

The battle for informational self-determination

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Credit: George Hodan/public domain

In an age in which personal data is routinely collected about each and every one of us, we are increasingly remote-controlled. "Many choices that people consider their own are already determined by algorithms," argue Prof. Dirk Helbing and Dr. Evangelos Pournaras from the Swiss Federal Institute of Technology (ETH Zurich) in a commentary published in the latest edition of the science journal *Nature*.

Personalized information might make it possible to control our society in a top-down way, the article explains. China has recently started to introduce a "citizen score" - a single number which determines loans, jobs, and travel visa, depending on someone's behavior and web history, and on the behavior of their social contacts.

"If we adapted a similar scheme in democratic countries, this would weaken civil society and affect the ability to innovate," says Helbing. "Instead, we need to enable everyone to take better decisions with today's information and communication technology."

The digital revolution is now providing us with the necessary technology. In particular, the Internet of Things could be built and run as a Citizen Web, to create data and opportunities for everyone, and new jobs at a time when we expect about half of today's jobs to disappear within 10-20 years.

"Together, we can create an information and innovation ecosystem to catalyze social and economic value creation." To demonstrate the possibilities, Helbing and Pournaras have started to build an open and participatory platform called Nervousnet (see nervousnet.info), which is committed to the principle of informational self-determination.

Nervousnet now enables everyone to measure and analyze aspects of the world in real time, writes Nature. The Nervousnet platform currently allows users to activate or deactivate various sensors that measure variables such as acceleration, light and noise. A range of other functions are being developed by the core research and development team at ETH Zurich and about a dozen research groups in Europe, Japan and the United States. People can interact with Nervousnet in three ways. They can contribute data, analyze the crowd-sourced data sets, and share code. Anyone can create data-driven services and products using a generic programming interface.

In Helbing's team, there has also been work on a related platform developed by Pournaras' collaborator Prasad Pulikal recently, called SwarmPulse (see swarpulse.net). It allows people to perform geolocated measurements and send geolocated texts" says Dr. Pournaras. "This could also be a link to a photo, movie or sound file," adds Helbing. "Eventually, we can jointly map the world around us using a crowd-sourced approach. For example, we could map birds or trees or any other thing and thereby get a better picture of our environment and how it changes." This will allow us to create awareness and support decision-making. Complementarily, Nervousnet will allow us to measure the impacts of decisions and actions on the environment (the "externalities", as economists would say). Therefore, Nervousnet can be a tool to create a more sustainable economy.

Helbing believes that the societies around the globe are now at a crossroads and have to decide between top-down control and a "participatory market [society](#)", as he calls it, or shorter: "digital democracy". He is firmly convinced that the use of a citizen score would not fit the culture of Western democracies. "Fortunately, the recent developments point in a different direction," he says. "There are various signs that we are now on the right track, and we should pursue this path further."

More information: Dirk Helbing et al. Society: Build digital democracy, *Nature* (2015). [DOI: 10.1038/527033a](https://doi.org/10.1038/527033a)

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