input from the public or fair compensation for city and county residents." (California State Association of Counties 2017: 1) A current example for the attempt to monopolize decision-making and dis-empower local communities is the **local authority preemption bill for broadband deployment projects (H.R. 3557) that is being advanced** by House Republicans. So-called state preemption laws are designed to prevent local governments and communities from passing or enforcing legislation related to a particular subject matter. With regards to H.R. 3557, the U.S. National Association of Counties (2023) explains:

> H.R. 3557 would enact new restrictions on a variety of state and local land use and zoning authorities pertaining to the deployment of telecommunications infrastructure, including both wireless deployment and wireline deployment […] The following provisions are of concern for counties and are included in H.R. 3557:
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> - Preemption of state and local zoning authority over the placement of wireless technologies, including towers, equipment, and small cells;
> - Elimination of state and local government authority to manage public rights-of-way (ROW) by collecting fair market compensation for their use and management, and limiting ROW fees to "actual, objectively reasonable costs";
> - Enactment of shot clock rules and "deemed granted" provisions which place timelines for the review and approval of telecommunications projects; […]

The National Association of Counties (NACo), alongside local government organization partners the National League of Cities (NLC), the U.S. Conference of Mayors (USCM), and the National Association of Telecommunications Oicers and Advisors (NATOA) urged the House Subcommittee on Communications and Technology to reject legislation that would infringe upon local authorities [...] Counties strongly urge Congress to preserve all local land use and zoning authorities throughout the stages of deployment of broadband infrastructure projects [...] preemption of local decision-making authority would only subvert the intentions of historic federally-funded broadband programs by reducing the ability of counties to ensure deployment projects will meet all community needs."

H.R. 3557 is a direct attack on the rights of local political institutions and the principle of subsidiarity which holds that political issues should be dealt with as locally as possible. It also threatens the voice and health of communities. In practice, the bill could, for instance, disempower towns, cities, mayors and counties from preventing the installation of 5G towers and networks in residential areas right in front of people's homes. If passed, H.R. 3557 – as an example of a wider trend – would take away decision-making powers from the local level, instead handing it to federal government agencies compromised by industry and other special interests.

The **corruption and infiltration of federal agencies and committees by the industries they are meant to regulate is well-documented**. A publication by Harvard University, for example, shows how the Federal Communications Commission (FCC) is dominated by the industries it presumably oversees (cf. Alster 2015). The Harvard document states:

"The FCC sits at the core of a network that has allowed powerful moneyed interests with limitless access a variety of ways to shape its policies, often at the expense of fundamental public interests. As a result, consumer safety, health, and privacy, along with consumer wallets, have all been overlooked, sacrificed, or raided due to unchecked industry influence. [...] Most insidious of all, the wireless industry has been allowed to grow unchecked and virtually unregulated, with fundamental questions on public health impact routinely ignored.

Industry controls the FCC through a soup-to-nuts stranglehold that extends from its well-placed campaign spending in Congress through its control of the FCC's Congressional oversight committees to its persistent agency lobbying. [...]

Industry control, in the case of wireless health issues, extends beyond Congress and regulators to basic scientific research. And in an obvious echo of the hardball tactics of the tobacco industry, the wireless industry has backed up its economic and political power by stonewalling on public relations and bullying potential threats into submission with its huge standing army of lawyers. In this way, a coddled wireless industry intimidated and silenced the City of San Francisco, while running roughshod over local opponents of its expansionary infrastructure.

On a personal level, the entire system is greased by the free flow of executive leadership between the FCC and the industries it presumably oversees. Currently presiding over the FCC is Tom Wheeler, a man who has led the two most powerful industry lobbying groups: CTIA and NCTA. It is Wheeler who once supervised a $25 million industry-funded research effort on wireless health effects. But when handpicked research leader George Carlo concluded that wireless radiation did raise the risk of brain tumors, Wheeler's CTIA allegedly rushed to muffle the message. — 'You do the science. I'll take care of the politics,' Carlo recalls Wheeler saying." (Alster 2015: 4–5)

While some technological innovations might benefit societies, others don't. Societies do not have to and should not implement everything that is technologically feasible, especially when negative effects are significant. The decision whether a technology is used in a certain area or not should not be left to the industry that profits from it or the federal agencies it has corrupted but should be taken by local communities themselves as well as their most immediate and accessible political representatives. At the same time, it needs to be ensured that technologies that *are* being used do not contribute to human exploitation, destruction of ecosystems and authoritarian designs.

Issue 2: Mental Health and Development

Digital technology, if used in the wrong way, can be deeply harmful to mental health, especially in children and young adults. Limone and Toto (2022: 8) write in their systematic review published in *Frontiers in Psychology*:

"Researchers have documented that digital technology impacts the psychological and emotional outcomes of adolescents. The evidence of this systematic review revealed that the use of digital technology, especially in excess, negatively impacts the psychological and emotional health of adolescents ($p < 0.005$). This is consistent with […] historical studies.

Researchers have also documented that there are gender differences in the impact digital technology has on the psychological and emotional outcomes of adolescents. The evidence of this systematic review revealed that the use of digital technology impacts girls more negatively than boys, especially as a consequence of the use of social media ($p < 0.005$). These findings are consistent with previous research, which found similar trends (Montag and Elhai, 2020; Lehtimaki et al., 2021; Marciano et al., 2021). [...]

Moreover, the results of this study indicate that adolescents experienced adverse mental health effects, including feelings of social isolation, depression, anxiety, and increases in maladaptive behavior as a result of increased digital technology usage during the COVID-19 pandemic (Limone and Toto, 2021)."

It's not the usage of technology per se that contributes to mental harm but its excessive and/or wrong application. A study published in *JAMA Psychiatry*, for instance, concludes that "[a]dolescents who spend more than 3 hours per day on social media may be at heightened risk for mental health problems." (Riehm et al. 2019: 1)

However, digital technological devices and the apps or social media networks accessed through them are explicitly designed to make people addicted, resulting in excessive use, if not consciously controlled. Nancy De Angelis (Director of Behavioral Health at Jefferson Health) gives an example: "Social media platforms drive surges of dopamine to the brain to keep consumers coming back over and over again. The shares, likes and comments on these platforms trigger the brain's reward center, resulting in a high similar to the one people feel when gambling or using drugs." (Jefferson Health 2022: 1) This can result in addictive behavior. The addiction in turn causes excessive usage which can lead to both severe mental and physical health problems as well as social isolation.

