GUIDE TO EVENT
DIGITALISATION

For clients and organisers

PARIS GOOD fashion

Summary report - Clémence Grisel
October 2020

Paris Good Fashion

A non-profit launched by the City of Paris in 2019, Paris Good Fashion works to accelerate the fashion industry's environmental and social transition, to make Paris the capital of sustainable fashion by 2024. Alongside this, the global pandemic has accelerated the pace of another, digital transition, from online Fashion Weeks and fairs to e-commerce. However, as digital usage grows, so does concern over digital pollution. The subject has even made the political agenda in France where, on January 12, 2021, the Senate passed the first reading of a draft law on "digital sobriety". So what can we do? And what can we do better? From the time we started work on the subject, with the launch of the Paris Good Fashion Tech/ WSN taskforce and through joint research with Bureau Betak, we were convinced of the need for a guide that clients and organisers could use - as a complement to the tool in development at the Fédération de la Haute Couture et de la Mode - to understand the issues at stake, take informed decisions and embrace best practices. The result is this Guide to Event Digitalisation, a summary of our findings presented by Clémence Grisel, a sustainability graduate and advocate. We hope you find it useful.

Clémence Grisel

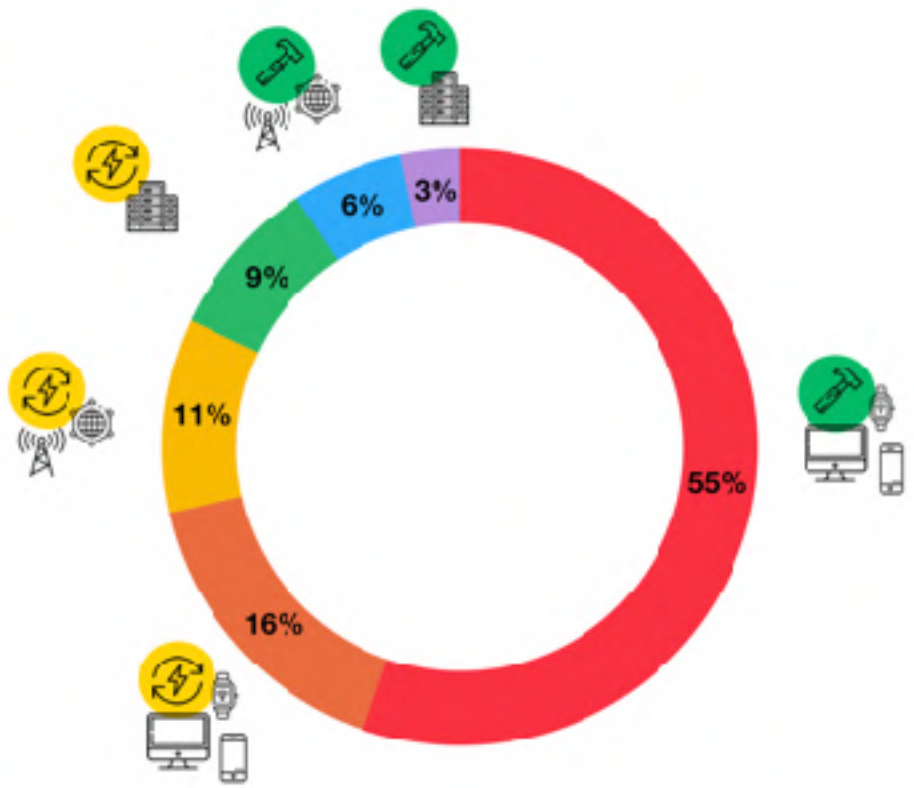
After studying graphic design in Bordeaux then at Penninghen, Paris, Clémence specialised in sustainable development after graduating in Fashion Business from Istituto Marangoni. She holds a Masters in Corporate Social Responsibility from University of Haute Alsace and has worked for leading groups in the sector: Chanel (Fragrance & Beauty) and Kering.

