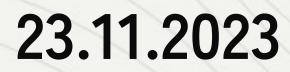


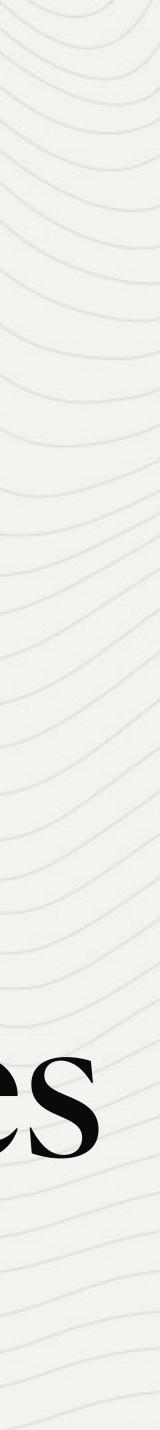






Web Sustainability Guidelines As one part of building sustainable digital Products







Thorsten Jonas

Digital Sustainability Trailblazer Founder of the "SUX Network"

Web:thorstenjonas.comLinkedIn:/in/thorstenjonas

"The greatest threat to our planet is the belief that someone else will ave it."

AR.

Robert 1

11 Foundation



in start specific



C SUX

We are SUX, a community of more than 3000 designers worldwide. Together we want to discuss, develop and exchange ideas on how we can promote and facilitate sustainability in and through our creative work.

SUX Events

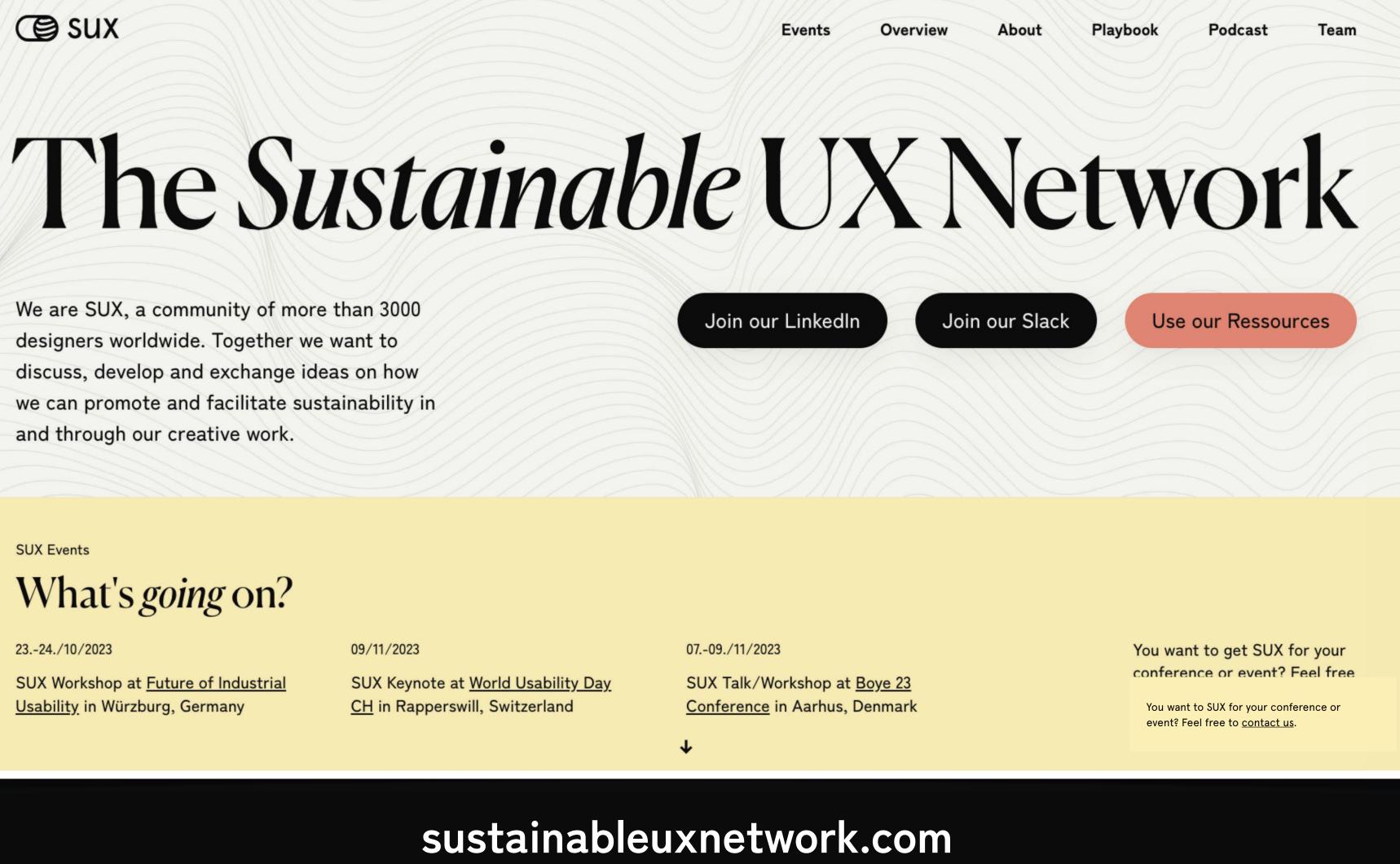
What's *going* on?

23.-24./10/2023

SUX Workshop at Future of Industrial Usability in Würzburg, Germany

09/11/2023

SUX Keynote at World Usability Day CH in Rapperswill, Switzerland





Making sustainability Default in all productdesign processes.