A report by the Swedish Karolinska Institute also points at developmental issues and makes a strong case against the digitalization of schools. The report was used by the Swedish government to correct some of its excessively pro-digitalization policies. The authors – Lisa Thorell (Professor of Developmental Psychology), Torkel Klingberg (Professor of Cognitive Neuroscience), Agneta Herlitz (Professor of Psychology), Andreas Olsson (Professor of Psychology) and Ulrika Ådén (medical doctor and Professor for Neonatology) – write that research shows "that the digitalization of schools, to the extent that has already taken place in Sweden, brings with it many disadvantages and that increased digitalization could have other negative consequences." (Thorell et al. 2023: 3) The digitalization of schools can, for instance, have major negative impacts on the knowledge acquisition of students (ibid.: 2). The authors explain:

"Digital tools contain many distractions that hinder concentration and working memory, which in turn impairs learning (Klingberg, 2023). For example, one study found that students who had their computers plugged in during a lecture spent up to 40 percent of class time on irrelevant, unrelated topics (Kraushaar & Novak, 2010). Another study looked at the effect of half the students having their laptops open during a lecture while the other half had to keep them closed. After the lecture, they had to answer questions about the content. The students who opened their laptops performed 30 percent worse than their peers (Hembrooke & Gay, 2003). These studies involved college students, and the negative impact of computers on elementary and high school students is likely to be greater because younger children have poorer executive functioning (e.g., impulse control). For primary school students, the OECD has published a report showing that high levels of computer use in schools are clearly negatively correlated with PISA scores in math and reading (OECD, 2015) […]

Reading and writing on a screen [further] has a negative impact on reading comprehension. It is more difficult to remember information read or written on a screen than information read in a book (Clinton, 2019; Delgado et al., 2018)." (ibid.: 2–4)

Thorell et al. (2023: 6) also emphasize the importance of small children learning from a human person instead of from a screen:

"When comparing whether a child imitates a real person or a filmed person or recorded voice when learning, research shows that young children have great difficulty understanding what they see on a screen (Yadav et al., 2018). At the age of two, children learn and remember half as much from all 2D media as compared to interacting with live humans (Moser et al., 2015). So human interaction is essential for learning at this age. Early screen use is associated with poorer language development (Madigan et al., 2020). More specifically, research has shown that when children use screens, human interaction is inhibited – children end up in a 'digital bubble' (Bochicchio et al., 2022)".

Issue 3: Mining and Production

Harms for the health of humans, animals and the ecosystem do not only stem from the usage of end products but begin with the production process. The Fourth Industrial Revolution and digital transformation cause an excessive demand for raw materials and natural resources. Neither big tech corporations nor other stakeholders invested in the digital transformation nor consumers care where these materials come from or under which conditions and at which costs to humans, animals or the environment they are being mined. In doing so, they turn a blind eye to child labor, human exploitation, animal poisoning and environmental destruction.
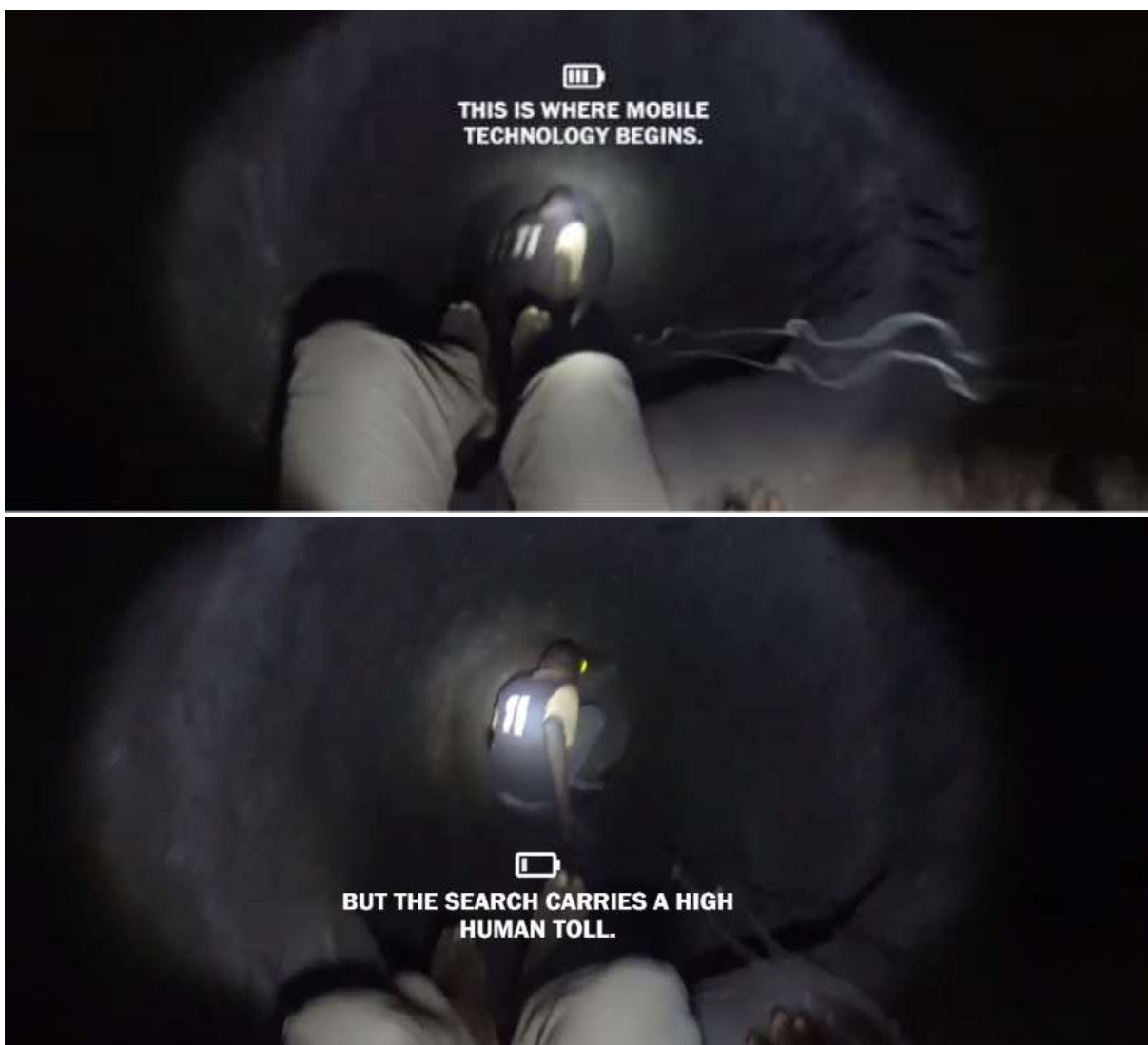
Source: The Washington Post (2016)

Poor men, women and children labor underground in make-shift, extremely narrow, dark underground tunnels the whole day to find bits of raw materials they can sell to local representatives of exploitative multinational corporations. Sometimes, diggers even sleep underground. The tunnels are prone to collapsing; the reduced oxygen as well as harmful dust damage their lungs while heavy metalls accumulate in their bodies.

"

The glamourous shop displays and marketing of state of the art technologies are a stark contrast to the children carrying bags of rocks, and miners in narrow manmade tunnels risking permanent lung damage.

Mark Dummett, Business & Human Rights Researcher at Amnesty International

Source: Amnesty International (2016)

A well-reported example is the mining for cobalt in the Democratic Republic of Congo (DRC) where 60% of the world's cobalt originates from. Cobalt is a mineral used in lithium-ion batteries for smart phones, iPhones, laptops, tablets and electric cars manufactured by major brands. The Washington Post (2016) writes: " In many ways, the current Silicon Valley gold rush — from mobile devices to driverless cars — is built on the power of lithium-ion batteries."

The Washington Post (2016) also reports:

"The world's soaring demand for cobalt is at times met by workers, including children, who labor in harsh and dangerous conditions. An estimated 100,000 cobalt miners in Congo use hand tools to dig hundreds of feet underground with little oversight and few safety measures, according to workers, government officials and evidence found by The Washington Post during visits to remote mines. Deaths and injuries are common. And the mining activity exposes local communities [and the environment] to levels of toxic metals that appear to be linked to ailments that include breathing problems and birth defects, health officials say. [...]

