BusinessBusiness Columns

Hidden environmental cost of working from home

By Ben Kritz
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That the coronavirus pandemic has permanently changed the way we do business is taken as an article of faith these days. Remote work, online commerce, and digital rather than physical interactions were already growing parts of the economic landscape before the pandemic made them obligatory. Even if compulsion has not caused the enthusiasm for "working from home" to increase for many of us, we have at least had a year to get used to it, to the extent that completely reverting back to old habits once it is actually safe to do so would probably be more trouble than it's worth.

Not that there aren't some benefits to the new digital economy, as advocates and those trying to put the best face on the new normal situation do not fail to point out. Reduced use of physical facilities, such as offices and stores, has reduced operating costs for businesses, and the costs in both time and money for workers who are now spared from commuting daily. Likewise, the carbon footprint of all that movement has correspondingly also been reduced, easing

environmental damage at a time when it has become painfully obvious to everyone that any form of climate change mitigation, no matter how modest, is absolutely critical.

Throughout human history, however, humans have done a poor job of recognizing unintended consequences of large-scale, outwardly beneficial technological changes. Or as the authors of a recently published study put it: "The environmental costs of adopting new technologies and habits are often recognized too late, typically when changing the adopted technologies and behavioral norms is difficult." That certainly is the case with one of the more unappealing aspects of work interaction in the new normal: the widespread adoption of videoconferencing.

That brief study, titled "The overlooked environmental footprint of increasing Internet use," was published in the journal Resource, Conservation & Recycling on January 8. The researchers, who are variously affiliated with the University of Maryland, Purdue University, Massachusetts Institute of Technology, Yale University and Imperial College London, did two things in their investigation: First, they compared the energy use and environmental impact of global internet activity before and after the imposition of pandemic-induced lockdowns (which occurred between January and March, depending on the country); and second, they studied the specific energy use

and corresponding environmental impact of different configurations of videoconferencing for one user for one hour.

Environmental footprint can be expressed using three fairly conventional metrics: emissions, measured in grams or kilograms CO2 equivalent; water use, measured in liters or cubic meters; and land footprint, measured in square centimeters or square meters. All forms of energy generation, except for wind and hydroelectric power, have some emissions (solar has a little, in the form of reflected heat); all except solar and wind use prodigious quantities of water; and power plants, electricity distribution networks, and computer data centers all require physical space. Before the pandemic, global internet use accounted for about 1.0 percent of global energy demand, and its environmental footprint averaged 32g CO2 equivalent of emissions, 0.74 liters of water, and 11.07 square centimeters of land per gigabyte of data.

Depending on the country, internet use after lockdowns began increasing by 15 to 40 percent. This translates to an additional 42,600 gigawatts of electricity annually (for comparison, the total installed capacity of the Philippines is a little over 20 GW); 3.2 million metric tons CO2 equivalent in emissions; 1.8 billion cubic meters of water; and 100 square kilometers of land area.

The reason the researchers focused on videoconferencing is that, along with video streaming, it accounts for the biggest part of total internet usage, with videoconferencing particularly registering the fastest increase in most countries. The research determined that one hour of videoconferencing by a single user on a typical platform, like Zoom, has an environmental footprint of 157.34 grams CO2 equivalent, 1.86 liters of water and 27.67 square centimeters of land space. Since it's not a conference until at least two people are involved, those figures are, at a minimum, doubled for every online meeting that takes
place.

Thus, the videoconference that "could have been an email" turns out to be not just mildly annoying, but an irresponsible extravagance at the expense of the environment.

For their part, the study's authors recommend one simple fix: if a videoconference must be conducted, then leave out the "video" part. Turning the camera off, their tests showed, reduces the environmental footprint by some 96 percent.

For you youngsters who might not be familiar with the term, that's something called a "conference call," something those of us who started our careers

during the Stone Age used to do regularly, using ordinary speakerphones.

Sometimes “new” doesn’t necessarily mean the same thing as “better.”

ben.kritz@manilatimes.net

Twitter: @benkritz

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