



Getting started backpack on digital sustainability

The climate crisis doesn't happen in a vacuum

Big change starts small

Talking about climate can be hard

Digital is physical



Think bigger before you start

Challenge the status quo

Put care first



Build better by default

Optimized

Transparent

Adaptable

Green Design Principles

Getting started backpack on digital sustainability

The climate crisis can be big, scary and complex. Before diving into the principles, these write-ups can help you contextualise how climate relates to you, your job, and your workplace.

1

The climate crisis doesn't happen in a vacuum

Begin to shift your thinking of "Climate Change" as solely an environmental issue and start to understand it as one that is rooted in a web of ethical, political, and systemic issues.

- Read system analyst Donella Meadows' paper [Leverage points](#)
- Listen to [Introduction to climate justice](#)
- Watch [A chat about climate justice with Joycelyn Longdon](#)

2

Big change starts small

Start seeing yourself as a change maker. It takes only 3.5% of the population actively participating in non-violent protests to ensure serious political change. [\[Source\]](#)

Similarly in companies and the tech industry forming groups that push change can have lasting impacts.

- Read [A is for Activism](#)
- Listen to [How Amazon workers got serious about climate \(and how you can, too\)](#)
- Watch [The success of non-violent civil resistance](#)

3

Talking about climate can be hard

Develop a willingness to meet co-workers, clients, stakeholders, or customers where they're at. Grow your ability to frame a conversation in a way that focuses on benefits – incentives – other than sustainability just being something that is "the right thing to do".

It can be helpful to learn about climate commitments your workplace already has. You can use this to highlight how your sustainability work fits into these goals.

- Listen to [Climate change is a health issue](#)
- Watch [How to talk about climate so people act](#)

4

Digital = physical

Get an understanding for how a click of a button online sets off a whole range of chain reactions impacting the planet.

For our products & services to work, devices and infrastructure needs to be manufactured and connected. All this physical technology then requires electricity. Most of the electricity used on the planet comes from burning fossil fuels. [\[Source\]](#)

- Read [The cloud is on the ground](#)
- Watch [Digital consumption & the environment](#)
- Watch [Digital sustainability pt. 1 – an introduction](#)

Green design principles

The principles are split in two categories



Think bigger before you start

...offers fundamental questions to ask yourself and your team when starting a new project or when you're re-evaluating your project

Design thinking

Research

Project management



Build better by default

...focusses on actions you can take during the design & development process

Design practice

Development



Think bigger before you start

Challenge the status quo

We work towards a business practice & future that is resilient and restores balance

Balancing user needs with finite resources (Stop infinite growth for its own sake)
Our projects have clearly defined purposes and satisfy user needs whilst avoiding unnecessary capabilities. We encourage our customers, partners and users to conserve instead of consume.

Build on existing knowledge & work (Stop innovation for innovations sake)
Before seeking new solutions, we look at what's already working. We uplift local knowledge and practices. [From [Design Justice Principles](#)]

Transition alongside our partners
We acknowledge that some of our current business practices may have relations with extractive industries or carbon intensive processes. We work with our customers and partners to move to practices that are more balanced and resilient.

Put care first

We move beyond delivering for individual and commercial interests and consider societal and planetary justice and health as a core to our decisions

Justice
We stop designing for people and start designing with people. We center the voices of those who are directly impacted by the outcomes of the design process. [From [Design Justice Principles](#)]

Health
We ensure that our work doesn't exceed finite resources (like water, land, or electricity and therefore carbon). We never compromise on the mental health of our users.

Resilience
Climate disasters are the new normal, and our users will inevitably experience our products differently in times of crises. We ensure that the core capabilities of our products and services are there for users when their needs are the most extremes.



Build better by default

Optimized

Our work is optimized for low energy consumption

We reduce the carbon impact of our work. Our UX flows are efficient and our visual assets are optimized.

We manage our waste and the waste our products and services produce. We don't store more data than we need, we remove content and features that aren't used, and we make our designs work for older devices.

Transparent

Our designs inform users about the carbon impact and empower them to take action

We embed energy consumption information into our designs and make waste in our digital products tangible.

We provide options for users to choose between different energy-consumption options as well as offering feedback mechanism and customization settings so users are in control of their device and what they consume.

Adaptable

Our designs are aware of the energy/carbon they use in any given context and adapt accordingly

We design for low energy consumption per default and ensure our products are flexible to adapt based on the context of when they are used.

For example: High-energy use features running only if there is a higher amount of renewable energy available in the grid.



Think bigger before you start

Challenge the status quo

Project purpose

- **Define** the purpose of the project
 - Why are we doing this?
 - Do the benefits of this work outweigh the environmental and social cost?
 - How could this project present an opportunity for a new incentive for partners, vendors or consumers to take climate action?
- **Dig deeper** into the impact of the project
 - Who is harmed, who is helped?
 - Are we encouraging users to conserve or to consume?
 - Are we encouraging incentivizing partners/vendors to conserve or to consume?