[D]octors at the University of Lubumbashi already know miners and residents are exposed to metals at levels many times higher than what is considered safe. One of their studies found residents who live near mines or smelters in southern Congo had urinary concentrations of cobalt that were 43 times as high as that of a control group, lead levels

five times as high, and cadmium and uranium levels four times as high. The levels were even higher in children. Another study, published earlier this year, found elevated levels of metals in the mining region's fish. A study of soil samples around mine-heavy Lubumbashi concluded the area was among the ten most polluted areas in the world.'"

Tens of thousands of miners or *diggers* (as they call themselves) are children. According to UNICEF, in the country's south alone, 40,000 boys and girls work in the mining industry. Some are as young as seven (Amnesty International 2018). The human rights organization explains that mining "has both detrimental physical and mental effects on children, which is why it is considered to be one of the worst forms of child labor" (Amnesty International 2016).

The cobalt in the DRC usually goes to China's Zhejiang Huayou Cobalt, one of the world's biggest cobalt producers. Huayou supplies battery makers which in turn are in business with corporations such as Apple, Amazon, Samsung, LG or major automobile manufacturers.

> **"**
> **It is a major paradox of the digital era that some of the world's richest, most innovative companies are able to market incredibly sophisticated devices without being required to show where they source raw materials for their components.**
> Emmanuel Umpula, Afrewatch Executive Director

Source: Amnesty International (2016)

The current mining and production practices cause death and severe illness, violate fundamental human rights, viciously exploit precarious living conditions and poison the environment. Instead, local communities should automatically have ownership over their own resources that were naturally given to them. Multinational corporations that want to use their resources – making billions from end products – should provide these communities with the means, equipment (e.g., robots), know-how and training to have materials mined in safe, environment-friendly and professionally kept mines, without negatively impacting health and the ecosystem (e.g., animals, waterways). Revenue should be distributed in equal measure to the members of the local community.

B. On Democracy

Issue 1: Digital ID, Surveillance and Social Credit Systems

The Fourth Industrial Revolution presents a significant challenge to democracy and human rights. Totalitarian mechanisms such as China's Social Credit System are made possible by digital technoloy and surveillance. Without a critical analysis and correction of course, the digital transformation and Fourth Industrial Revolution are moving us into that dire direction where every aspect of a person's life is harvested, analyzed, traded and controlled by powerful private entities and governments.

Some government and corporate actors have come to regard individuals as *hackable animals*, a term coined by World Economic Forum ideologue Yuval Harari. This means that these actors believe that they can *hack* people like machines, causing them to do anything (whether in the economic, political, ideological, social or cultural realm) by manipulating them via propaganda, psychographic messaging and other tools. Any form of private data is an asset for them to build a 360 degree view of a person that can then be used towards that end.

Digital technologies currently in use already feed the surveillance machinery to an excessive degree (e.g., carrying a smart phone is like carrying a tracking device, Amazon's Alexa listens in to whatever people say in their own homes, WhatsApp gives Meta extensive insight into an individual's social and personal life, Zoom recently changed its Terms allowing it to use all personal – including private – conversations and biometric data as they wish). However, people can still opt out of that, not use some of these tools, change to more privacy-friendly service providers, create different profiles with pseudonyms, conceal personal identifiers, decide the amount of information they share or even go off-grid to a certain degree as was the norm in the past. Therefore, total surveillance and data mining depend on an additional, very specific instrument to be implemented: mandatory Digital ID. This surveillance tool would make it significantly more difficult to make individual choices and to opt out.

A **Digital ID** consolidates all data relating to an individual under a single digital identifier. According to official plans by the EU and other bureaucracies, a Digital ID with a respective data wallet would be used for access to government administrative services, access to social security benefits, provision of medical prescriptions, proof of parenthood, provision of travel documents (passport, visa), digital hotel registration, provision of a digital driver's license, provision of education certificates, provision of proof of

professional identity, signing of contracts, registration of SIM cards for mobile net-works, opening of bank accounts, enabling of online payments and identification for mail or social media accounts. With the collection of all information in one place, a Digital ID enables the creation of a complete movement profile as well as insights into relationships, health status, medications, income, buying habits, hobbies, likes and dislikes, comments on the internet and much more.

There are a number of incipient stages for the implementation of Digital ID around the world, including in the US, UK and EU. The EU, for instance, is cooperating with national governments and private companies to test a digital EUID in a number of pilot projects.

Current plans in different places generally fore-see the launch of Digital ID in the form of a public-private partnership. While data could, for example, be state certified, it could be stored on privately owned servers. There are a variety of ways states cooperate with private enterprises on Digital ID pilot projects. This is a significant and worrisome departure from purely state-run, tax-funded, accountable administrative bodies.

> "They invade our private lives through surveillance, they extract from our lives, rendering what they extract as behavioral data and then they claim those behavioral data as their ... property."
>
> **Shoshana Zuboff**
> *(professor emerita, Harvard University)*

Multinationals and billionaires that work with government bureaucracies see excellent opportunities for the mining of data – the new gold – in the implementation of a Digital ID. Corporations that work with governments on Digital ID include Mastercard, Google (Alphabet), Deutsche Telekom, and others. *Worldcoin*, a dystopian project run by billionaire Sam Altman (whose company is also behind ChatGPT), is scanning people's eyeballs in 20 countries (including the UK) as a so-called *proof of personhood* to connect the resulting biometric information with a Digital ID (a World ID) and data wallet. For now, that process is voluntary. However, Altman believes World ID could be used, among other things, to verify people eligible for benefits and as a voter ID. Profit-driven, ideologically tainted companies like Google (Alphabet) also aim to become state-licen-sed providers of respective wallets, giving them unprecedented access to sensible pri-vate information that can be sold to third parties or used in a targeted manner (e.g., for advertising, political influencing, control and sanctions or the training of AI and SAI).

Digital ID poses one of the gravest risks to human rights and democracy that we face today for several reasons. In the first instance, it robs individuals of the ownership over their own private data and coerces them to share it with state as well as profit-driven private entities alike, violating essential privacy protection laws in a number of democratic countries.

The illegitimately obtained data connected to an individual's Digital ID – their recorded behavior in all areas of life – goes on to make an authoritarian control and sanctions regime possible – and much more likely. It not only enables the new owners of a person's data to target an individual in whatever form they deem of interest but it also hands them the opportunity to implement punishments for *undesirable* actions or thoughts with a click. For example: if someone violates the rules of a private wallet provider, they can be blocked from accessing and using their wallet for a week. If a person committed an *offense* (such as walking on the beach during COVID), government can deduct the respective fine from that person's digital wallet in real-time, even if that person cannot afford to lose that money that would support their family for the rest of the month.

