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Dictatorship 4.0: How the digital revolution threatens our freedom - and what our alternatives are

by Dirk Helbing (ETH Zurich/TU Delft)

Finally, it has become obvious that mass surveillance applies not only to terrorists, but to everyone! As Wikileaks recently revealed, more than \$100 billion was spent by the CIA alone to hack our computers, smartphones, smart TVs, and even smart cars, and to tap our data on a regular basis. This equates to more than \$1 billion per terrorist!

In today's surveillance capitalism, we are the product. All of our clicks in the Internet are being recorded and evaluated. About each of us, more data have been collected than secret services of totalitarian states have ever had in the past. Meanwhile, some information systems know us better than our parents, friends and partners - or even ourselves!

What is this data collection all about? It is done in order to learn about our preferences and weaknesses and make us all manipulable. Personalized information can influence our attention, our emotions, opinions, decision-making and behavior. It is easier than ever to motivate us to purchase certain products or manipulate our voting behavior in democratic elections. If you want to find more detailed information about all this, the relevant keywords are "Neuromarketing", "Persuasive Computing", "Social Computing", and "Big Nudging".

These technologies are increasingly threatening our democracy and domestic peace. Social bots – robotic bloggers - bias public opinion in a much more powerful way than propaganda and censorship in the past. We have ended up in a post-fact society, in which fake news is increasingly difficult to distinguish from the truth. If you and I click the same link, we may see different content. While this is well known for booking platforms, personalized content is also spreading in news portals in the Internet. It is even possible to manipulate Youtube videos in real time: both facial expressions and what is being said can be changed without the observer noticing. So we can't anymore rely on digital content. Remember, for example, Michael Jackson's "Slave to the Rhythm" video – it was produced after his death!

But that's not all. Each one of us has a digital double. This is a kind of blackbox, which is fed with our personal data. This data has usually been tapped without our knowledge and, thanks to machine learning, the resulting double behaves similar to us. What is the intended purpose of such digital doubles? World simulations such as "Sentient World" can simulate global war games on computers. But your digital double could also be used to identify the best ways to trick you into buying a particular product, downloading a Trojan onto your PC to make it hackable, or to hate particular colleagues, neighbors, or fellow human beings. In addition, one could find out who would protest if democracy or the freedom of press were abolished, and these people could be incarcerated proactively "for the sake of public security" - the keyword here is "predictive policing".

Since the "Arab Spring", such technologies have increasingly been used to destabilize states or to stabilize autocratic regimes. Since then, they have been continuously improved. Now, such cyber weapons are also applied to the own citizens. These technologies are suited to replace democracy – which many IT visionaries have called an "outdated technology" - with a data-driven "benevolent dictatorship". All what is needed for this is a big disaster or crisis fueling a public outcry for "more security". Then, the technological instruments of the "brave new world" might be fully used. Read the book "iGod" by Willemijn Dicke to understand how this could end. It's an urgent warning, a

final wake-up call!

In the event of a crisis, the Chinese "Citizen Score" would probably be applied, too. The Citizen Score boils all of your data down to a single number (which by the way encompasses your health data, which can continuously be monitored and evaluated by your smartphone). This number comprises all of your activities and your social network as well. You repaid your loan with a delay? Minus points! You read critical news about your government? Minus points! You have the "wrong" friends? Minus points! In any case, the resulting Citizen Score would determine your interest rates, the jobs offered to you, and travel visa for other countries - at least in China.

A similar system exists in the UK, where the Citizen Score is called "Karma Police". It also evaluates the videos you watch on the Internet and the radio programs you hear. Don't believe such scoring systems do not exist everywhere by now! What is their purpose, you might ask? The Citizen Score would serve to decide who will get access to what kinds of resources, when they get scarce! Such scarcity may also be artificially produced, for example, to reach the goal of reducing global CO2 emissions and mitigate climate change. It is said that a related resolution of the UN General Assembly will be adopted on September 23, 2017.