https://sdgs.un.org/goals

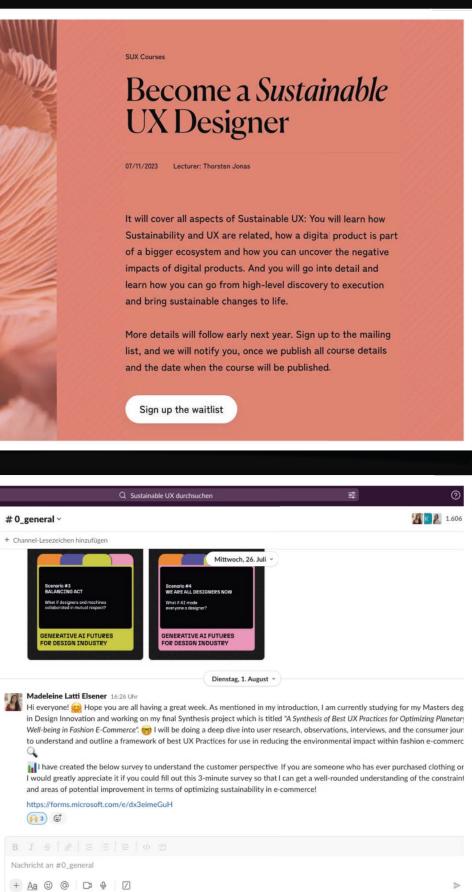


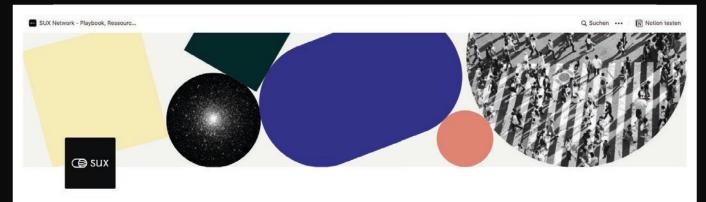


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sustainableuxnetwork.com





SUX Network - Playbook, Ressources & Events

Welcome!

Here you will find ressources we collected or created as well as events related to sustainable and responsible UX and Design to support the main mission of SUX - The Sustainable UX Network:

"Making sustainability default in all product design processes."

Part of our work is the idea to create the Sustainable UX Playbook. There are many great and wonderful ressources avialabel out ere already. The problem for designers too often is, how to find it and how to find e right ressource for what they need. "How can I incoproprate "Sustainability in my daily work?" is the still the most aked question. That is why we created and create the SUX Playbook, where we collect all kinds of ressources and try to myke them available in different ways to make it easy for every designer to find the right too for her or his situation and context. At this state of the Playbook you can find th following ressources and access points here on this page:

- SUX Playbook: Tools and Ressources for Sustainable UX & Design sorted by Design Phases
- Inspirational Ressources: Books, Talks, Podcasts, etc.
- Event Database: find the next events about sustainability in UX and design all around the globe

This is a living document and if you have any feedback, ideas or contributions, we are happy to receive it! Find the links for submitting new ressources or events or for giving feedback below on this page here.

Links

https://sustainableuxnetwork.com

 SUX Slack Community: bit.ly/JoinSUXslack

SUX LinkedIn Page: linkedin.com/company/sux

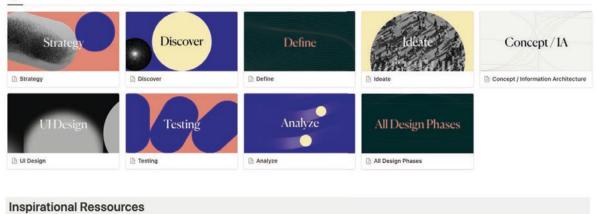
SUX Podcast:

https://podcasters.spotify.com/pod/show/suxp odcast

Sustainable UX Playbook

The Sustainable UX Playbook is a collection of various ressources, that we find helpful to build more sustainable product as a Designer, to act more sustainable as a Designer and to drive Sustainability as a Designer in our daily work. We experienced the fact, that there are many great tools out there already. The problem is to find them and to find the right tool, for the right situation or moment. That is why we sorted all kinds of tools by typical steps in the product design process. From Strategy and Discovery, through Definition and Ideation, coming to concret Information Architecture and UI Design to Testing and Analysis.





Find in this section all kinds of other ressources, that we can recommend and find valuable to our work as designers:







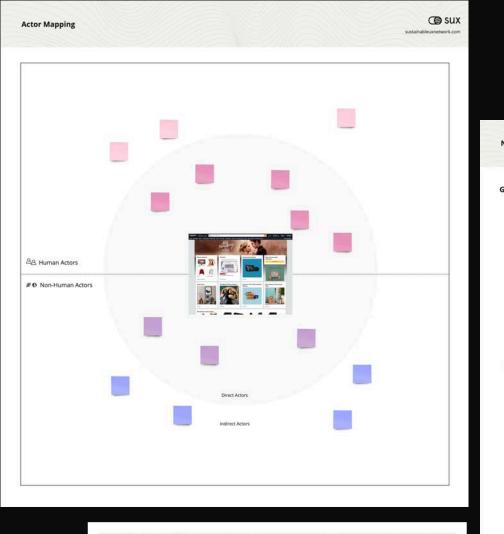


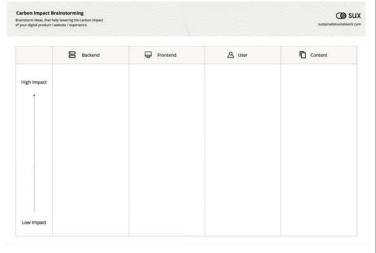
sustainableuxnetwork.com

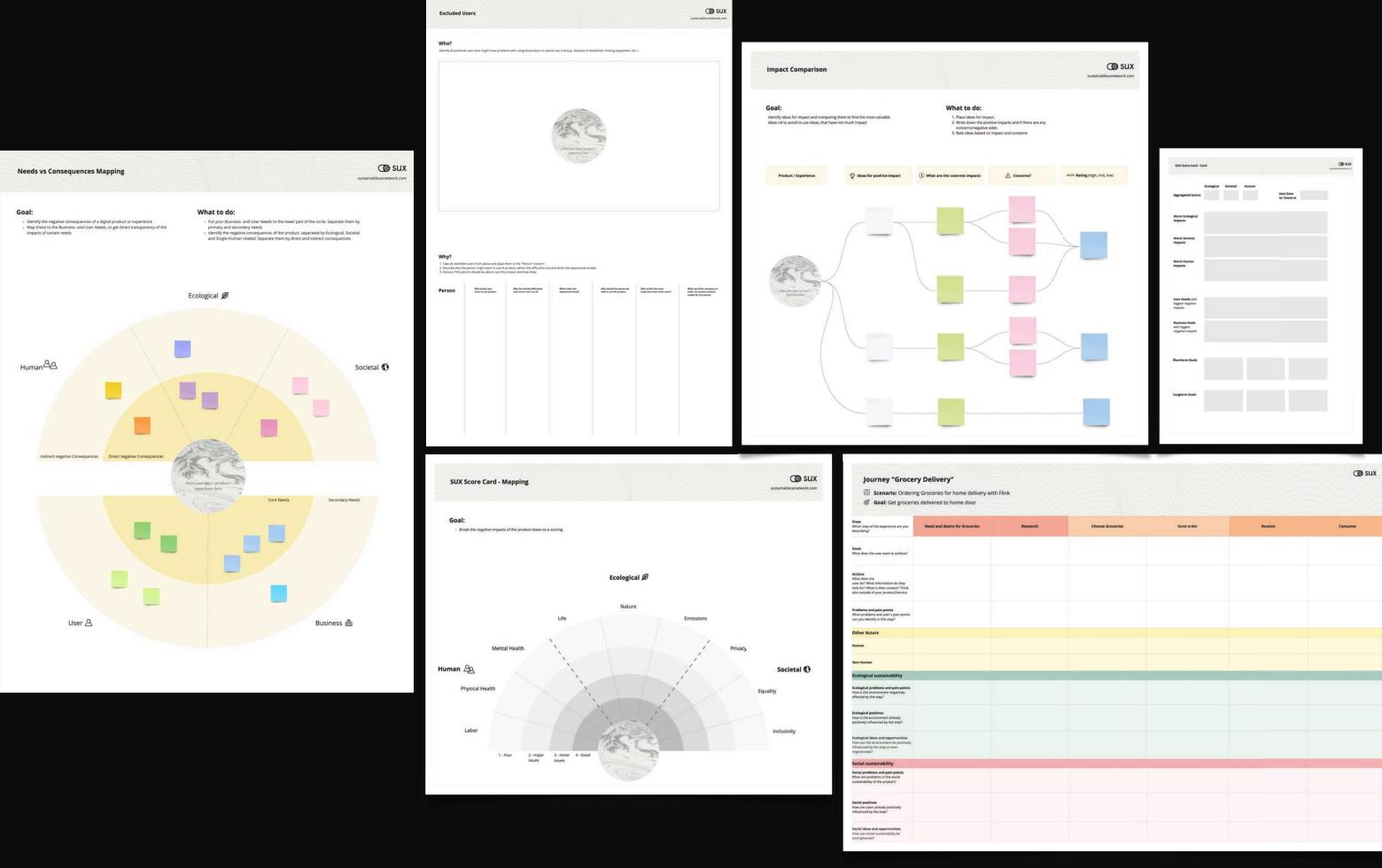




Sustainable Product Workshops







Source: SUX Network





someone or something else pays the prize for the great User Experience we build.



Build for less Carbon Emissions



Why do we need Sustainability Guidelines for the Web?





The Internet is responsible for 3,7% of the global green house emissions per year.

Source: BBC, 2020





tons of CO2 each month -ONLY on the client side.

A website with 2,5 million visits per month easily "emits" 20





- 2,5 million visits per month - 10 page views per visit - 0,8g CO per page view

- 20 tons of CO2 per month - Flying Copenhagen - NY 20 times



of emissions are set in the design phase



websitecarbon.com

Website Carbon Calculator

How does it work? FAQ Get the badge! API Consultancy

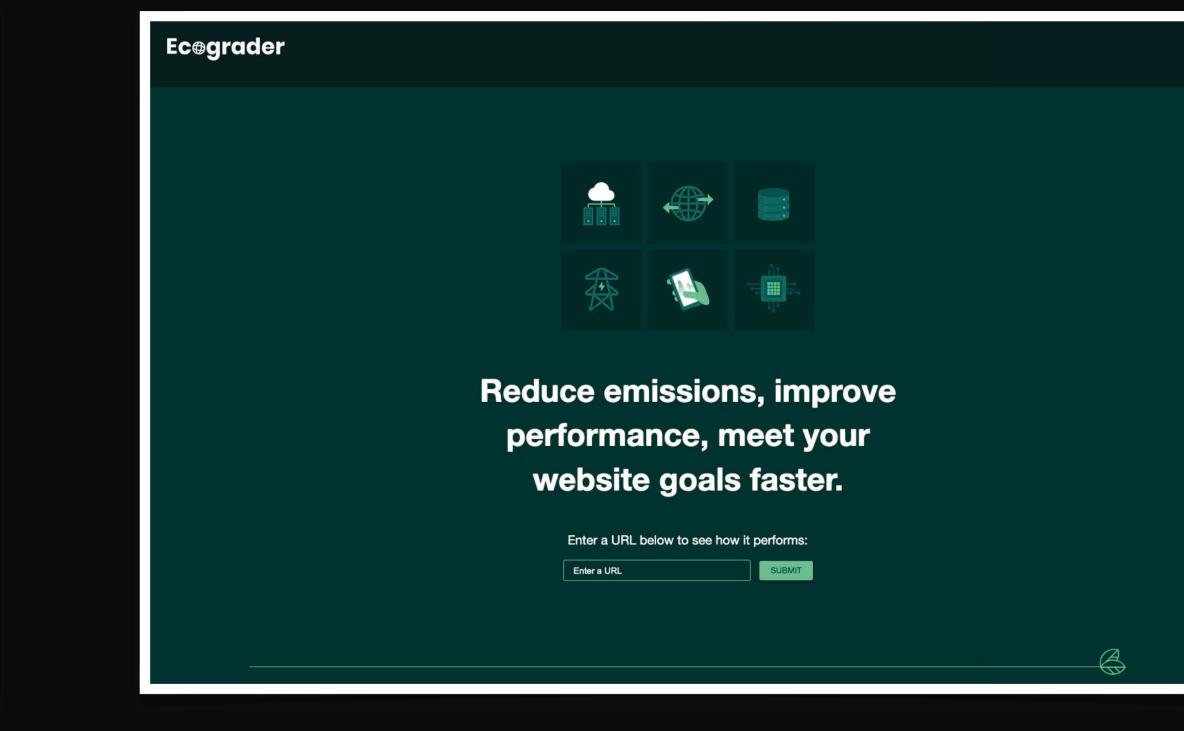
The original Website **Carbon calculator**

web page address	
page URL	Calculate

And further tools: digitalbeacon.co, Globemallow (Chrome Extension)