An example of a functioning digital control and sanctions system is China's Social Credit System – implemented with the help of Artificial Intelligence and real-time biometric surveillance – which furnishes the Chinese regime with insight into all details of people's lives. In China, private data obtained from mass surveillance and connected to personal biometric identifiers is used to assign a *social credit score* to individuals and update it in real-time. Points are added for *desirable* behavior and deducted for *undesirable* behavior. What is desirable and what is not is determined by the leadership of the Chinese Communist Party. While the exact mechanisms are obscure, a score can be downgraded for things like holding the wrong views or saying/writing the wrong things, criticizing the government, wasting money on what is deemed non-essential, carrying debt, not paying fines, walking a dog without a leash, or behaving *badly* otherwise. An individual's score, for instance, decides on whether a person can carry out business transactions, is allowed to visit certain places, has access to public transport (trains, airplanes etc.), to specific forms of education, and bank accounts. It can even impact individual waiting times in the hospital. Parental scores automatically impact their children. Children can, for instance, be barred from access to high-ranking schools.

The Social Credit System is a dictatorial tool that is deeply discriminatory and violates fundamental human as well as civil rights. It is the inverse of a democracy.

It should be noted that **5G** works as an enabling technology for such a real-time surveillance and control system. Kroll (2020: 21–22) explains how 5G is the technological prerequisite for wide-scale and real-time automated biometric facial recognition and for pinpointing people's exact locations at all times with a higher accuracy than a GPS. The latter is achieved through the close proximity in which 5G masts are placed. With real-time biometric facial recognition and precision locating, the previous possibility of anonymously immersing oneself in the crowd no longer exists (cf. ibid.). In China, this has gone so far that surveillance cameras and AI-driven biometric profiling, for example, allow the system to register every item bought by a customer at a market and to adjust the individual's social credit score accordingly in real-time.

It is further noteworthy that – while enabling the creation of authoritarian surveillance and control systems such as already in place in China – Digital ID also presents a severe security threat. A single digital point of reference and personal identifier that includes all sensitive and private data relating to an individual enables hackers and other bad faith actors (which can include hostile governments, political opponents, crime networks or even stalkers) to gain access to that information and to use it as they wish. Digital databases with sensitive information have been repeatedly compromised even at the highest level and cannot be reliably protected in the digital age. With faster data transmission, security becomes even less pronounced.

Why privacy is not personal luxury but an essential human right

Always knowing where everyone is, what they are thinking and what they are doing has been an aim and instrument of authoritarian as well as dictatorial regimes over the ages to control populations, suppress opposition, prolong injustice and prevent social change. The **right to privacy** (United States), the **right to informational self-determination** (Germany) or **data sovereignty** are therefore essential to democratic societies. Without these rights, a democracy becomes deficient and defunct.

Seubert and Becker (2021: 1) write: "[T]he constitutional protection of privacy rights is not only of individual relevance but also of major democratic significance: it protects the integrity of the communication structures that underpin democratic self-determination. The debate on privacy protection, however, often lacks a democratic understanding of privacy and misses its public value."

> " **The more someone knows about us, the more they can influence us. We can wield democratic power only if our privacy is protected. [...] If we are going to live in a democracy, the bulk of power needs to be with the people. And whoever has the data has the power. [...] Institutions in the digital age have hoarded too much power, but we can reclaim the data that sustains it. Privacy is power, and we must take it back."**
>
> *Carissa Véliz*
> *(associate professor at the Faculty of Philosophy and the Institute for Ethics in AI, as well as a tutorial fellow at the University of Oxford and editor of the Oxford Handbook of Digital Ethics)*

The right to privacy and informational self-determination or data sovereignty are essential for multiple reasons. For one, as soon as someone is uncertain as to whether dissenting behavior is being recorded at all times and stored permanently as information, this individual might try not to draw attention to themself and might stop behaving in a manner that they perceive may have negative consequences. If they fear for their job or for their livelihood it can prevent them from exercising their right to free speech, or from participating in a meeting or a citizens' initiative. At this point, the person is no longer freely exercising his or her fundamental rights due to the fear of repercussions. This in turn undermines the very fabric of democracy.

In addition, the excessive mining of private data available on any one person or group of people makes that individual or group much more vulnerable to being manipulated, blackmailed, coerced or discriminated against. Privacy International (2012: 9) warns:

"[T]oday we seem to have forgotten the chilling effect that surveillance plays. Yes, of course, we may point to history to understand this point: the Red Scares, the blacklists and use of informants; the Gestapo techniques; Stalin's spying on friends and competitors and midnight raids; FBI files on politicians and leaders, and Watergate; or the Stasi's network of spies and neighbours. Following from these abuses, safeguards were established to prevent surveillance from corroding our democracies. Privacy was established as a political right. For instance, U.S. constitutional jurisprudence on the right to privacy emerges from the political right to organise and to petition the government and to espouse your beliefs without having to disclose your name, dating back to a case where the State of Alabama compelled the National Association for the Advancement of Colored People (NAACP) to disclose its membership list. [...]

[However, v]ast new datastores have been established in recent years. Governments and companies now run databases that keep information on our financial transactions, medical status, and travel habits; and they share and mine this information on widespread bases. As surveillance again takes place often without the knowledge of the individual under surveillance, there is no way to contest if the Government seeks access to the medical information of critics, or telephone records of Opposition members, critics,

or journalists. In countries where Government is the custodian of this information in the first place, unobstructed access to personal information is now possible. […]

We are forgetting the important role that privacy plays in our political systems, and how political surveillance is corrosive to a democracy. I can foresee two outcomes if we continue to deploy political surveillance without reflecting on the consequences. First, we may face social exclusion as people are more easily identified through their political interests. Discrimination may follow as individuals are identified as members of political groups through their donations, linked to their home addresses, their CVs and social networking profiles. The second outcome is political stagnation […] those in power will retain their position, enabled through surveillance of their opponents and critics.

We have long built constitutional and human rights into our political systems to prevent abuse by the executive. Free speech is one such safeguard. We cannot forget that privacy is another. This is why democracies have traditionally held secret ballots, protected anonymous petitioners, and created safeguards like the 'Wilson doctrine'. We vowed that we would not let surveillance inhibit political autonomy, development and expression. We must repeat this vow, and it must be updated and enhanced to counter modern political surveillance techniques."

Issue 2: Central Bank Digital Currency (CBDC) and the Threat to Cash

We currently have a system in which cash and digital payments coexist. While the latter offer a way for fast transactions in the digital marketplace, **cash** enables access to a physical payment method independent of the availability of technological devices and a working power grid. Cash further serves to sustain people's financial sovereignty as well as privacy and strengthens their position vis-a-vis banking institutes (people can withdraw all their money from a certain bank) and governments (that cannot control cash payments). A number of powerful special interest groups want to change that. They have crafted a narrative of cash being on its way out and low to no-cash economies being inevitable. Eliminating cash is attractive to Industry 4.0 ideologues, governments and banks for several reasons.

