

knowit

Sustainable Tech

DENNIS ADOLFI – HEAD OF TECH KNOWIT EXPERIENDE

“Om internet vore ett land, skulle det vara världens fjärde största förorenare sett till CO₂.”

MER ÄN ALLA LÄNDER I EU, RYSSLAND OCH BRASILIEN.

En genomsnittlig webbplats genererar
1,76 g CO₂ för varje sidvisning.

Storleken på internet över tid

knowit

År

Webbsidor

Användare

1991

info.cern.ch

Tim Berners-Lee

1993

130

14 000 000

2000

17 000 000

400 000 000

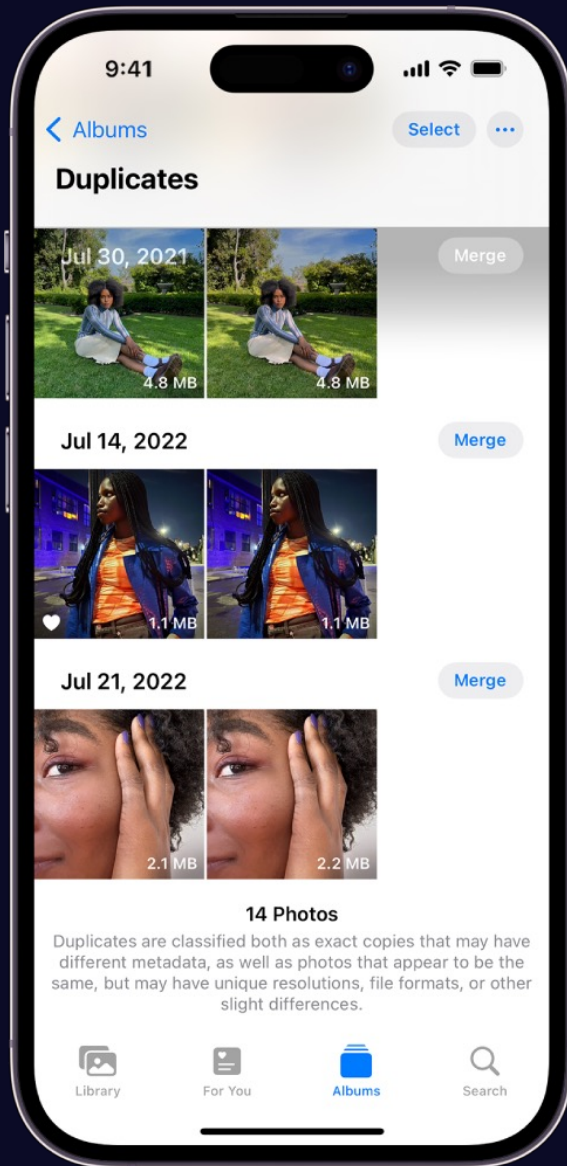
2025

1 120 000 000

5 500 000 000



- Enbart under 2023 producerade vi 120 zettabyte, bland annat genom 60 000 bilder per sekund.
- 90% tittas aldrig på igen efter 3 månader.
- År 2035 kommer vi att ha skapat mer än 2,000 zettabytes av data på webben.



Vi slösar – för att vi kan.

Foton skickas till molnet, säkerhetskopieras, synkroniseras till flera enheter, tar upp utrymme – men används sällan.

Bara för att det är enkelt att ta fem foton betyder det inte att vi måste göra det.



”

Varje dag kräver Chat GPT förfrågningar samma dagliga elförbrukning som 33 000 hushåll.

”

Varje sekund kräver Googles AI Search samma mängd elektricitet som krävs för att ladda sju elbilar.

”

Att träna en GPT-4 modell kräver den årliga elförbrukningen för över 2 000 hushåll.

”

- "We need to also be looking at the impacts that the developing of these technologies have on the environment by quantifying the *entire footprint of the production cycles*, so that States and companies can agree on limits, standards, and best practices to minimize the impacts."