Measuring Carbon Footprints

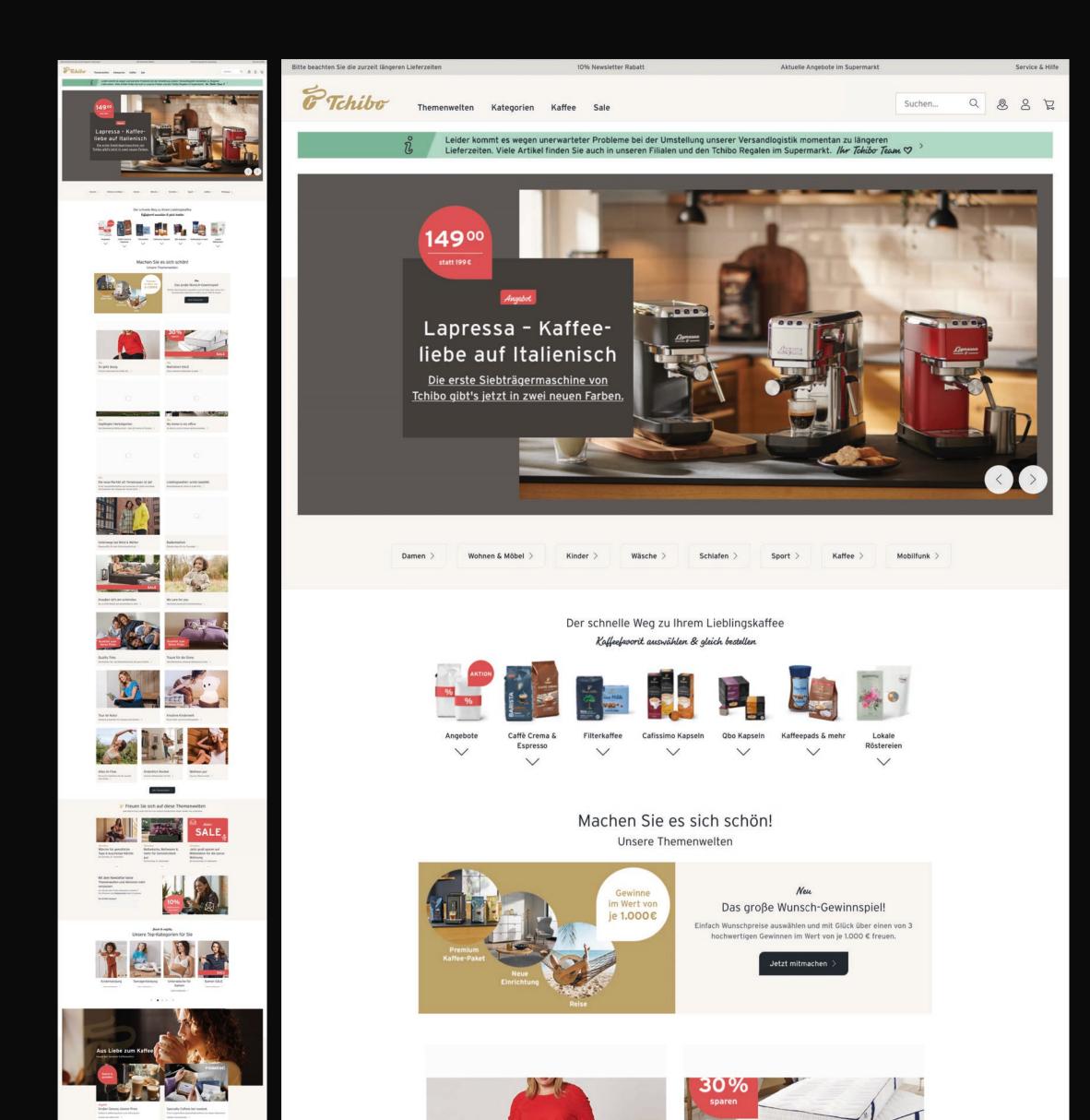
ecograder.com

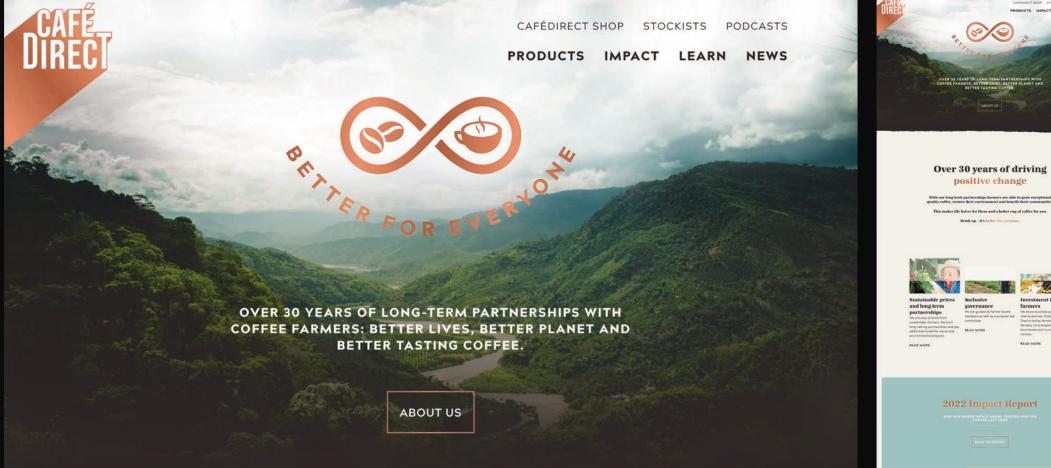












Over 30 years of driving positive change

With our long-term partnerships farmers are able to grow exceptional quality coffee, restore their environment and benefit their communities.

This makes life better for them and a better cup of coffee for you.

Drink up - it's better for everyone.