To Industry 4.0 ideologues getting rid of cash is a milestone towards making the so-called *surveillance economy* (or *surveillance capitalism*) more pervasive and creating digital mass control systems like China's Social Credit System. Shoshana Zuboff, professor *emerita* at Harvard University and author of the book *The Age of Surveillance Capitalism* defines *surveillance capitalism* as "the unilateral claiming of private human experience as free raw

material for translation into behavioral data. These data are then computed and packaged as prediction products and sold into behavioral futures markets — business customers with a commercial interest in knowing what we will do now, soon, and later" (The Harvard Gazette 2019: 1). Zuboff – who warns that the surveillance economy undermines human autonomy and democracy – further explains:

"Right from the start […] it was understood that users were unlikely to agree to this unilateral claiming of their experience and its translation into behavioral data. It was understood that these methods had to be undetectable. So from the start the logic reflected the social relations of the one-way mirror. They were able to see and to take — and to do this in a way that we could not contest because we had no way to know what was happening. […]

The competitive dynamics of surveillance capitalism have created some really powerful economic imperatives that are driving these firms to produce better and better behavioral-prediction products. Ultimately they've discovered that this requires not only amassing huge volumes of data, but actually intervening in our behavior. The shift is from monitoring to what the data scientists call *actuating*. Surveillance capitalists now develop *economies of action*, as they learn to tune, herd, and condition our behavior with subtle and subliminal cues, rewards, and punishments that shunt us toward their most profitable outcomes." (ibid.: 1)

A cashless society would further greatly enhance the effectiveness of sociopolitical mass surveillance and control systems. It would significantly increase state surveillance, black-mailing and suppression capabilities. When it comes to surveillance, every digital payment leaves data trails that are bought, analyzed, packaged and sold by data aggregators to lend buyers insight into our transactions and thereby lives. When it comes to blackmailing and suppression, the economist and author Norbert Häring (2016) uses the example of how the U.S. government tried to cut off Wikileaks – an organization that was exposing U.S. war crimes – from financial means by asking payment service providers (i.e., credit card companies and PayPal) without an adequate legal basis to not process any payment transactions to or by Wikileaks. In a similar manner, the Canadian government ordered bank accounts of people to be frozen that supported peaceful protests against its public policy. These are attempts at imposing ideology and interests through the economy. In the case of a full-blown Social Credit System, a cashless society is a considerably easier target for ideologically motivated and profit-driven state overreach and sanctions.

Like the proponents and profiteers of surveillance capitalism and sociopolitical mass control systems, banks have an interest in the elimination of cash as well. The latter would make bank runs – with people withdrawing their money in cash from the banking system –

impossible. This would lend more power to the banking system. Banks could impose more hassles on their customers and speculate much more freely than before. Customers and their money would be pawns in their game. Central banks, meanwhile, could easily enforce negative interest rates. (cf. Häring 2016)

Häring (2016) recommends anyone who wants to prevent such scenarios to pay in cash as often as possible. This is the only way to stop what has already begun.

With talks of a cashless society often come talks of a **Central Bank Digital Currency (CBDC)** – although physical and digital forms of central bank currencies can coexist. While there were 35 countries considering the implementation of CBDC in May 2020, in 2023 this number has risen to 114 states. Of the G20 countries, 18 are in advanced stages of CBDC development.

A CBDC is different from decentralized cryptocurrencies such as Bitcoin in that it is an ultra-centralized instrument issued and regulated by the respective central bank and goverment. Cryptocurrencies, meanwhile, operate on a decentralized blockchain system and are not controlled by a central authority or single entity. With cryptocurrencies, efforts are made to make transactions as private as possible. A CBDC, to the contrary, would afford central banks and governments direct, real-time access to every user's finances and transactions that are being tracked via a respective personal identifier.

A CBDC can further be made programmable which means that the purposes for which people are allowed to spend money can be predefined like a number of other variables which can include the place where it may be spend or its expiration date. A practical example comes from Thailand where the biggest ruling party has suggested to distribute a limited amount of digital money to people over 16 years of age that may be spend within a four kilometer radius from their place of residence only and will expire after six months. The economist and WEF affiliate Eswar Prasad writes glowingly about such opportunities for centralized control in The Financial Times (2023):

> *"CBDC can allow government agencies and private sector players to program ... targeted policy functions. By programming a CBDC, money can be precisely targeted for what people can own and what [people can do.]"*
>
> *Bo Li*
> *(IMF Deputy Managing Director)*

"Consequently, the notion of a CBDC as the digital equivalent of cash, bearing a zero interest rate and with no special features, is giving way to the prospect of programming digital money for specific purposes. The possibilities are exciting. The Monetary Authority of Singapore's recent white paper describes

how such 'purpose-bound money' can be designed to be 'utilised for its intended purposes, such as validity within a certain period, at specific retailers, and in pre-determined denominations'. Doling out money with expiry dates could incentivise consumption. Government cash transfers in times of heightened uncertainty, such as COVID-19 stimulus payments, often go into savings, reducing their impact. Such money could be targeted even more precisely, say for purchases of durable goods, sharpening the economic potency of transfers.

With cash gone, other options also come into play: imposing negative nominal interest rates to disincentivise saving and boost demand in periods of extreme economic distress. The programmable aspects of money could facilitate contractual arrangements, with funds automatically released only when conditions are met by all contracting parties [this includes you]. Such innovations open up new vistas of how money could improve the functioning of economies and societies."

The future of money is envisioned here as a sort of government-issued coupon in an authoritarian regime. The money that people earn for their work or that they receive through tax-funded social systems would no longer be theirs to manage. Rather, it would be transferred to a digital wallet or account and subjected to government programming. People would only be able to administer their very own money within predefined limits. Spending money for purposes forbidden by centralized authority would automatically be blocked. This could include donating to civil movements or organizations (like Wikileaks) that oppose government policy. This could include visiting family far away if an individual's travel allowance has been consumed. This could include buying tickets for public transport if a person does not agree to be injected with certain medical products. Central authorities would control every cent spend in real-time, knowing where a person is, what they do and what they spend on. Such mass surveillance and control suffocates civil rights and free thought.

A single central authority afforded with that kind of power could also start using it for profit. Central banks and governments could impose additional taxes for transactions or specific kinds of transactions only and deduct them directly from people's wallets.

The total control over the financial means of the populace by government and/or any central authority is incompatible with a functioning democracy and a contradiction of the sovereign, equal human nature envisioned in the 1948 Universal Declaration of Human Rights. That declaration was drafted based on the experiences made with the vicious, deadly centralized dictatorships (from Hitler to Stalin) of the early 20th century.

III. Policy Recommendations

A. Protecting Health

Reducing and Replacing Radiation-Based Wireless Technology

Radiation-based civil wireless technology must be phased out and replaced. At present there are about 15 billion wireless devices and 6 million masts that subject people, animals and the environment to harmful microwave radiation. International scientists and medical doctors warn of an "increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life." (Environmental Health Trust 2017: 1) Plans to further expand the radiation are irresponsible and based on a gold rush-like hype.

If we truly value people and nature over profits, **radiation-based wireless technology needs to be phased out while more secure wired and shielded solutions need to be supported.**

In a first step, people at home, workplaces, schools, care homes, hospitals, churches and hotels should be encouraged to use wired and shielded solutions. The installation of wired options in private homes, workplaces, schools, care homes, hotels and busi-nesses should be subsidized and broadly advertised. Religious, political and community leaders as well as influencers should encourage congregations and constituencies to get rid of wireless technology for their own and the ecosystem's sake.

The installation of new masts must be halted. Towers emitting microwave and/or millimeter wave radiation should be systematically taken down, starting with those close to kindergartens, schools, care homes, hospitals and in residential areas as well as those in are as in which multiple providers each, unnecessarily, operate their own towers.

Schools must remove mobile phone masts and WiFi routers. Schools are among the most intensely irradiated environments in society today, consequently the worst and unhealthiest places for our children to spend their growing years. Schools are earning money renting their properties to telecommunications companies for the installation of mobile phone masts. A significant number of classrooms further has one or more WiFi routers in it, together with dozens of children sitting in close proximity to one

another every day all day, all of them with cell phones and wireless computers, irradiating one another at all times. All masts and all WiFi antennas must be removed from all school properties, and children must be mandated to switch off cell phones at school.