As a result, the Citizen Score would lead to a neo-feudal society. You can imagine who is most enthusiastic about the prospect of this system and who has brought it to life... If you have a high score, you will get everything you desire, no matter how bad the situation in the rest of the world are. The people who commissioned the system would certainly be among this tiny elite. For the rest of us, it would depend on our Citizen Score whether we could still have a car, obtain certain medicine, or eat meat regularly. In order to get plus rather than minus points, many would not question the instructions through their smart devices – they would just follow them. Thus, people may soon be turned from citizens into subordinates again.

This sounds like a terribly dystopian science fiction - but unfortunately it is not! The technologies described above are available and ready for use. You might wonder why all this has been developed? The answer is that our economy is not sustainable! The world consumes 1.5 times the resources that are renewable. A typical European country consumes 3.5 times as much, and the USA 4.5 times as much. In order to avoid serious crises and disasters, humanity must quickly reduce this factor to one. The Citizen Score might help to get in this direction, but we would then live in a digital command economy with digital food stamps - a more totalitarian world than ever! For the most part, this would not be a life worth living anymore - we would simply struggle for survival.

There are much better ways to create a sustainable world by 2030! So far, however, these alternatives have been blocked by people with vested interests who care more about power and wealth than about our future. Here are some options: First of all, we could regularly organize City Olympics, where cities around the world would regularly compete for the best environmental-friendly, energy-efficient, resource-saving and crisis-proof solutions. There would be different fields of competition, as well as various "weight classes" (small and large cities, for example).

This competition would involve science, but also business, politics and the media. In particular, mobilizing the people to use resources more efficiently and to buy more environmentally-friendly products and technologies would be important. Information about the best technologies, organizational principles and mobilization strategies could then be exchanged between the cities every other year. This strategy implies a combination of competition and cooperation between cities. Moreover, if the resulting innovations were made available for free in the spirit of "Open

Innovation", the solutions could be further developed by everyone. This would lead to a fast and widespread adoption of the best solutions.

Second, the financial and monetary system, which has been in crisis for years, should be replaced with a socio-ecological "finance system 4.0+". This would work as follows: Using the sensors of the Internet of Things, which are also in our smartphones, we could measure the impact of our actions on the environment and other people. This would enable us to quantify "negative externalities" such as noise, CO2, and all sorts of waste. Similarly, "positive externalities" such as cooperation, education, health, and the recycling of resources could also be measured. Using Blockchain technology – similar to the one behind the digital currency "Bitcoin" - different externalities could then be assigned a price or value. This would lead to a multi-dimensional incentive or financial system, which would be good for the real-time control of complex systems.

With suitable incentives, the financial system could be aligned with social values and environmental requirements. In this way, new market forces could be unleashed, which would bring about a circular and sharing economy. This could provide a high quality of life for more people with fewer resources. It would also benefit companies, citizens and the state alike.

Third, so-called "market-conform democracy", which has obviously not solved the world's problems and has weakened our democracy, could be replaced by "democratic capitalism". This would reinvent the way money is being created. Instead of feeding billions of fresh Euros into the system from the top, as it is the case with "quantitative easing", an "investment premium" would be transferred to a special bank account of each citizen. However, this money could not be used for yourself or saved. It would have to be invested in good ideas, projects and commitments of others, such that you could support whatever you consider important and right. This would be like "crowdfunding for all", or an economic "right to vote" for investments that affect yourself. If such an approach were combined with Open Data and Open Innovation, it would drive rapid and pluralistic innovation, which would lead to much faster and more flexible solutions of humanity's problems.

These are just some of the untapped opportunities we have. An upgrade of democracy to boost "collective intelligence" and coordination by means of digital platforms would also be possible. All of these proposals are perfectly compatible with the fundamental values of our society. Democracy and capitalism - so far the two most successful forms of organization in human history - could be "happily married" with each other and digitally upgraded. In this way, we could tackle the problems of the future more successfully - and reach the next level of our economic, social, political and cultural system. A new chapter of the history is about to begin. It's now up to us to write it!

For further information, please visit the FuturICT youtube channel and blog. This video gives a good overview. Sources and documents can be found here:

https://www.researchgate.net/publication/316989750_The_Dream_to_Control_the_World_-_and_Why_it_is_Failing

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