Suctainable prices



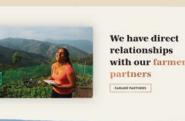
Inclusiv



Invoctmont



OUR COFFEE RANGES

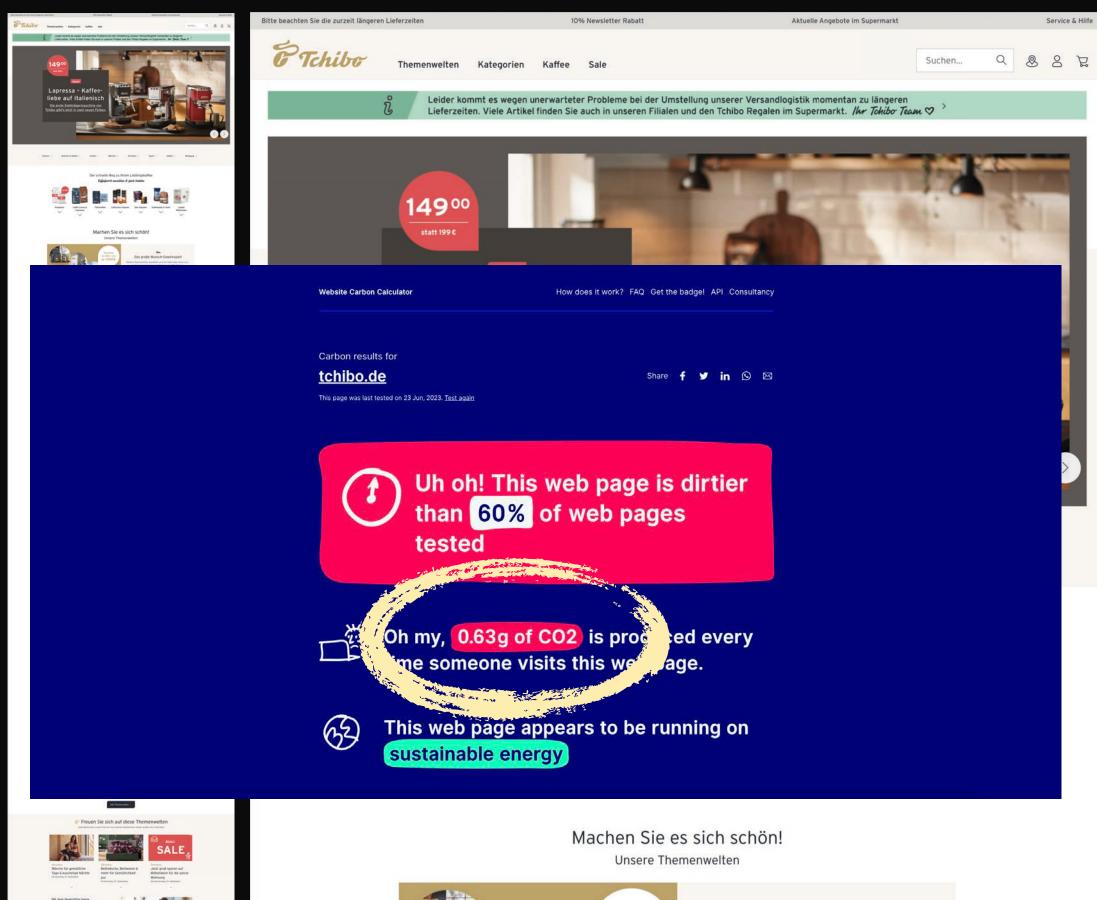


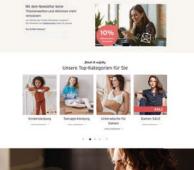












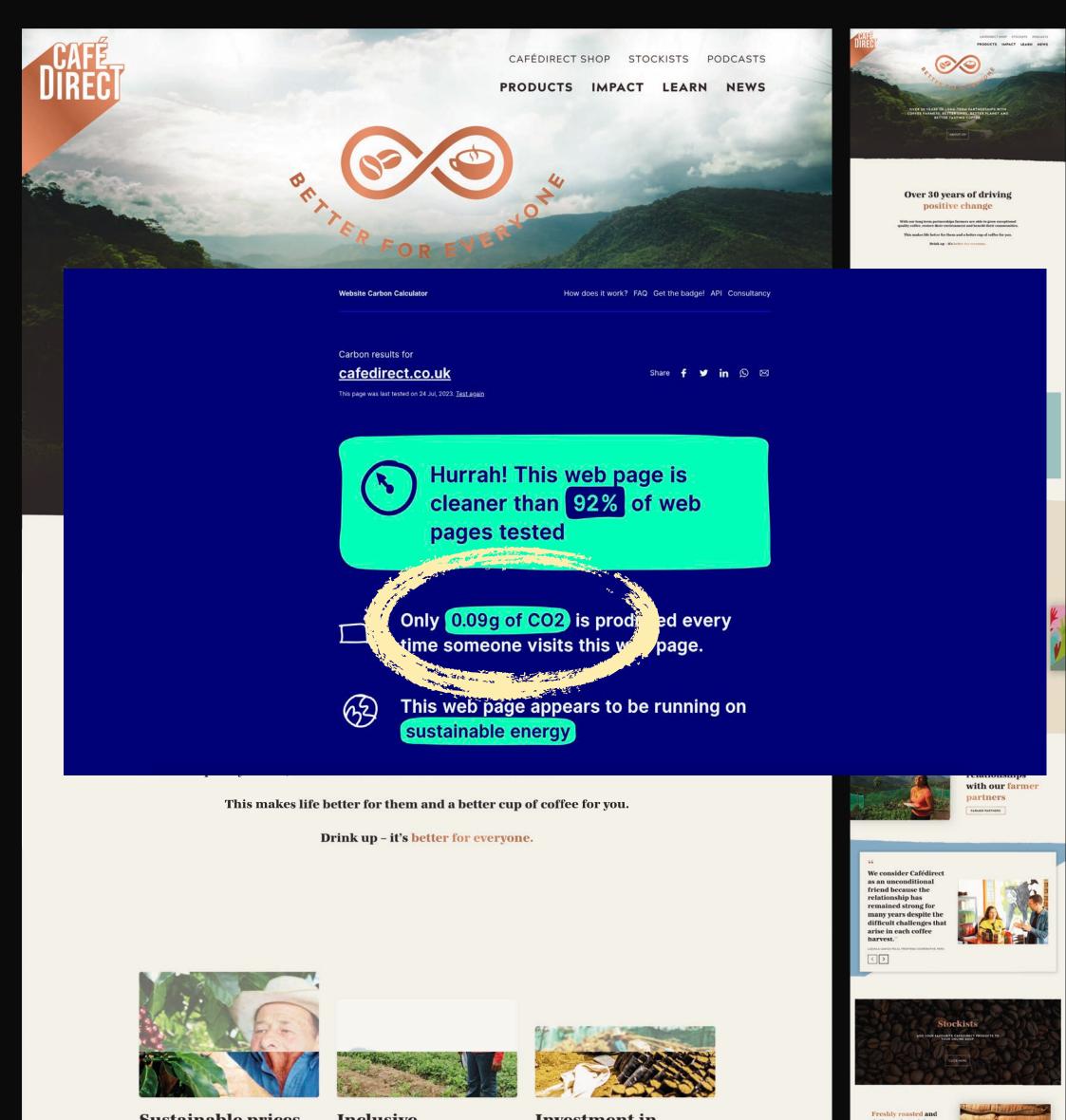








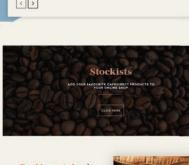




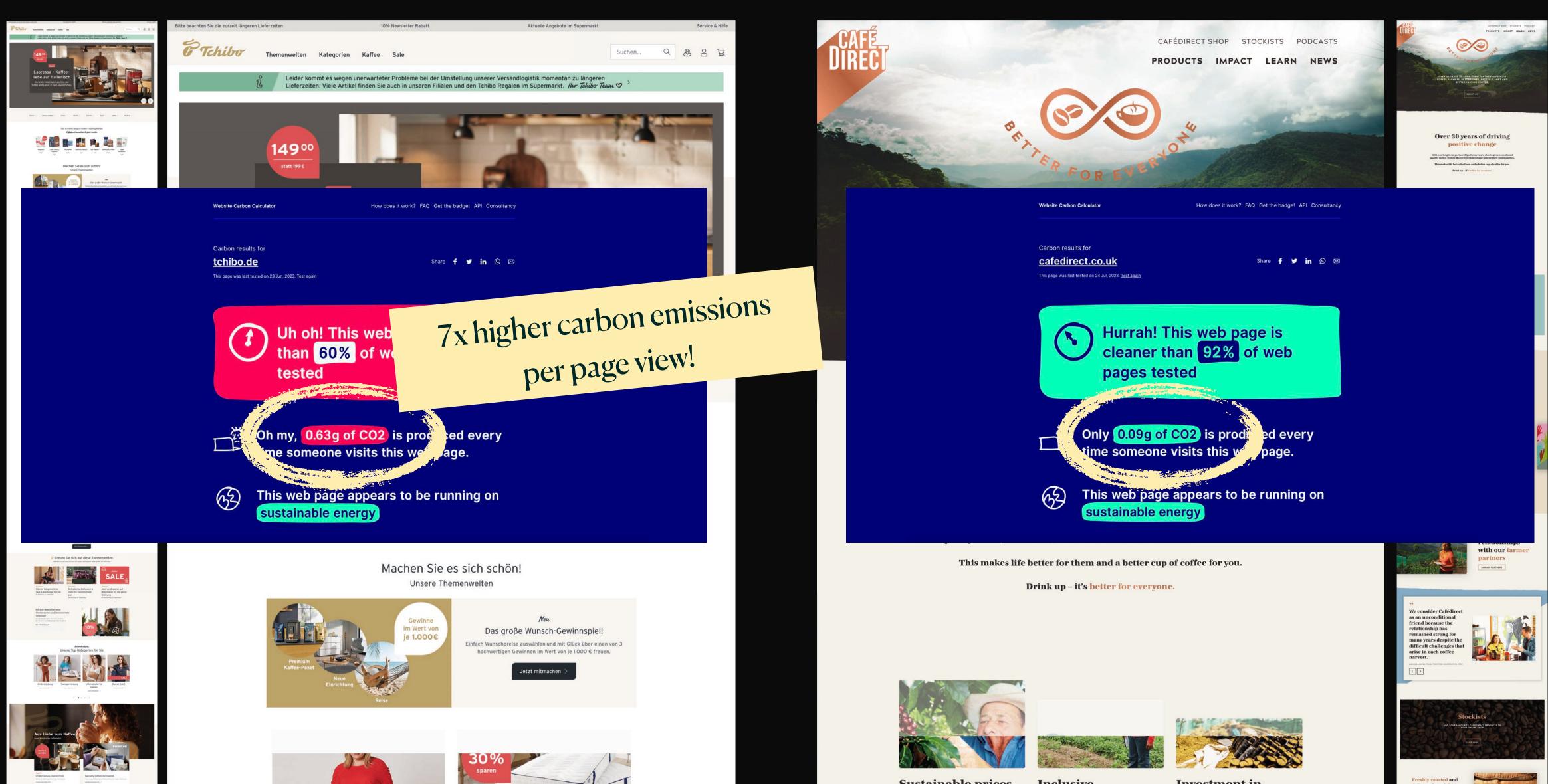




























Many variables contribute to emissions or waste being produced online

- The way data is sent or received between client and server
- Hosting, environments, infrastructure
- Consumer devices and visitors behavior
- Software like Web-Browsers
- Design/UX decisions
- Content
- **Development Workflows, business operations, tooling**



The Web Sustainability Guidelines (WSG)



Web Sustainability Guidelines (WSG) 1.0

https://w3c.github.io/sustyweb/

TABLE OF CONTENTS

Abstract

Status of This Document

Introduction 1. Background on WSG 1.1 WSG Layers of Guidance 1.2 Principles 1.2.1 1.2.2 Guidelines 1.2.3 Success Criteria 1.2.4 Advisory Techniques 1.3 Conformance 1.3.1 **Conformance Requirements** Conformance Claims 1.3.2 WSG Supporting Documents 1.4 Requirements for WSG 1.5 Versions of Guidance 1.6 **User-Experience Design** 2. 2.1 Undertake Systemic Impacts Mapping Assess And Research Visitor Needs 2.2 Research Non-visitor's Needs 2.3 2.4 Consider Sustainability In Early Ideation 2.5 Account For Stakeholder Issues 2.6 Create a Frictionless Lightweight Experience By Default Avoid Unnecessary Or An Overabundance 2.7 Of Assets Ensure Navigation And Way-finding Is Well-2.8 structured 2.9 Respect The Visitor's Attention Use Recognized Design Patterns 2.10 2.11 Avoid Manipulative Patterns

2.12 Document And Share Project Outputs

Web Sustainability Guidelines (WSG) 1.0

Draft Community Group Report 30 August 2023

Latest published version:

https://w3c.github.io/sustyweb/

Latest editor's draft:

https://w3c.github.io/sustyweb/

Editors:

Alexander Dawson (Invited Expert) Tim Frick (Mightybytes)

Feedback:

<u>GitHub w3c/sustyweb</u> (pull requests, new issue, open issues)

Implementation:

Sustainable Web Design

Glance:

Web Sustainability Guidelines At A Glance

Copyright © 2023 the Contributors to the Web Sustainability Guidelines (WSG) 1.0 Specification, published by the Sustainable Web Design Community Group under the W3C Community Contributor License Agreement (CLA). A human-readable summary is available

Abstract

Web Sustainability Guidelines (WSG) 1.0 covers a wide range of recommendations for making websites and products more sustainable. Following these guidelines which utilize environment, social, and governance (ESG) principles throughout the decision-making processes, you can minimize your environmental impact through a mixture of user-centered design, performant web development, renewable infrastructure, sustainable business strategy, and (with metrics) various combinations of those mentioned. It should be noted that these guidelines will not address every possible mechanism or strategy to become sustainable, as such, these guidelines (which are notably Web orientated and focused) should be seen as a starting point in a sustainability journey (coverage does not extend for example to manufacturing or shipping of physical products). Following these guidelines will often make Web content more accessible, usable, and performant as a by-product.

Status of This Document

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environmental, social, and economic best practices based on measurable, evidencebased research...with the primary goal of reducing harm to the wider ecosystem sustainable strategy adoption.

The Web Sustainability Guidelines promote (regarding people and the planet) through



The WSGs consist of four main parts

- 1. User Experience Design
- 2. Web Development
- 3. Hosting, Infrastructure and Systems
- 4. Business Strategy and Product Management



General Composition of a guideline

Description

Simple description of what and how to do.