Churches and other religious entities need to likewise remove antennas and WiFi networks from their premises. Churches and similar religious buildings have become a prime target for telecommunications companies when it comes to the installation of antennas, often hidden inside false chimneys or fake bell towers. These antennas earn a lot of money for churches but turn them into hazardous environments for their worshippers and visitors.

Antennas inside national parks, wildlife preserves and protected nature areas should be taken down. A 2015 report to UNESCO detailed the devastating impact of communication antennas inside a World Heritage Site in Australia. When a telecommunication tower atop Mount Nardi began to convert its antennas from 2G (primarily voice communications) to 3G (voice and data) in 2002, a steady increase in species diversity suddenly reversed and became a steady *decrease* in species diversity. In 2002 insect populations and diversity began to decline. In 2009, enhanced 3G was installed, along with an additional 150 pay television channels. 27 bird species promptly left the mountain, and insect volumes and species dropped dramatically. In late 2012 and early 2013 4G was installed, and 49 more bird species promptly left the mountain. Broomhall (2017: 4) writes:

> "From this time, all locally known bat species became scarce, 4 common species of cicada almost disappeared, as well as the once enormous, varied population of moths & butterfly species. Frogs and tadpole populations were drastically reduced; the massive volumes and diverse species of ant populations became uncommon to rare... [F]rom 70 to 90 % of the wildlife has become rare or has disappeared from the Nightcap National Park within a 2-3 km radius of the Mt. Nardi tower complex".

Along with national parks and nature preserves, the oceans should be absolutely protected from radiation due to the sensitivity of aquatic creatures to all forms of radiation. Governmental, commercial and military interests have been collaborating to create Smart Oceans and build the Internet of Underwater Things. To do this they are building cell towers on the ocean floor, putting relay antennas in the depths of the ocean, and deploying smart ships, smart submarines, and underwater robots. The goal is to enable broadband wireless communication from any point on or in the oceans to anywhere else on the planet, up to and including real-time video streaming from underwater everywhere in every ocean (cf. Firstenberg 2022).

RF radiation is being used in the oceans for short- to medium-range communication. Acoustic waves are being used for long-range communication, and are deafening fish and ocean mammals with sound as loud as 202 decibels. The fishing industry is also using underwater radar to locate and capture fish with a precision and on a scale that is devastating to ocean life (cf. Weilgart 2018). Underwater wireless communication and radar must be halted.

The excessive launch of new satellites, especially 5G satellites, must be halted. The functioning of all living organisms is regulated by their electromagnetic environment, including the magnetic field of the earth, the vertical electric field between earth and ionosphere, the global electric circuit, the Schumann resonances, etc. If the electro-magnetic environment of the earth is altered, life on earth is severely threatened.

Both the number of satellites in orbit and the radiation they emit are out of control. Some satellites already have an effective radiated power of 83 million watts. Some are capable of emitting 5,000 individual beams. More than 7,000 satellites are already in orbit, and thousands more are being sent into space by near-daily rocket launches. Not only are they exposing land and oceans to their radiation, but they are polluting the global electric circuit, which includes our bodies, with all of their pulsations and modulation patterns. This is a threat to different life forms on earth which cannot be successfully addressed without halting the radiation in and from space (cf. Firstenberg 2020).

The location, number, and power of civil defense radars must be limited. The present situation of unlimited power has allowed 3-billion-watt radars such as PAVE PAWS, which has irradiated millions of people on both coasts of the United States for more than four decades (cf. Brodeur 1977).

A five-year investigation into the health and environmental effects of a civil defense radar in Latvia after the end of the Cold War resulted in the decommissioning and removal of that radar. School children in the area—even children who lived 20 kilometers away—had impaired motor function, memory and attention, reduced lung capacity, and elevated white blood cell counts. The entire local population suffered from headaches, sleep disturbances and elevated white blood cells. Human reproduction was affected: 25 percent fewer boys than girls were born during the years the radar operated. Chromosome damage was found in local cows. Nest-boxes near the radar were occupied by extremely low numbers of birds. The average growth rings of trees during the years of the radar's operation were only half as wide as before the

radars were constructed, and study of pine cones revealed the trees were aging prematurely. Seedlings in the area grew into deformed plants with reduced reproductive capacity (cf. Brümelis et al. 1996; Kolodynski and Valda Kolodynska 1996; Balode 1996; Liepa and Balodis 1994; Balodis et al. 1996; Selga and Selga 1996; Magone 1996).

Weather radars must be phased out. There are an estimated 1,500 of these extremely powerful installations scattered throughout the world. Each of the 160 NEXRAD radars in the United States has an EIRP (Effective Isotropic Radiated Power) of 32 gigawatts (32 billion watts) (cf. NTIA 2014). These radars are heavily irradiating people and wildlife, and are neither reliable nor essential to weather forecasting (cf. LidarRadar n.d.).

Non-ionizing radiation must be regulated by national environmental agencies with no conflicts of interest. In many countries, radio frequency (RF) radiation from telecommunications facilities and devices is regulated by the same agency that is charged with promoting those facilities and devices. This is an obvious conflict of interest.

Most governments defer to guidance from the International Commission on Non-Ionizing Radiation Protection (ICNIRP) or the World Health Organization, which also defers to the ICNIRP. The ICNIRP is not an environmental agency. It is self-appointed private organization with 14 members answerable to no one (cf. Buchner and Rivasi 2020). Its exposure guidelines are based on heating only, as though there were no other effects. In the United States, the agency that both regulates and promotes the telecommunications industry is the Federal Communications Commission (FCC). Like the ICNIRP, the FCC bases its exposure guidelines for humans on heating effects only, and completely ignores other harmful mechanisms of action as well as effects on the environment.

RF radiation should be regulated transparently within each nation by their own environmental agencies based on the totality of science. It should further be subject to an international treaty and a convention. **An International Treaty or Convention on the phasing out of radiation-based wireless technology must be drafted and adopted by all nations.**

Medical Schools need to incorporate education on EMFs into curriculums based on industry-independent research and respective classes should be required for continuing education. The books and studies are there by the tens of thousands. They sit on the shelves of medical school libraries gathering dust and being ignored. All that is

required is to organize them into the curriculum and the base of knowledge required of every physician in order to earn a medical degree.

Environmental organizations should form chapters on radiation-based wireless technology and the ecological effects of the Fourth Industrial Revolution. The rapid declines in biodiversity and species populations cannot be successfully addressed without reducing electromagnetic pollution which is causing parts of the declines. That is why environmental organizations should make this subject area one focus of their work. Some of the means to study these problems, for example GPS and radio tracking of wildlife, should be changed as they can contribute to the issues at hand. All antennas must be removed from protected nature areas, wildlife preserves, and oceans. Radio tracking devices are harmful (cf. Godfrey and Bryant 2003; Mech and Barber 2002; Withey et al. 2001; Burrows et al. 1994; Burrows 1995; Swenson et al. 1999; Moorhouse and Macdonald 2005). They must be removed from all wildlife and not be put on any more animals, birds, insects, or fish.

