MOOC Environmental impacts of digital technologies

Part 3 : Are digital services virtual?

Théo : Luke, I am your father. It doesn't work anymore.

Guillaume : What are you doing?

Théo : I'm so annoyed. I can't get this to work.

Guillaume : What? What do you mean?

Théo : It's an app that recognises impressions. Normally it can do it. But it's not working now.

Guillaume : Sounds like a necessary app. Are you definitely connected to the internet?

Théo : What is that got to do with it?

Guillaume : Your answer is in a cloud server, not in your phone. Your app doesn't work by itself, it's part of an entire ecosystem.

Théo : Is that why it's not working?

Guillaume : Hold on, let me explain. Your app needs a digital infrastructure to work. Phone network, Wi-Fi network, cable, relay antenna, data centers.

Hotline : We actually prefer the term "digital service". Software is too immaterial.

Guillaume : Lots of people don't realise how much is behind a digital service They think you type a message, it flies through the air and arrives as if by magic in the recipient's computer.

Théo : That's what going paperless is.

Guillaume : Théo, it may not involve paper for us, but it's a significant work in the cloud. Just because you can't see it doesn't mean it doesn't exist.

Hotline : Indeed, the materiality exists elsewhere. Do you know what's happening when you send a message? First of, you obviously need a computer, a smartphone or tablet to type. And those are your hardware. This hardware must be connected to a phone network, ADSL, 3G, 4G or 5G provided by our routers, antennae, millions of miles of submarine cables and fibre optics. I think we can also class that as hardware. Often the message isn't stored on your machine, but on a server in a data centre. It's a huge hardware hangar with rooms full of servers, firewalls, hard disk backup storage, routers and switches all stacked on top of each other inside cupboards, more hardware.

Théo : All that makes up the cloud?

Hotline : Yes. We've removed storage and processing from your machine. On the one hand, it's good because the equipment is shared, on the other hand, the downside is that you can't turn them off. You want to be able to use your email and apps whenever you want. So it all has to keep running day and night, 24/7.

Hotline : Think of the data centres like tons and tons of servers on top of each other that function non-stop. It consumes electricity and emits heat energy. This means the temperature needs to be regulated with huge air conditioners. Ovens inside of fridges. So what does that mean for one of our

messages? It just sits there, stored in several locations at a constant temperature. It waits until someone wants to read it. That often never happens. In the best-case scenario, it waits to be reread, but the chances of that can be very slim indeed. Here's what's guaranteed: Immediate access to our data, wherever we are, whenever we want.

It's obviously out of the question that all these people's data disappears into the void. We need generators and backup batteries, which are at least doubled, just in case. Data centres have the finger pointed at them because of how they work, which has a huge impact on the environment. A lot of progress has been made: better energy efficiency, or being installed in places where energy production doesn't emit CO_2, such as in the middle of a wind farm. It's better, more efficient, but that doesn't solve everything.

Guillaume : We get what's called a "rebound effect". The easier it is to access data, the more we consume. The more we consume, the more we have to develop infrastructure. The more we develop infrastructure, the more data we consume.

Théo : I get the same thing with chocolate mousse.

Guillaume : No Théo, that's the glutton effect.

Théo : Oh, right

Guillaume : We used to type messages of 140 characters and that was enough. With 3G, we could take photos. With 4G, this became videos.

Théo : And with 5G, I can stream a series on my phone in 4K resolution on the train.

Guillaume : You don't need to watch a film in 4K on your phone. You can't even tell the difference. The disappearance of limits encourages overconsumption. That's the rebound effect. I'm not even talking about certain app updates that encourage you to upgrade device to run them. I hate that. I digress, but seriously. It drives me nuts.

Hotline : It even has a name, it's the software's obsolescence strategy. Digital services are often seen as free, but they're not designed for using new technological possibilities to the max and they push us to change our devices. It's not free for us or our planet because the machine we get rid of still works perfectly well. We need to design simpler, more responsible and respectful services for the user and the environment. Simpler services are more accessible across more phones, thus for more people across the world and are therefore easier to use for people less comfortable with technology. You don't need a gas factory to light a candle. Let's keep technology where it really brings added value. Let's use our existing infrastructures for what they're made for. If you want to listen to music, why put on a YouTube video? If you're at home, why use 4G as opposed to Wi-Fi or fibre?

Guillaume : Did you buy a phone to get 5G?

Théo : Yeah, I was fed up, it was freezing too much Sometimes I'm on it all day.

Guillaume : That's deliberate, too. It's called "attention capture", infinite scrolling, for example, or autoplay. We used to click to view a video. Now you need to click to not see it.

Théo : Tell me about it. Yesterday, I watched one after another and today I'm knackered.

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Guillaume : There you go. Consumption is the default state, but maybe we should think about what we are doing for five minutes. Besides, to unwind and breathe from time to time, it's good to disconnect. Come on, put away your app and make an impression for me.

Théo : Ooh, somebody stop me!

Guillaume : I'd know your Jim Kerry impression anywhere, you do it every Christmas.It's my turn now. Hasta la vista, baby. No problemo.