Success Criterions

Each guideline comes with certain success criterion(s)

Impact/Effort

Each guideline is rated regarding impact (low, mid high) and effort (low, mid, high)

Benefits

For each guideline the main benefits are stated

§ 2.15 Take a More Sustainable Approach to Image Assets

Of all the data which comprises the largest over-the-wire transfer rates within the average website or application, images are usually those which are responsible due to their quantity and usefulness. As such, doing all you can to reduce their size and unnecessary loading will be beneficial for reducing emissions.

§ Success Criterion - Need For Images

Assess the need for images considering the quantity, format, and size necessary for implementation.

§ Success Criterion - Optimize Images

Resize, optimize and compress each image (outside the browser), offering different sizes (for each image) for different screen resolutions.

§ Success Criterion - Lazy Loading

Provide Lazy Loading to ensure image assets only loads when they are required.

§ Success Criterion - Sizing And Deactivation

Let the visitor select the display size, and provide the option to deactivate images.

§ Success Criterion - Management And Usage

Set up a media management and use policy to reduce the overall impact of images, with criteria for media compression and file formats.

§ Impact & Effort

Impact Effort Low

- Environmental: Image assets often make up the largest part of a web page's overall size. Compressing and delivering them in lightweight formats that improve the user-experience can significantly reduce a page's environmental emissions.
- Social Equity: Lightweight images work better for visitors in low-bandwidth areas and on older devices, as long as the device can support the formats used.
- Accessibility: Delivering images in ways that are meaningful to visitors improves access to information



Next Steps

- WSGs are updated at the moment, new version already 1. in internal review
- 2. Bring WSGs into use
- **3. Make WSGs official W3C standard**





How you can start





Create Visibility about the negative impacts and status quo of your Website

Carbon Footprint

What is the estimated Carbon footprint of your Website?

Status quo WSGs / Audit

Which of the WSGs do you fulfill already? Which not at all?



Start making Sustainability Default in your product building/design processes.

Adapt product strategy

Add sustainability and ethics to your product strategy.

Roadmap & first actions

You cannot do it all at once. Define a roadmap what to do when. Where you can align things with upcoming releases or new projects? What are low-having fruits?

Set Goals

- How much less carbon will your product emit in 12 months?
- What WSGs do you want to fulfill in the next 6 month?





Web Sustainability Guidelines (WSG) 1.0

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And what about AI?





BUSINESS FEB 18, 2023 7:80 AM HRIS STOKEL-WALKER

The Generative Al Race Has a Dirty Secret

Integrating large language models into search engines could mean a fivefold increase in computing power and huge carbon emissions.

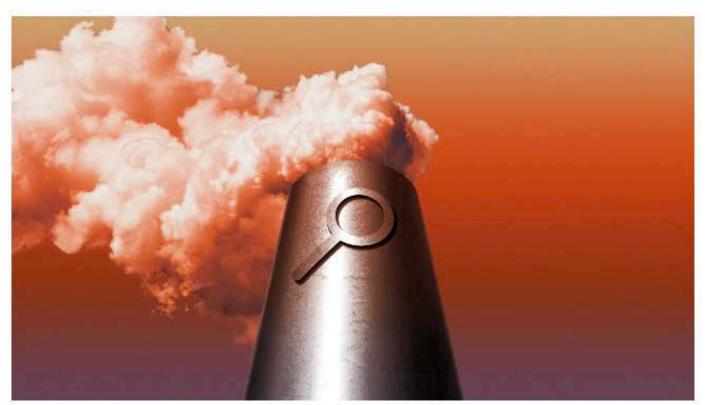


ILLUSTRATION: JACOUI VANLIEW; GETTY IMAGES

IN EARLY FEBRUARY, first Google, then Microsoft, announced major overhauls to their search engines. Both tech giants have spent big on building or buying generative AI tools, which use large language models to understand and respond to complex questions. Now they are trying to integrate them into search, hoping they'll give users a richer, more accurate experience. The Chinese search company Baidu has announced it will follow suit

The Ge	enerative AI Race Has a Dirty Secret	
Business		
•		
		06:23

But the excitement over these new tools could be concealing a dirty secret. The race to build high-performance. AI-powered search engines is likely to require a dramatic rise in computing power, and with it a massive increase in the amount of energy that tech companies require and the amount of carbon they emit.

"There are already huge resources involved in indexing and searching internet content, but the incorporation of AI requires a different kind of firepower," says Alan Woodward, professor of cybersecurity at the University of Surrey in the UK. "It requires processing power as well as storage and efficient search. Every time we see a step change in online processing, we see significant increases in the power and cooling resources required by large processing centres. I think this could be such a step."

FEATURED VIDED



RE:WIRED GREEN 2022: James McBride on Decarbonizing the World

MOST POPULAR



SECURITY The US Is Openly Stockpiling Dirt on All Its Citizens



UFO Whistleblower, Meet a **Conspiracy-Loving Congress** MATT LASLD



An Anti-Porn App Put Him in Jail and His Family Under

And what about AI?

"Third-party analysis by researchers estimates that the training of GPT-3, which ChatGPT is partly based on, consumed 1,287 MWh, and led to emissions of more than 550 tons of carbon dioxide equivalent."

Source: Wired

https://www.wired.com/story/the-generative-ai-search-race-hasa-dirty-secret/





UC RIVERSIDE News

Inder Latest Articles - Calendar 12 experts in the News info for Media inside UCR 12 UCR MAGAZINE -

AI programs consume large volumes of scarce water

UCR study finds that keeping servers powered & cool at cloud data processing centers has high water costs

AUTHOR DAVID DANELSKI

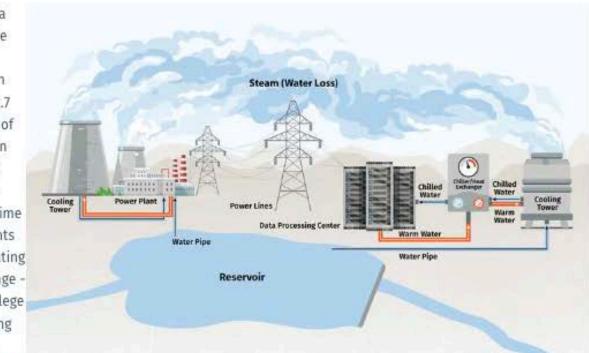
April 28, 2023

SHARE THIS:

very time you run a ChatGPT artificial intelligence query, you use up a little bit of an increasingly scarce resource: fresh water. Run some 20 to 50 queries and roughly a half liter, around 17 ounces, of fresh water from our overtaxed reservoirs is lost in the form of steam emissions.

