

Guide: Calculating the digital footprint in the classroom

This guide presents

- *The context of the program developed at the Green Office ULiège (Belgium)*
- *The PowerPoint support to use to facilitate the calculation of individual digital footprints*




Let's calculate our
DIGITAL FOOTPRINT

AT THE INITIATIVE
UNI
FOR
CHANGE

Do you know the impact of your digital activities?

1 Context

1.1 UNI for Change: A pioneering program at ULiège

 The Green Office of the University of Liège is developing a pioneering program to engage members of the ULiège community (students and staff) to reduce their individual carbon footprint. L'objectif d'ici 2030 s'aligne sur l'objectif de l'Accord de Paris : une réduction de 50 % de l'empreinte individuelle, pour l'ensemble de la communauté.

This ambitious [commitment program](#) is structured around 6 pillars:

1. **Raising awareness** to raise awareness of sustainable development issues, the objectives of the 2030 Global Agenda and the components of our carbon footprint ([conferences](#), [workshops and training](#))
2. **Integration** to mobilize student leadership at the heart of the project
3. **The imagination** to dream of our sustainable territory and arouse the desire to take part in its construction
4. **Action** with proposed [challenges](#) in favor of climate and biodiversity, offered on an [online collaborative platform](#) that brings together our community
5. **Communication** to encourage the mobilization of a large community on each campus
6. **Hope** is at the heart of the program because it is a positive and inspiring energy that is amplified in action that brings change.

In June 2021, this innovative program was the [winner of the UN Campus 2030 competition](#) (680 projects on the starting line). Following this recognition, many establishments contacted the ULiège Green Office in order to replicate the program on their campus. This is how sharing begins.

1.2 Sharing the program in 2 phases

The objective of UNI for Change is also to effectively replicate the engagement program in higher education establishments in the Wallonia-Brussels Federation and at the same time with a few partners in Flanders and outside Belgium who wish to develop the program with their students.

The strategy consists of **sharing a toolbox** - a set of advice and concrete examples presented in the form of fact sheets, short videos and links to scientific and educational references - **on an exchange platform** (arriving in February 2024) to allow the sharing and enrichment of content between the 17 current partners of the project.

In Belgium, potentially 500,000 students are targeted in higher education thanks to dissemination via sustainable development networks.

Internationally, distribution will be carried out via the following networks: AUF, AIU, ISCN, SDSN, UNI-C and the Green Office Movement.

2 Animation concretely:

Here is a 25 to 30 minute animation around responsible digital technology via PowerPoint:

1. Introduction
2. The current digital situation
3. The impact of digital devices
4. The impact of the internet and online videos
5. Social impacts
6. Digital sobriety
7. Calculation of the individual digital footprintSome concrete actions
8. Thank you



Madam Professor, Mr. Professor, we suggest that you take inspiration from the following text to comment on the slides.

Hello,

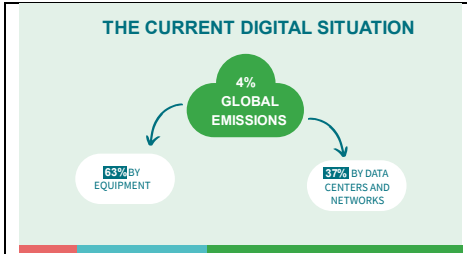
This activity is offered by **UNI for Change**. It is a Belgian dynamic that aims to boost commitment to sustainable development on higher education campuses!

Today, we will start by **taking stock of digital technology in our society** and then focus on devices and uses that are very popular on campus such as telephones and computers.

Then, we will talk about social impacts, among other things to arrive at the general solution, digital sobriety.

We will also each **calculate our digital footprint**, finally I will give you ideas for actions to reduce it.

Let's go !



Digital technology is omnipresent in our society. For the moment, this constitutes 4% of global greenhouse gas emissions but is predicted to increase to 8% by 2025.

Indeed, between 2010 and 2025, the scale of digital technology in terms of equipment is expected to quintuple.