Understand the impact of digital

Digital functions across 3 tiers:

- The devices we use to access content: computers, smartphones, tablets and other IoT connected devices (smartwatches, TVs, etc.);
- Data centres, composed mainly of servers, that store and process data;
- Networks that transfer data between devices and data centres: DSL/fibre routers, land-based and undersea cables, radio transmitters, fibre optics, etc.

Each of these tiers needs resources in order to function (use) but also to be produced (manufacturing).

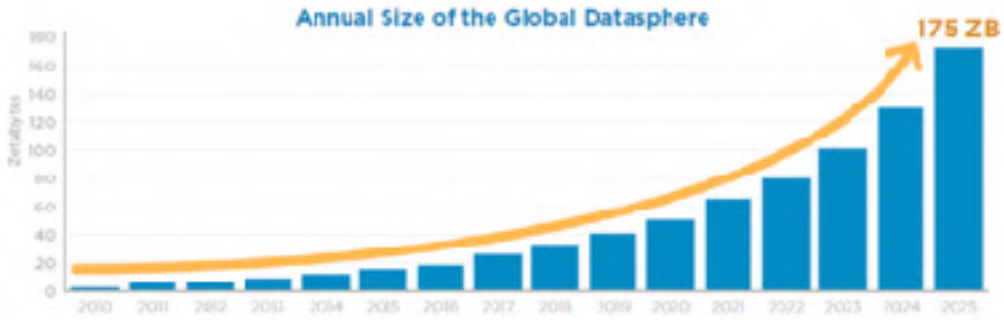


Impacts per tier and per lifecycle stage (excluding end-of-life)
Source: "Empreinte du numérique mondial" - GreenIT.fr

Manufacturing devices produces the highest level of emissions, followed by usage of these devices due to the direct correlation between the energy required to power them and fossil fuel combustion.

This increased energy consumption, and the subsequent rise in emissions, is the result of:

- More devices being used by more people, larger screens and the exponential increase in the number of connected objects and embedded systems (cars, white goods, etc.). The number of connected devices is projected to go from 1 billion in 2010 to 48 billion in 2025.
- More data sharing due to the increase in users, devices, network speed (fibre optics, 5G), content and content resolution (4K, 8K).



Estimated increase in data volume
Source: International Data Conseil (2018)

This produces a cascade effect: an increase in the amount of data transmitted means more servers to store and process this data. Manufacturing and operating these servers, as data centres, has environmental impacts. In a word, as we produce more dematerialised content, so we need more material "containers".
Efficiency gains – as stated in Koomey's Law – will at some point no longer be sufficient to offset the energy required to power an ever greater number of devices and ever larger screens (computers and televisions).

Impact on the depletion of natural resources

Digital equipment has environmental consequences because of the energy it consumes but also, upstream, during the manufacturing stages. A smartphone contains in excess of 30 abiotic materials, including copper, tin, cobalt, lithium, precious metals (gold, silver, platinum) and rare earths. Mining and processing these resources releases greenhouse gases, and requires vast amounts of water, energy and chemicals As demand for devices increases, more of these materials are mined, diminishing resources by the same amount.

The energy impact of data flow and use

Our digital lives – sending emails, commenting on Instagram posts, streaming videos – are all legitimate areas for concern. One, however, is of particular relevance during a digital Fashion

Week and that is the impact of video (the vast majority of content published during a Fashion Week is in video form).

The amount of energy required to watch a video will be vastly different according to whether it is streamed on a computer, a television or a phone, using a 4G mobile network, wifi or a wired connection. Working on the assumption that online video accounts for 60% of global data consumption, in 2019 the Shift Project published "Climate Crisis: the Unsustainable Use of Online Video – A Practical Case Study for Digital Sobriety." In it, the Paris-based thinktank sets out estimated carbon emissions from video streaming. As reported on the CarbonBrief website, the Shift Project published a follow-up report with amended values. These were incorporated into energy intensity figures for data centres and data transmission networks released by the International Energy Agency (IAE).

