# Information overload is a personal and societal danger, researchers say

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We are all aware of the dangers of pollution to our air, water, and Earth. In a letter recently published in Nature Human Behavior, scientists are advocating for the recognition and mitigation of another type of environmental pollution that poses equivalent personal and societal dangers: information overload.

With the internet at our fingertips with smartphones, we are exposed to an unprecedented amount of data far beyond our ability to process. The result is an inability to evaluate information and make decisions.

Further, it can lead us to limit our social activities, feel unsatisfied with our jobs, as well as unmotivated, and generally negative. Economists estimate that it all comes at a global cost of about $1 trillion. On top of the emotional and cognitive effects, contextual and environmental considerations may add to the personal and economic costs.

The idea to explore information overload was incubated in a meeting of an international group of scientists two years ago, all of whom were supported by an E.U. grant for international collaboration. The E.U. team selected partners abroad including, for the third time, Rensselaer Polytechnic Institute's Network Science and Technology Center (NeST), led by Boleslaw Szymanski, Ph.D., professor of computer science, in the United States.

The researchers compare information overload to other historical shifts in society: open publishing brought about the need to filter out low-quality research from the vast number of accessible publications, the Industrial Revolution gave rise to air pollution, and environmental activists have helped usher in legal and economic changes to help curb pollution. Similarly, so-called "information pollution" or "data smog" must be addressed.

Through the lens of computer science, there are at least three levels of information overload: "neural and cognitive mechanisms on the individual level… information and decisions at the group level… (and) societal level interactions among individuals, groups, and information providers."

These levels do not operate independently, so the flow of information may be treated as a multilevel network with nodes, which may give rise to an abrupt change. The researchers cite teamwork as an example: one team member's information overload may cause the group's performance to be hindered. It is a complex problem.

"We are calling for action in science, education, and legislation," said Szymanski. "We need further interdisciplinary research on information overload. Information ecology must be taught in school. We also need to start the conversation on legislative possibilities akin to the Clean Air Act in the U.K. decades ago."

"Information overload can have severe implications," said Curt Breneman, Ph.D., dean of Rensselaer's School of Science. "It begins by eroding our emotional health, job performance, and satisfaction, subsequently influencing the actions of groups and, ultimately, entire societies. I hope that Dr. Szymanski's letter, written with colleagues from across the world, will raise public awareness of the problem and enable solutions to be studied and implemented."

**More information:** Janusz A. Hołyst et al, Protect our environment from information overload, *Nature Human Behaviour* (2024). DOI: 10.1038/s41562-024-01833-8

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