Within 4%,

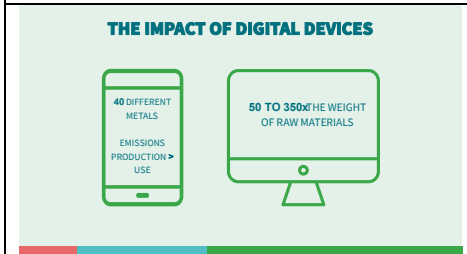
- **63%** is due to equipment
- **37%** is due to DATA centers and network infrastructures

In the 63%, we take into account - **production** where it is necessary to use **materials** which are sometimes **rare** with limited reserves. This is therefore already likely to pose a problem within 10 to 15 years because by using them to make, for example, a smartphone, we are not using them to make wind turbines or solar panels.

In addition, these materials are rarely recyclable or require complicated and expensive processes. Only 20% of devices are recycled.

In the 37%, we find data centers which are physical centers or not, for **storing our data** which can be linked to our internet searches or what we put on the Cloud.

In a few figures, 40% of their energy consumption is directly dedicated to air conditioning in data centers.

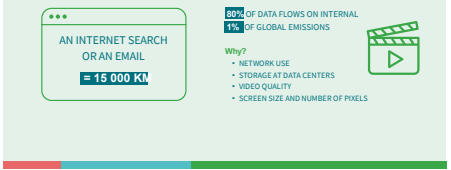


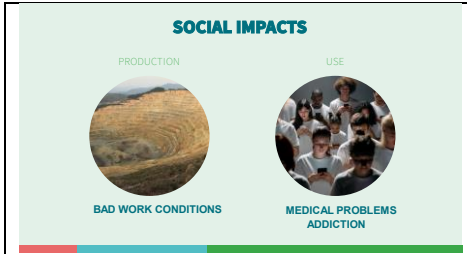
The composition of a smartphone includes no less than **40 metals**, some of which weigh a few mg and others in tens of grams.

Among them we have gallium and germanium which are less than 1% recyclable.

We therefore arrive at a production generating emissions 400 times heavier than when it was used.

Let's take the **example of an iPhone 11**. Over the 3 years of life, we arrive at 72kg of greenhouse gases, 79% of which are

	<p>emitted during production. If some of you have one, you have already emitted approximately 57kg of GHGs when purchasing. Once out of use, only 17 of the 60 raw materials are recyclable but are not always recycled.</p> <p>The same can be done for a computer. A 2kg computer requires 600kg of raw materials for its production and will have emitted 156kg of CO2 from its production to its end of life.</p> <p>It therefore takes 50 to 350 times the weight of raw materials to produce electronic devices with a high electronic component. This is the case for internet boxes and computers.</p>
<p>THE IMPACT OF THE INTERNET AND ONLINE VIDEOS</p>  <p>AN INTERNET SEARCH OR AN EMAIL = 15 000 KM</p> <p>80% OF DATA FLOWS ON INTERNET 17% OF GLOBAL EMISSIONS</p> <p>Why? <ul style="list-style-type: none"> • NETWORK USE • STORAGE AT DATA CENTERS • VIDEO QUALITY • SCREEN SIZE AND NUMBER OF PIXELS </p>	<p>Who says computer, says Internet. This is the other part of the 37% of the digital footprint.</p> <p>What is most common are internet searches and emails.</p> <p>Emails will travel up to 15,000km. Let's take the example of an email with an attachment. Once sent, it reaches the data center of our access provider where it will be processed, stored and retransmitted to the network. The email is then received by the data center of our CORRESPONDENT's supplier where it is again processed, stored and then retransmitted to the network. This is when the recipient receives the email.</p> <p>Among all these data flows on the internet, 80% is taken up by videos. This concerns online videos, therefore streaming, sites like YouTube, pornographic sites, etc. Often, it is this aspect of digital that is unknown in terms of impact. Online videos account for 60% of the impacts of videos in general, which makes a total of 305 million tonnes of CO2 in 2018 alone!</p> <p>For example, 10 hours of high-definition film is more data than all the English articles on Wikipedia. In other words, watching a video in 4K consumes 7x more data than in standard resolution.</p>



From the manufacturing stage, this industry has **disastrous social consequences**.