In addition, environmental organizations should look into the effects of the Fourth Industrial Revolution on the ecosystem and essential resources as a whole. The global digital industry uses so much water, raw materials and energy that its ecological footprint is **three times larger** than that of countries like France or Great Britain.

Mindful Use of Digital Technology

Public awareness about mental health and development issues connected with the extensive or misguided use of digital technology should be increased through targeted programs that also **strengthen coping capabilities and anti-addictive behavior**.

Digital technology should not be used in preschools and primary schools. Most children are subjected to digital technologies in their private lives from a very young age in an excessive manner. Digital technologies in schools in general – except for optional programming classes – offer little value but can harm concentration and hamper efficient learning. They can also contribute to a digital overload. It is not healthy for children and their mental as well as physical development to be using and sitting in front of screens for extended periods of time throughout the day.

Fair Trade

Legislation needs to be devised, passed and implemented on a state as well as national level and a treaty be agreed to on an international level to ensure raw materials are mined and end products manufactured without subjecting people and the ecosystem to hazards. It also needs to be ensured that local communities and workers benefit from their own resources and work.

Fair Trade should be instituted as a norm. Fair Trade ensures that workers and farmers – including the most vulnerable – can work in environments free from harms (toxins, lack of fire safety etc.) to them and their families, under decent conditions (respectful treatment, adequate hours etc.) and receive a fair income.

B. Protecting Democracy

Decentralization and the Principle of Subsidiarity

The principle of subsidiarity must be enforced; decentralization of political-decision making must be pursued. The political rights of local communities, towns, cities, counties and states need to be preserved as they serve as an antidote against ultra-centralized power and federal overreach. They also allow for greater participation of the populace in the democratic process and easier access to political decision-makers.

The Right to Privacy and Data Minimization

The right to privacy or informational self-determination (depending on country) must be enforced by the courts as an essential human right and pillar of democracy. Further, educational measures must remind people of how fundamental privacy, informational self-determination and data sovereignty are for a healthy democracy. The right to privacy – which means to be free from unwarranted and illegitimate surveillance – is not only of personal relevance but essential for functioning democratic societies.

Surveillance and (digital) mining, storage and trading of private data by third parties outside of a constitutional law enforcement process needs to be criminalized via legislation. Legislative measures must ensure that people have ownership over their own

data at all times and that terms set by private or state entities that violate this norm are prohibited.

Data policy and terms of service that coerce people to provide their most private data to any corporation or government in exchange for participation in the digital public square must become illegal. Service providers that have become parts of the digital public square should be prohibited from demanding access to, storing, owning and trading in sensible private data. Profiles using pseudonyms should always be allowed. People generally are not forced to share sensitive data when they visit a town hall or public square or a political protest, except with the police in limited cases. The same needs to be true for the digital public square. Fought-for human and civil rights should not be renegotiated.

In addition, freedom of expression is essential to the flourishing of democratic societies, the fight against injustice and social change. **Any speech that is legal in a physical public square in a democratic society must be allowed in the digital public square.** Censorship of any legal speech or opinion to favor one opinion over the other whether by removing posts, blocking profiles, designing algorithms to curtail reach or labelling must be prohibited. Neither corporate nor state actors can claim of themselves to be the arbiter of truth as they did in past centuries, mostly to have people conform to specific profit-driven interests. In exchange, providers that qualify as part of the digital public square should receive favorable conditions that differ from those of publishing houses and could become eligible for tax incentives.

Any form of Digital ID – esp. any form of mandatory Digital ID – with a digital consolidation of all sensible private data relating to an individual under a personal identifier and accessible via the internet must be prevented via adequate legislative measures. Such a Digital ID poses a significant threat to human and civil rights. If widely implemented or even mandated, it would erase the right to privacy, informational self-determination and data sovereignty that are fundamental to working democracies. It also presents a significant threat to individual safety and national security. The necessary online infrastructure cannot be reliably protected and can be hacked by entities hostile to an individual, a group or country.

Educational measures to explain the dangers of Digital IDs should be devised and implemented. Scientific and journalistic research should further be initiated to shine a light on corporate and government overreach in the digital age. Independent national and international organizations should commit to investigate the following questions: Who benefits from surveillance? What does large-scale surveillance of the populace

mean for the future of human rights, civil rights and democracy? Who owns and controls our data? Who is benefitting from trading in it? Why do we have no say over who gets it?

The Right to Use Cash and Prevention of CBDC

Any form of Central Bank Digital Currency (CBDC) should be prevented via adequate legislative measures as done by the legislature in the U.S. state of Florida based on Governor Ron DeSantis initiative. Even if introduced as an option first, a real concern exists that it will become the mandatory form of payment once a majority of the population uses it – with cash then being phased out. If that happens, government and its private partners would gain absolute insight into and control over how people use money and even if they are allowed do so. Since a CBDC is programmable, it enables government to place conditions on the use of money, to set expiry dates as well as restrictions and to even cut off a person, an organization or any other group of people from being able to use money altogether. This would result in a severe disenfranchisement of individuals and the whole population vis-a-vis a central authority, faceless bureaucracies and powerful corporate interests.

The unrestricted and continued use of cash in parallel to digital payments is the best way to prevent such a dystopian future and anti-democratic authoritarian ambitions. **Therefore, the right to use cash without limits and restrictions should be constitutionally enshrined as a legally enforceable right as planned in Austria.** Its use should be encouraged. Banking institutes need to be required to keep adequate amounts of cash for withdrawal by their customers.

C. Conducting Ethically-Driven and Rational Analyses

The digital transformation hype should be rationally analyzed with a view towards the protection of fundamental human rights and the democratic system. Only that which is useful, sensible and not harmful should be pursued politically and economically. People should be put over profits in the considerations.

Wireless smart meters are unnecessary. **Autonomous driving** is currently not feasible technologically on a broad scale; it is also unnecessary. It certainly does not justify the installation of a pervasive grid of radiation-emitting towers and antennas everywhere,

including in residential areas. In a cost-benefit-analysis, the harms for humans, animals and the ecosystem as a whole far outweigh the benefits.

The **Internet of Things**, meanwhile, is not desirable (although aspects of it could be implemented via wired and shielded technology). If people wish to live in a **smart home**, for instance, it should be based on wired and shielded technology – as also recommended by most engineers and security experts.

Smart cities are a threat for a multitude of reasons. Kroll (2020: 32) writes: "The term *smart city*, in which everything and everyone is digitally connected and every citizen with all the data he or she produces is constantly being tracked, is just a euphemism for the total surveillance of citizens and the maximum exploitation of their data." An attempt by Alphabet (which owns Google) to build a smart city on an area in Toronto, Canada, failed and has been described by Jim Balsillie (the retired Chairman and co-CEO of Research In Motion/BlackBerry) as "a colonialist surveillance capitalism experiment" (FAZ 2020: 1).

In fact, Alphabet attempted to take over and privatize parts of the governing and policy-making structure. Niklas Maak writes: "Alphabet wanted to invest a total of 1.3 billion dollars and founded a number of start-ups: for intelligent timber construction, for robotized household appliances and underground waste disposal, for health insurance whose tariffs would be based on user data, for the development of sensors. This is where the problems started. It quickly became clear that this was not just about using fewer resources and reconciling work and living – but also about 'completely reinventing existing concepts of social policy and political leadership' and, according to Sidewalk [the Alphabet company responsible for the project] boss Daniel L. Doctoroff, 'testing data-driven management' [technocracy as a replacement for democracy]. That was an astonishingly open declaration of war on the entity responsible for social policy: the state." (FAZ 2020: 1) Alphabet even aimed for a right to get tax revenue.