Calculating the environmental cost of streaming services is entirely legitimate. However, we should not overlook their impact upstream, i.e. production (film or 3D) and post-production. Interviewed by British Vogue, Morten Rosén – head of partnerships and sales at Normative, the tech company hired to calculate the carbon footprint of the online 2020 Helsinki Fashion Week – explains how the carbon footprint of the preparation/development phase appears to be greater for a digital event than for an in-person event. Final results are expected to be published towards the end of the year and should provide valuable information on the global footprint of an online Fashion Week. [NB: the report was published in November 2020 and can be read here].

As true as this is, a Life Cycle Assessment (LCA) carried out by GreenIT shows that whatever the metric –energy consumption, greenhouse gas emissions, water consumption or depletion of abiotic resources – the biggest environmental impact comes from the manufacturing of user devices. This makes sense, considering the sheer number of devices produced.
Again based on GreenIT data, sources of environmental impact are (in descending order):

1. Manufacturing of user equipment
2. Power consumption of user equipment
3. Power consumption of the network
4. Power consumption of data centres
5. Manufacturing of network equipment
6. Manufacturing of equipment hosted by data centres (servers, etc.)

These impacts are set to grow alongside continued investment in this sector and a rise in the number of connected objects, forecast to increase fivefold between 2010 and 2025.
While recognising the benefits digital brings, such as facilitating communication, data processing and knowledge-sharing, growing awareness of the impact digital technology has on the environment must encourage us to rethink its role in our society.

Action taken to meet the Paris Agreement temperature goal, which requires a cut in global emissions of 5% per year, needs to combine with government policy. Currently, no country has enacted a sufficiently ambitious policy to reach these objectives in the digital sector.

Initiatives are emerging nonetheless. For example, in 2019 the French Senate's town and country planning and sustainable development commission mandated a fact-finding committee to

"measure the environmental footprint of digital in France, evaluate the evolution of that impact in the coming years and formulate potential courses of action for the relevant public policies to engage our country in a sustainable digital transition, i.e. compatible with the Paris Agreement objectives to reduce global warming." [NB: On January 12, 2021 the Senate passed the first reading of the draft law to reduce the environmental impact of digital.]

Staying with public policy, the Citizens Convention for Climate recommended measures that would "accompany the development of digital technology to reduce its environmental impacts." Initiatives are also taking shape in the private sector. As mentioned, organisations such as Shift Project, GreenIT or Institut du Numérique Responsable are providing guidelines and assistance to help businesses make their transition towards "digital sobriety".

	2010	2015	2020	2025	Unité
Utilisateurs	2 023	3 185	4 700	5 500	Millions d'utilisateurs
Équip. classiques	13 531	18 405	19 041	20 278	Millions d'équipements
Taux d'équipement	7	6	4	4	Equipement /utilisateur
Objets connectés	1 000	9 605	20 315	48 272	Millions d'équipements
Equip. classiques + objets connectés	14 531	28 010	39 356	68 550	Millions d'équipements
Masse	128	164	236	317	Millions de tonnes

The digital world from 2010 to 2025
Source: GreenIT.fr (2019), "Empreinte du Numérique Mondial"

Variance in the digital footprint in absolute value between 2010 and 2025
Source: GreenIT.fr (2019), "Empreinte du Numérique Mondial"

Industry initiatives to measure and limit the environmental impacts of digital Fashion Weeks

The increased uptake of digital tools by the fashion industry, particularly during the coronavirus

pandemic, raises the question of the consequences these practices have on the environment. Gucci, whose Epilogue show/livestream was the most-viewed event of the 2020 Milan digital Fashion Week, seen more than 35.2 million times, has continued to work towards its carbon-neutral goal. The brand announced that all CO^2 emissions from the streaming had been measured by a third party and would be offset.

Two other initiatives stand out. They are Helsinki Fashion Week and a tool under development at the Fédération de la Haute Couture et de la Mode (FHCM).

The FHCM is working with PwC on a tool that will enable users to evaluate the environmental, economic and social impacts of Fashion Weeks as part of an eco-planned event.