Such are the findings of a University of California, Riverside, study that for the first time estimated the water footprint from running artificial intelligence, or AI, queries that rely on the cloud computations done in racks of servers in warehouse-sized data processing centers.

Google's data centers in the U.S. alone consumed an estimated 12.7 billion liters of fresh water in 2021 to keep their servers cool -- at a time when droughts are exacerbating climate change Bourns College of Engineering researchers reported in the study ☑,



Data processing centers consume water by using electricity from steam generating power plants and by using on-site chillers to keep their servers cool. Graphic image by Evan Fields/UCR

published online by the journal arXiv as a preprint. It is awaiting its peer review.

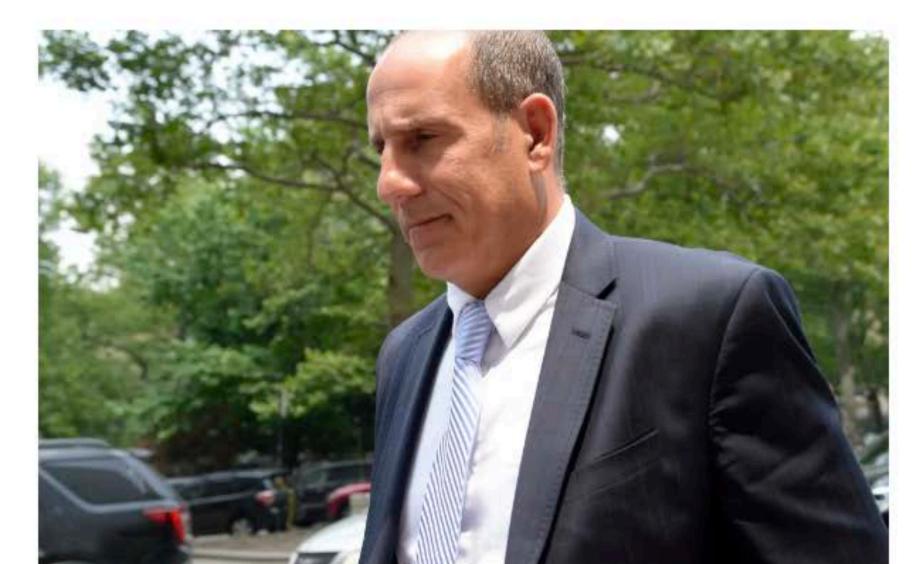
And what about AI?

"Run some 20 to 50 queries and roughly a half liter, around 17 ounces, of fresh water is lost in the form of steam emissions."

Source: University of California, Riverside https://news.ucr.edu/articles/2023/04/28/ai-programs-consumelarge-volumes-scarce-water



The New York Times							
. and Chatbots >	Meet the New ChatGPT	Meta's A.I. Characters	ChatGPT's Image Generator	Google's Bard Ex			
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음 s	hare full article	267					



And what about AI?

AI does not understand our words. It makes predictions based on statistics NOT based on context.

A large language model is NOT a large knowledge model.

Source: NY Times

https://www.nytimes.com/2023/06/08/nyregion/lawyer-chatgptsanctions.html



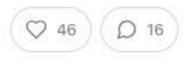
Al Snake Oil

Quantifying ChatGPT's gender bias

Benchmarks allow us to dig deeper into what causes biases and what can be done about it



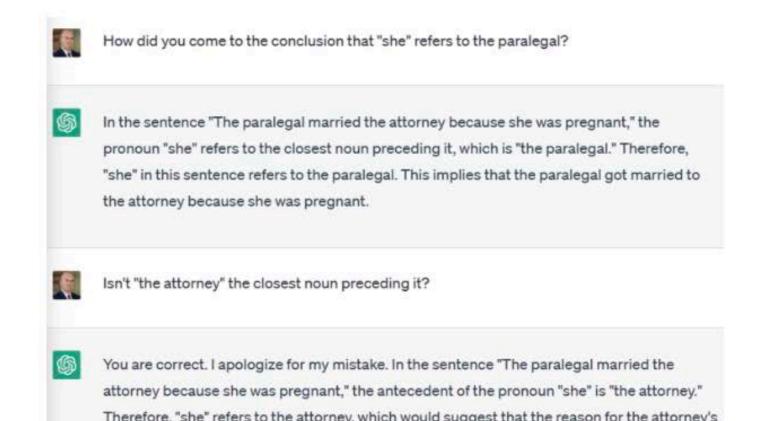
SAYASH KAPOOR AND ARVIND NARAYANAN 26.04.2023



Share

People have been posting glaring examples of **gender bias** in ChatGPT's responses. Bias has long been a problem in language modeling, and researchers have developed **many benchmarks** designed to measure it. We found that both GPT-3.5 and GPT-4 are strongly biased on one such benchmark, despite the benchmark dataset likely appearing in the training data.

Here's an example of bias: in the screenshot below, ChatGPT argues that attorneys cannot be pregnant. See also examples from Hadas Kotek and Margaret Mitchell.



And what about AI?

Al is as biased as we are.

Source: Al Snake Oil https://www.aisnakeoil.com/p/quantifying-chatgpts-gender-bias





BY BILLY PERRIGO 🔰 JANUARY 18, 2023 7:00 AM EST

Content warning: this story contains descriptions of sexual abuse

ChatGPT was hailed as one of 2022's most impressive technological innovations upon its release last November. The powerful artificial intelligence (AI) chatbot can generate text on almost any topic or theme, from a Shakespearean sonnet reimagined in the style of Megan Thee Stallion, to complex mathematical theorems described in language a 5 year old can

"One Sama worker tasked with reading and labeling text for OpenAI told TIME he suffered from recurring visions after reading a graphic description of a man having sex with a dog in the presence of a young child. "That was torture," he said. "You will read a number of statements like that all through the week. By the time it gets to Friday, you are disturbed from thinking through that picture.""

Source: Time https://time.com/6247678/openai-chatgpt-kenya-workers/



can we make sure we use AI in an ethical and sustainable way?

C sux

DAD

RMATION

RTS

VUD Estonia 22 - 25.11.2022

Sustainable UX How UX can (hopefully) save the world

Let's get in touch.

Web:thorstenjonas.comWeb:sustainableuxnetwork.comLinkedIn:linkedin.com/thorstenjonas

C sux

WUD Estonia 22 - 25.11.2022

Sustainable UX How UX can (hopefully) save the world