After the true extent of Alphabet's plans became apparent, civil society resistance became so great that the attempt had to be stopped. Alphabet withdrew from the project.

IV. Recommendations for the Reader

A. Use Wired and Shielded Technology in Your Home, Turn Off Wireless

Wireless technology (Smartphones, tablets, DECT tele- phones, WLAN and GSM/UMTS/LTE/TETRA and the plan- ned 5G) continuously expose people and the environ- ment to pulsed microwave (and with 5G also millimeter) radiation. You cannot see this radiation. We strongly en- courage you to buy a measuring device to make the radia- tion you and your family are subjected to in your home visible and hearable.

You are not dependent on wireless technology in your home. Exchanging wireless connections for wired ones will protect your, your family's and surrounding's health and make your communications faster, clearer and more secure as it is more difficult for unauthorized users to access them. You can build a smart home (if that is what you want to do) based on a wired network – an approach recommended by engineers today as wired systems con- sistently perform better than wireless systems. Wired systems also require less energy and don't need batteries to operate, profiting the environment and reducing run- ning costs.

To make devices that you want to use available in diffe- rent places of your home, you can get points for network and internet access installed which you can then connect to any device you use via cable while having wireless mechanisms turned off. You could probably start right now, for instance, by connecting your laptop to the internet via cable while turning off the WiFi.

B. Ask for Wired and Shielded Solutions to be Broadly Implemented

Wired solutions can and should be implemented in different venues of social life shared by many people as some individuals are more sensitive to radiation than others. People

do not have the right to excessively irradiate others against their wish when it might be harmful to these others.

Kindergartens, schools and workplaces should only use wired technology. Instead of offering WiFi, hotels, restaurants and similar venues should offer wired connection points for people to attach devices to. Instead of building an extensive, harmful, costly and exploitable 5G infrastructure, a more healthy, more stable and more secure wired and shielded infrastructure should always be created.

C. Be Conscious of Your Habits And How They Make You Feel

Use technology for constructive purposes, education, work, worldwide interactions (if in-person isn't possible). Don't use it for destructive causes, to gain recognition (temporary popularity is not the same as truth), to compare yourself to others or carefully presented highlights (you are unique and have a unique purpose) or to pass idle time (with algorithms deciding where your attention goes instead of you being in charge).

Limit your exposure to technology and turn devices off whenever you spend in-person time with family (including pets), friends or nature.

Carefully balance the time you spend in the digital world with the time spend in the natural world. The latter should always surpass the former as it is our natural habitat that provides us with that which our body, mind and soul really need. The digital world is an artificial construct that can entrap us if we do not interact with it in a conscious manner.

It is further important to keep very young children away from any digital technology at least until the age of 3; they learn and grow best in the natural world via positive human-to-human interaction. When older, we need to teach them how to be resilient in the face of addictive technology, how to engage consciously with the digital world and avoid pitfalls.

D. Demand Ethical Practices And Vote with Your Money

As consumers, we drastically impact the world by what we spend our money on. If we buy products that are based on exploitation, we contribute to that exploitation. If we buy products that are ethical (e.g., organic, Fair Trade), we contribute to a more ethical world.

For the trillion-dollar digital industry, it would be easy to trace the exact origin of raw minerals used in technological devices, to assign them to specific mining areas or mines, to supply these with robots to do the digging while improving the lives of people living in these areas in exchange for their lands' resources being used. It would be possible to manufacture products in a fair manner. We need to demand fair trade practices that should not be an exception but the norm, hold corporations to account, ask questions, and put our money behind fair products while boycotting those based on exploitative practices.

E. Insist On Your Rights, Decentralization and Data Minimization

A centralization and monopolization of political decision-making disempowers the local level (counties, cities, towns and communities) and goes against the principle of subsidiarity. This disempowers **you**. The further away, less reachable and more obscure decision-makers are, the less you can influence political decision-making that directly affects you, your family, neighborhood and community. That is why any kind of attempt (including legislation like bill H.R. 3557) that centralizes power needs to be rejected. Instead, what is needed is more decentralization based on the principle of subsidiarity.

In addition, we should never trade our right to privacy for access to apps or services as privacy and informational self-determination are essential if we want to keep living in democracies. Big Tech corporations can only harvest private data – intruding into the private lives of billions of people, violating constitutionally protected human rights in the process – because of personal compliance and because governments are under no pressure to reign them in due to popular apathy. Therefore, sensitive private data keeps being illegitimately obtained and used by both governments and corporate stakeholders.

As Solomon (2018) puts it: "[W]e must advocate for the principles of data minimization, decentralization, consent, and limited access [to data] that reinforce our fundamental rights."

F. Reject Digital ID Irrespective of Incentives

Never exchange freedom and privacy – hard fought for by previous generations – for convenience and incentives. If you do, you not only harm yourself but you stab your ancestors and children in the back.

Please join us in rejecting any attempts at implementing a Digital ID. As pointed out, a Digital ID is the prerequisite for a totalitarian surveillance and control system. It will also supercharge an anti-human surveillance capitalism in which humans with their data become the product themselves.

Do not use a Digital ID wallet even if you are lured by incentives or pressured to during a crisis. As long as the majority of the population does not use it, a Digital ID can be stopped in its tracks. You can say *no* right now without facing consequences. If the majority says *no*, it will be difficult to make a Digital ID compulsory. Your freedom and power lie in the decisions you take.

G. Increase Your Use of Cash

The history of money shows that what money you use can make the difference between being independent or being bound. Cash means independence, sovereignty and privacy.

With plans being drafted for a cashless society, however, using cash becomes more than a personal preference. It turns into a political act and statement with very tangible consequences. Just by using cash, you can make a real political difference that becomes more powerful the more you increase your proportional use of cash. As long as the majority of the population insists on the availability and use of cash, it will be very difficult to implement a completely cashless society.

By using cash you further keep real value in the hands of the people as opposed to donating it to the banking system or similar providers. A 50 dollar note will always remain a 50 dollar note in the hands of the bearer, even if it passes hands 30 times. Meanwhile, most of 50 dollars paid digitally via credit card or a similar service, after 30 transactions, will have become the property of banks or other digital payment providers due to the transaction fees.

Source: Unknown

V. Conclusion

We are contemporary witnesses to the accelerated implementation of the Fourth Industrial Revolution with central stakeholders aiming at the digital transformation of all areas of life and production. The digital transformation is an ideology and a hype. It is also a vehicle for total surveillance and control if not restricted and regulated properly. It is essential to pause and to analyze the Fourth Industrial Revolution in a rational way. It is necessary to differentiate between positive and negative innovations that are presented under the umbrella of digitalization in order to select which technologies and instruments to implement (those that are beneficial) as well as how to do so ethically and which to reject (those that are harmful). Not everything that is technologically feasible should be deployed. Ethical considerations must be above narrow interests of power and money. It is essential to use technology with discernment. The policy recommendations and the recommendations to the reader presented in this brief have their basis both in ethical considerations and in science, and provide a path to the protection of fundamental human rights (including the human right to health), democracy and nature.

Acknowledgements

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