As well as taking "classic" emission sources into account – transport, accommodation, sets, catering, etc. –, the FHCM tool considers digital communication. This feature uses current data to estimate carbon emissions from the energy required to view videos and other online posts, as well as the impact of sending and RSVPing electronic invitations. The timeframe is the official Paris Fashion Week. For video views, the tool takes into account devices, servers and networks. For other content, metrics are for servers and networks only. Calculations draw on data from two studies: one by the Shift Project and one by the International Energy Agency. Initial results, which are still confidential and cannot be divulged, are estimates based on the current state of knowledge and must therefore be viewed with caution. Nonetheless, the FHCM's initiative is an important step forward. Its findings will alert the fashion industry and, through increased awareness, encourage measures to limit these impacts.

Impact of sales/production

As seen, digital tools and systems directly impact the environment. But digital can be the source of other, indirect consequences such as encouraging consumers to buy more. New functions, artificial intelligence and new purchasing behaviours can be drivers for overproduction and/or overconsumption.

Already hugely popular in Asia, livestream shopping – which is ultimately a digital and interactive form of teleshopping fronted by influential figures (designers, influencers, etc.) – could rapidly become an additional form of digital broadcasting during Fashion Weeks… as indeed it was in Shanghai. A means to boost sales of current collections or (pre-)sell new collections, the concept has already been tested by a number of luxury brands outside Fashion Weeks. Incorporated into a Fashion Week, livestream shopping could significantly increase the number of purchases made during these periods.

Functions such as shoppable videos are another means for brands to digitally drive sales. The possibilities are endless and each one generates further environmental and social impacts.

What can be done to make fashion events more sustainable?

When calculating the carbon footprint of an in-person event, it would make little sense to focus only on the logistics. Similarly, to be of any value, the environmental impact of a digital event must be measured beyond the number of video views. Whereas we have made the choice to exclude production stages (impacts from photo shoots, filming, etc.), and focus exclusively on

digital, for the measures set out below to be coherent and effective, these upstream phases must also be taken into account in a global strategy to reduce the environmental impacts of the entire digital infrastructure.

Producing and analysing a fashion event requires the use of multiple devices (computers, screens, phones, etc.), digital tools such as cameras and software, all of which rely on internal and external networks to share and store data. This system makes use of physical resources (terminals and servers) and consumes energy. By constantly increasing the amount of data we share (size and quantity), we shorten the lifespan of terminals and servers which then have to be replaced, requiring new resource consumption.

The challenge is to identify potential levers and transform them into real, company-wide initiatives. Given the complexity of the subject, and our decision to focus on usage only, the following pages are not intended as a "silver bullet" but are examples of where action can be taken. Developing digital content transmission around sustainable principles and optimising the content itself are levers for reducing environmental impact. All these propositions have been carefully selected based on the impacts of current digital usage during Fashion Weeks and draw on conversations with experts at GreenIT and on the findings of specialist reports:

- INR (2020), Référentiel Green IT : les 65 bonnes pratiques clés
- GreenConcept (2020), Livre Blanc de l'action
- The Shift Project (2018), Lean ICT: Towards Digital Sobriety
- GreenIT.fr (2019), The Environmental Footprint of the Digital World
- F. Bordage (2019), *Ecoconception web : les 115 bonnes pratiques*, Eyrolles

• **Videos**

Contents	Actions	KPIs
Pre-publication	**#1.** Optimise the development phase (delete duplicate and outdated files, limit the amount of photo attachments sent by email, set up a document sharing system)	• File size (MB) • Total size of videos posted on owned media and social media during Fashion Week (MB)
	#2. Optimise file size (resolution, duration, audio compression)	• File size (MB) • Total size of videos posted on owned media and social media during Fashion Week (MB)
Publication & viewing	**#3.** Prefer wired networks to mobile	• Number of awareness messages published
	#4. Reduce video quality	• Number of awareness messages published
Post-publication	**#5.** Decide when content will be taken down	• Total size of videos posted on owned media and social media before and after the new season (MB)