From the extraction of raw materials, working conditions are poor in mines in Africa and China. For example, in mines, there are no masks, no gloves, etc. This leads to dozens of deaths per year.

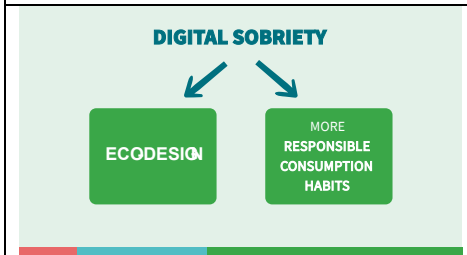
These workers also work up to **12 hours a day** and among them there are still **children**.

Extraction also causes **soil pollution** which affects the health of residents, particularly through respiratory diseases and cancers. This makes the **waters unusable**, forcing populations to move.

Other social impacts relate to the **use of our devices**. Indeed, we call the “digital divide” the difficulty of having access to digital tools, which isolates the people concerned from society.

But also, with smartphones, it’s easy to think about **excessive screen time**. Today, the dependence on screens is such that a disruption in the availability of this high technology, even if only for a few years, would have considerable repercussions.

Social impacts are therefore just as important as environmental impacts.

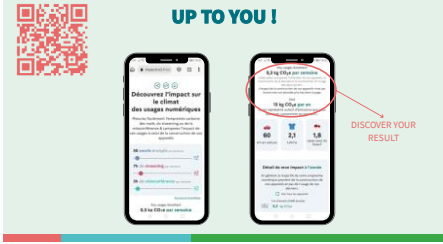
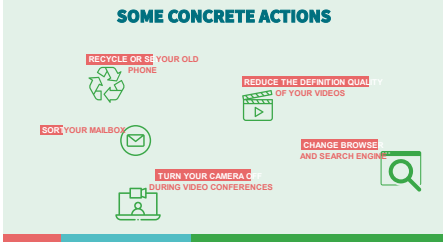



On a happier note, we come to **solutions** to reduce our digital emissions.

This solution is **digital sobriety**.

Digital sobriety is a measure consisting, on the one hand, of an **eco-design** of infrastructures and devices, and on the other hand, the **adoption of more responsible consumption habits** towards the environment.

In short, act from the manufacturing of digital devices and then, by using them responsibly.

	<p>We will now move on to calculating your digital footprint.</p> <p>The QR code will send you to the ImpactCO2 website where you can calculate your personal digital footprint very easily.</p> <p>You just need to estimate the number of emails sent, hours spent watching videos/series/films or the time spent in online meetings.</p> <p>Here we go, here is the QR code, take out your smartphones. I'm doing it at the same time as you. We will leave a few minutes of calm to complete the form.</p> <p><i>(Ask by show of hands, and allow additional time if necessary: Who has finished calculating their footprint?)</i></p>
	<p>Here are now some suggested actions that you can see on this slide!</p> <p>These are concrete and easy to carry out actions to reduce your digital footprint.</p>
	<p>Congratulations, you have made your digital footprint!</p> <p>You are joining the growing community of members of our university who are committed to a more sustainable lifestyle!</p> <p>-----</p> <p><i>Dear teacher, thank you for sharing these slides with your students!</i></p> <p><i>For any questions, do not hesitate to send an email to sarah.robinet@uliege.be</i></p>

3 Concrete actions proposed

Several concrete actions are proposed in the workshop. These are challenges created by the ULiège Green Office. You can access all of these challenges to offer them in full version by contacting Sarah Robinet by email to sarah.robinet@uliege.be

4 Responsible digital guide

The GSM2LIFE student team from the ULiège Green Office has produced a responsible digital brochure. It is therefore an interesting brochure to distribute at the end of the workshop if you wish.

You can download the guide via this link: [Responsible digital brochure](#)

Madam Professor, Mr. Professor, we thank you in advance for your commitment.

For any questions, do not hesitate to contact Sarah Robinet by email to sarah.robinet@uliege.be