

Digital technological case study



1. Documents

In those documents, you will find information to help you define what are the different interactions between this technological tool (smartphone), humans (individual and global scale), and nature (fauna, flora, biogeochemical cycles).

Please, do not read all the readings entirely. Even if you try, you won't be able to make it until the end of the semester (so don't try!). **You must search for the information you need intelligently :)**

- LCA Cellphones: [here](#)¹
- Impact of smartphones on society: [here](#)²
- Impact of smartphones on individuals: [here](#)³
- Emotions around smartphone use: [here](#)⁴
- Smartphone components: [here](#)⁵
- Computers in human behaviors: [here](#)⁶
- Indium cycle impacts: [here](#)⁷
- Lithium mining: [here](#)⁸
- Lanthanum and Yttrium: [here](#)⁹

You can look for other sources of course to find information on smartphones.

2. What to do

You don't have any lecture for this week. You only have some practice work to do with the previous lecture.

By project groups, try to build a little model of the interactions between humans, nature, and smartphones along all the cycle of the life of a smartphone. You need to provide a table (the famous table you now know well now!) with the different interactions.

¹ <http://www.designlife-cycle.com/cellphones>

² <https://drive2.demo.renater.fr/index.php/s/etpse5GfAj5Niwr>

³ <https://link.springer.com/article/10.1007/s10639-019-09947-7>

⁴ <https://drive2.demo.renater.fr/index.php/s/tm6QwrZDLWCoSQp>

⁵ <http://www.compoundchem.com/2014/02/19/the-chemical-elements-of-a-smartphone/>

⁶ <https://drive2.demo.renater.fr/index.php/s/dKF6TkcZd4KToik>

⁷ https://www.tandfonline.com/doi/full/10.1080/10643389.2010.498755?casa_token=ZAiFKVvvr3sAAAAA%3AteXyoscGUYKuQuKY3JQUwC-UQFdpuNcvLwOZQKMFwXipAFS_XIIK4wLAZZEbpw2CixZoSGCSNplw

⁸ <https://drive2.demo.renater.fr/index.php/s/5mnoy7xnKPTBny2>

⁹ <https://drive2.demo.renater.fr/index.php/s/y7rSqCmrrm4LpzE>

2 mandatory rules to respect :

- Make sentences while completing the table (because when you only put words, I cannot always guess what you mean). Your table has to be understandable.
- Put sources on the different elements you add to the table.

Here is an example of the table you need to fill in :

Technical system				S <=> N	N <=> H	S <=> H
Stages	Description	Cause / Consequence	Modeling scale			
First life cycle stage : Conception		Cause	Macro			
			Meso			
			Micro			
		Consequence / impacts	Macro			
			Meso			
			Micro			
...						

Table 1: human-system-nature interaction representation at different levels and along with all the life cycle of the technical system

Of course, in a few days, it is very hard to model every interaction between a smartphone, nature, and humans. The aim of this work is to force you to model a complex technical system interaction to oblige you to understand the model and be at ease with it.