• **Photo**

Contents	Actions	KPIs
Pre-publication	**#1.** Optimise the development phase (delete duplicate and outdated files, limit the amount of photo attachments sent by email, set up a document sharing system)	• File size (MB) • Total size of photos posted on owned media and social media during Fashion Week (MB)
	#2. Optimise file size (resolution)	• File size (MB) • Total size of photos posted on owned media and social media during Fashion Week (MB)
Publication & viewing	**#3.** Prefer wired networks to mobile	• Number of awareness messages published
Post-publication	**#5.** Decide when content will be taken down	• Total size of photos posted on owned media and social media before and after the new season (MB)

• Website (brand and federations)

Contents	Actions	KPIs
Pre-publication	**#6.** Develop an user experience design (UX)	• EcoIndex metrics
	#7. Develop a mobile first design	• EcoIndex metrics
	#8. Optimise content (resolution, text size, static content)	• EcoIndex metrics
	#9. Optimise client and server source codes	• EcoIndex metrics
	#10. Work with environmentally responsible providers (renewable energy supply, European Code of Conduct for Data Centres)	• % of renewable energy used by providers
	#11. Optimise hosting needs	
Publication & viewing	**#3.** Prefer wired networks to mobile	• Number of awareness messages published
	#4. Reduce video quality	• Number of awareness messages published
Post-publication	**#5.** Decide when content will be taken down	• Total size of photos and videos posted on owned media and social media before and after the new season (MB)

• Social media

Contents	Actions	KPIs
Pre-publication	**#12.** Question providers' transparency and environmental practices. Ask for environmental features to be built in	
Publication & viewing	**#13.** Restrict social marketing buys	• Number of views / likes purchased
	#14. Question the quantity and necessity of published content	• Publication quantity per type (photo/video) and per social media

Publication & viewing	**#3.** Prefer wired networks to mobile	• Number of awareness messages published
	#4. Reduce video quality	• Number of awareness messages published
Post-publication	**#5.** Decide when content will be taken down	• Total size of photos and videos posted on owned media and social media before and after the new season (MB)

• Digital showroom

Contents	Actions	KPIs
Pre-publication	**#12.** Question providers' transparency and environmental practices. Ask for environmental features to be built in	
Publication & viewing	**#14.** Question the quantity and necessity of published content	• Publication quantity per type (photo/video) and per social media
	#3. Prefer wired networks to mobile	• Number of awareness messages published
	#4. Reduce video quality	• Number of awareness messages published

Measures in detail

#1. Optimise the content creation process (duplicate/obsolete files, photo attachments)
Whether on an internal or an external server, data storage has an impact on the environment, for example through energy consumption or by reducing server lifespan… hence the need to limit the amount of data stored. Best practices during the content design phase (photo or video) include:

- Regularly delete old versions, especially large files (e.g. Photoshop, Premiere, After Effects).
- Rather than multiple users saving the same document, use a document-sharing platform (local server or Teams, SharePoint, OneDrive, etc.).
- Share documents via a link rather than attaching photos or videos to emails.

Example: Publicis has set itself a number of ambitious targets and developed an eco-communications guide to reduce the impact of all its content (print, video, website, events), with contributions from in-house experts (Prodigious for print media, videos and photo shoots), and outside specialists (Frédéric Bordage, founder of the GreenIT collective for sustainable digital design).

#2. Optimise file size (resolution, duration, compression)
Every item of data has an impact. Reading large content files requires high performance equipment, which reduces lifespan. Images and videos resolution is much greater than required for viewing on the smaller screen of a phone or tablet, with the result that files are around 20 times larger than they need to be. Altering resolution/duration and using audio compression are ways to reduce content size.

Example: create content (Photoshop, Illustrator, etc.) in 72 dpi for digital media rather than 300 or 400 dpi which are print resolutions.
Alternatively, configure your creative software to automatically compress files when saving them. You can scale down the quality of video streams almost imperceptibly by reducing the bitrate, which is the volume of data processed per second of video.