Measurements for success

- **Define** measurements for success that relate to the challenge at hand
 - What metric are we basing success on right now and why?
 - What other measurements for success could we use?
 - How can we measure whether we satisfied the core user need?

Put care first

Justice

- **Analyze** the power dynamics in your team, and between your team and your end users
 - Who has the power in decision-making and who is left out?
 - Whose needs are seen or ignored in decision-making?
- **Involve** humans and 'non-humans' who will be impacted by the project in your design process
 - How might 'non-humans' be harmed by our project?
 - What if our stakeholders included rivers, bacteria, insects, animals?

Health

- **Set** resource budgets (for example: How much electricity will we be ok for this app to be using?)
- **Evaluate** potential physical, emotional, and societal harms [[Spotify Ethics Assessment](#)]
- **Move** away from the attention-economy
 - What is the user trying to do? Would we be interfering or interrupting?
 - How can we cut the noise and provide calmer experiences?
 - Could we let users choose what they want to look at rather than deciding for them and auto-loading attention-grabbing / "engaging" content?

Resilience

- **Design** for crises
 - What local solutions exist to solve the problem we've identified?
 - Is this project essential in a crisis situation?
 - What crises context might our users be in (ask them themselves)?



Build better by default

Optimized

UX

- **Simplify** user journeys
 - How can we reduce content loads?
 - How can we shorten long user journeys?
 - What's outdated? What can we delete?
- **Avoid** endless scrolling and auto-loading content
- **Decide** when and where it's best to load/process what
 - Do you need real-time syncing?
 - Could you move download/caching jobs to times of day when there's more renewable power available?
 - Which processes might be more energy-efficient if they happen locally rather than having to make a round-trip from the user device to a server and back?

Visual content

- **Remove** what you don't need
 - Is this visual needed? Does it help the user understand something? Is it critical to make the experience enjoyable?
- **Choose** the most low-impact medium for your message
 - Which type of content gets the message across whilst using the lowest amount of energy? Video? Imagery? Vector graphics? Text?
- **Reduce** file sizes
 - Which file format is most efficient for this?
 - How big does this visual need to be?

Color

- **Choose** your colors based on energy efficiency of the screen your product will be viewed on
 - How could we optimise this for OLED screens?
 - Could we ship this in dark mode per default?

Fonts

- **Optimize** your fonts
 - Could we use system fonts?
 - What font weights & characters do we need?
 - What font type or format fits my project needs best (variable fonts, system fonts, custom fonts in a ttf format)?

Storage

- **Remove** what you don't need
 - What is not used? What can be deleted?
 - What data do we need? What can we stop collecting?
 - What's outdated or not useful anymore?
- **Choose** the most efficient place to store your content
 - Are there parts of your content that you could store or cache locally on the user device to make the app more efficient & functional?

Longevity

- **Optimize** your product/service for older devices
 - Does this work on old hardware/software?
 - What can we change to make it work?



Build better by default

Transparent

Awareness

- **Embed** information about the impact of digital services
 - Where and how can we highlight information about the energy consumption of this?
- **Visualize** the waste digital creates
 - How can we make the impact a user action has on the environment tangible and understandable?
 - Where can we embed this information into the user flow?

Customization

- **Provide** options to switch between different energy-consumption modes
 - Are we encouraging users to conserve or to consume?
 - What are essential functionalities and which ones can we allow users to turn off?
- **Design** a clear way for users to give feedback
 - What feedback do we need?
 - Where can we allow users to remove auto-generated content? How can they give feedback on such content and how can we truly remove the content if the user requests it?

Adaptable

- **Set** low-impact defaults
 - What would a default low-impact version of this product look like?
- **Automate** when and how your product changes based on the context
 - How could the experience adapt and update based on how much renewable power is available?
- **Consider** different locations around the globe, the climate impacts in different areas and how your product could adapt to meet user needs
 - What crises context might our users be in (ask them themselves)?
 - How does this design work if there is no/low power?
 - How does this design work if there is no internet?



The principles were put together by a team of volunteers at Microsoft: Abigail Cawley, Aditi Khazanchi, Anna Alfut, Caitlin Esworthy Greene, Chelsea Braun, Connie Huang, Danielle McClune, Emily Lynam, Janka Koen, Jen Hofer, Jennifer Bost, Martyn Gooding, Pragya Gupta, Rachel Bergman, Ryan Hayen, Sandra Pallier, Sarah Shing, Shane Tierney, Shelley Bjornstad, Soumitri Vadali, and Sue Nguyen

This work was built upon the brilliant...
[Society centered design](#) · [Design Justice Principles](#) · [Green software engineering](#) · [Sustainable service design](#) · [Sustainable interaction design](#) · [Digital earth experience principles](#) · [Knowledge co-production in sustainability research](#) · [Sustainable Web Design](#)