#3. Prefer wired networks to mobile
There are two main ways of connecting to the internet: wired networks (ethernet and wifi) which operate via a network of cables and routers, and mobile networks which operate via a network of radio transmitters. The environmental impact of a 4G mobile network is between five and 20 times greater than for an ADSL connection and wifi. Encouraging users to switch to wired networks will make a small but significant reduction in environmental impact and could lead to new behaviours.

Example: include a message to this effect at the start of a video or in the content description. Inform teams so that they reduce their use of mobile networks.

#4. Reduce video quality
On average, HD videos consume around 3 GB of data/hour. Reducing video quality by even a very small amount will save bandwidth. This can be adjusted in the settings on Canal+ (from 3.4 to 0.19 MB/s or 1.5 to 0.09 GB/h) and on Netflix (from 6.6 to 0.6 MB/s or 3 to 0.3 GB/h). YouTube users also have the option to select a reduced image quality, e.g. 720p instead of 1080p.

Example: include a message to this effect at the start of a video or in the content description.

#5. Decide when content will be taken down at the end of a season
Introduce a content lifecycle strategy at the end of a Fashion Week, questioning the need to leave all content up for more than a couple of months. This will cut down on obsolete and unnecessary data.

Example: plan to delete obsolete data on social and other media after a given length of time.

> **NB:** The following recommendations concern digital eco-design. For them to be effective, everyone involved (project manager, web architect, web developer, etc.) must be made aware of what eco-design is. Ideally, train coordinators who then check that eco-design concepts are applied. For further information on eco-design, go to the Sustainable Digital Services thinktank website.

#6. [Eco-friendly web design] Think about the user experience (UI)
One way to reduce the environmental impact of viewing a website is to make it easier for the user to interact with the site. Removing the least popular features and rethinking ergonomics can cut down the amount of "unnecessary" time users spend looking for information.

#7. [Eco-friendly web design] Design a responsive mobile site
A non-responsive site requires a mobile device to download large content files and display them in lower resolution. For example, an image that is 1300 x 325 pixels (452 KB) is usually displayed on a mobile in 280 x 70 pixels (8KB). Content designed for large screen display should be reconfigured for small screens to make the user experience more fluid and reduce bandwidth consumption.

#8. [Eco-friendly web design] Optimise content (resolution, text size, static content)
A website's environmental footprint can be made smaller by reducing content size. This can be done by:
- Reducing photo and video resolution
- Reducing text size
- Making static content the default rather than dynamic (for example, a clickable map image rather than a map rendering).

#9. [Eco-friendly web design] Optimise client and server source codes
If client and server source codes are optimised - detect unnecessary code, minify CSS, change language -, the resources needed to read them can be reduced. Facebook, for example, halved the number of servers it needed per given number of users by developing a "HipHop for PHP" programme that translates PHP code into C++.
Start by measuring a site's environmental footprint prior to publication and identify its impact on the environment. A brand can analyse a representative sample of its site (home page, news, video content, etc.) using an online tool such as EcoIndex which, for any given URL, measures absolute and relative performance, technical footprint of the page (size, complexity, etc.) and environmental footprint (GHG and water). Next, good practices should be introduced. Help can be found in the Ecometer online tool, which shows what can be done to reduce a page's impact.

Alternatively, refer to the GreenIT checklist (in French): "115 bonnes pratiques d'écoconception web".

#10. [Eco-friendly web design] Work with environmentally responsible providers (renewable energy supply, European Code of Conduct for Data Centres)

Choosing eco-friendly providers is another way to reduce the environmental impact of a website or app, ideally ones that have adopted the European Code of Conduct for Energy Efficiency in Data Centres or that demonstrate responsible practices, such as renewable energy supply, management of WEEE and procurement policy. For more information about the European Code of Conduct for Data Centres and to see who has signed up to it, go to the European commission website.

#11. [Eco-friendly web design] Calculate hosting needs correctly

Data centres run 24/7 and, as a result, are constantly consuming energy. Calculate a website's hosting needs to match content and average/peak user traffic. Bringing content closer to end users via a CDN (Content Delivery Network) can also minimise impacts.

#12. Question providers' transparency and environmental practices. Ask for environmental features to be built in.

Developing sustainable digital services worldwide depends on a great many stakeholders and their commitment to the environment. The whole premise of social media is based on the quantity of content viewed, with features like autoplay and content recommendations defining user behaviours. The French Data Protection Agency (Commission Nationale Informatique et Liberté/CNIL) supports the need to regulate such platforms. In its IP6 Paper (2019), CNIL states that "the regulation of choice architectures is possibly one of the most important regulatory fields of digital society for the next ten years, well ahead of data protection and online privacy." The Shift Project has already set out possible lines of enquiry with regard to a regulatory framework and the need for public debate about regulating online video use. By supporting their – or another – approach, companies could help to bring about a sustainable shift in social media. Regarding digital showrooms, brands can put pressure on providers to adopt good practices such as renewable energy or an eco-friendly platform design.

#13. Restrict social marketing buys

Buying views, subscribers, likes and comments may be standard social marketing practice, it does generate real environmental impacts. Restricting such purchases would reduce the environmental footprint of Fashion Week content.

#14. Question the quantity and necessity of published content

"Digital sobriety" is about moving from instinctive use of digital technologies to using them in a more mindful, responsible way. Moderating the amount of content published during a Fashion Week (carousel posts, news, front-page stories, etc.) and asking how necessary it really is will reduce the overall environmental footprint of a brand's digital communication.

Annex 1: Inform and engage

While most of us are only just starting to consider digital's impact on the environment, the implications are such that we need to be informing and engaging all users as of now. Even if certain of the recommendations below can seem like common sense, understanding and more importantly applying them to digital events is a vital aspect of progress towards digital sobriety. We invite you to share them with teams at every level.

1. Keep devices for longer
2. Repair rather than replace
3. Recycle equipment that can't be repaired
4. Choose reconditioned rather than new
5. Donate unused equipment, for example to a school or club
6. Limit the number of devices per person
7. Decide what equipment you need and choose the most energy efficient solution. For example, a smartphone uses 2 to 7 kWh/year; a tablet 5 to 15 kWh/year; a laptop 20 to 75 kWh/year and a desktop computer 120 to 250 kWh/year (*Source: GreenIT*). The more powerful the device, the more energy it uses and the greater the environmental impact.
8. Turn off devices when not in use
9. Turn off your router at night or when away
10. Enable energy-saving mode
11. Close tabs you aren't viewing
12. Choose "green" software and apps
13. Clean out your email inbox on a regular basis
14. Don't send big attachments by email
15. Keep email recipients to the strict necessary
16. Unsubscribe from newsletters you never read
17. Install a spam filter
18. Store data on an external hard drive rather than on the cloud
19. Reduce the size of the videos you post online
20. Limit your video streaming use and don't watch TV online

<u>During an event</u>

1. Connect to wifi
2. Turn off unnecessary features on mobile devices
3. https://www.webexmachina.fr/article/optimiser-une-video-pour-le-web.html

Annex 2: 14 simple measures

#1. Optimise the content creation process (duplicate/obsolete files, photo attachments).

#2. Optimise file size (resolution, duration, compression).

#3. Prefer wired networks to mobile.

#4. Reduce video quality.

#5. Decide when content will be taken down.

#6. [Eco-friendly web design] Think about the user interface (UI).

#7. [Eco-friendly web design] Design a responsive mobile site.

#8. [Eco-friendly web design] Optimise content (resolution, text size, static content).

#9. [Eco-friendly web design] Optimise client and server source codes.

#10. [Eco-friendly web design] Work with environmentally responsible providers (renewable energy supply, European Code of Conduct for Data Centres).

#11. [Eco-friendly web design] Calculate hosting needs correctly.

#12. Question providers' transparency and environmental practices. Ask for environmental features to be built in.

#13. Restrict social marketing buys.

#14. Question the quantity and necessity of published content.

Go further

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