(Golestan Sally Radwan, Chief Digital Office at UN Environment Programme)

”

- "Artificial Intelligence is changing our world and our lives, and it can *turbo charge the sustainable development*. From bringing education and health care to remote areas, to helping farmers boost their crops. From designing sustainable housing and transportation, to providing early warning for natural disasters. AI could be a *game-changer* for the *Sustainable Development Goals (SDGs)*."

(UN General Secretary Antonio Guterres)

"AI estimeras att kunna **reducera** det globala utsläppet av växthusgaser med **1.5–4%** tills **2030**"

(European Parliament Research)

Det enda vi vet med säkerhet är
att **ingen vet** säkert vilka
långsiktiga effekter AI kommer
att ha på miljön.

Så, vad kan **vi** göra redan idag?

(Förutom att bli mer medvetna)

Vi kan minska det totala
CO₂-avtrycket från våra
webbplatser och digitala
tjänster.



01

Grön Infrastruktur
& Hosting

02

Minska trafik & data
för användare

03

Optimera SEO, UX
& Design

04

Omsorgsfull användning av
tredjepartsverktyg

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Använd AI
Ansvarsfullt

06

Nyttja Umbraco på
bästa sätt!

01

Grön infrastruktur och hosting



GREEN WEB FOUNDATION

TOOLS ▾ INSIGHTS ▾ SERVICES ▾ ABOUT ▾ DONATE [PROVIDER PORTAL](#)

RESULT OF GREEN WEB CHECK [How does it work?](#)



WE'VE FOUND EVIDENCE
umbraco.com
IS HOSTED GREEN

We found evidence that this website runs on green energy. Using data submitted to our [Green Web Dataset](#), we can match this website's IP address to a [verified green hosting provider](#).

Hosted by: [Cloudflare](#)

► [View supporting evidence for this hoster's claims](#)

Our take on [why green hosting matters](#).



TOOLS ▾ INSIGHTS ▾ SERVICES ▾ ABOUT ▾ DONATE

[PROVIDER PORTAL](#)



DOES YOUR WEBSITE RUN ON GREEN ENERGY?

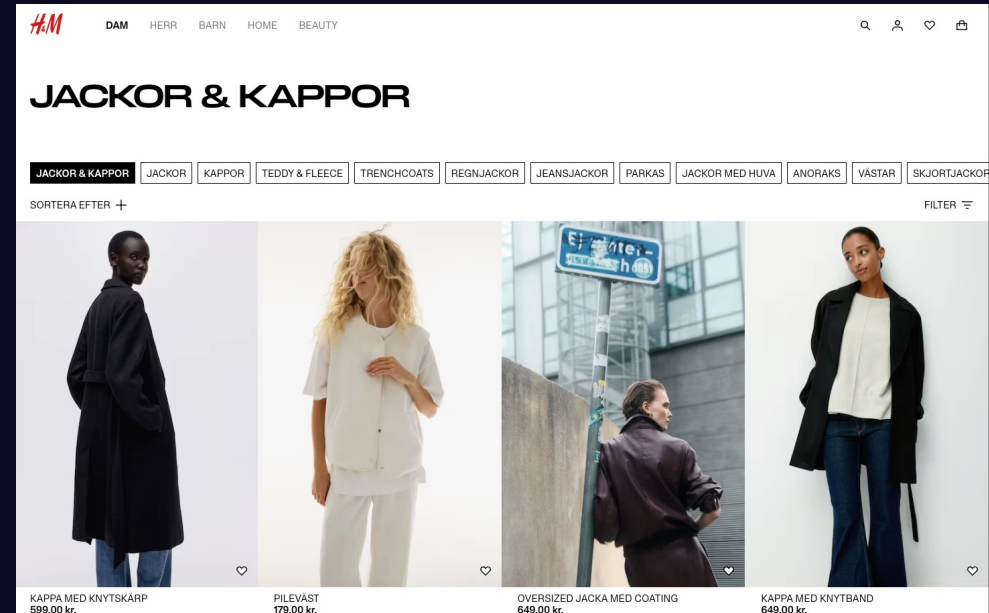
The internet is the world's largest coal-powered machine. Check if your website runs on green energy — and help make the internet fossil-free.

<https://www.yourwebsite.com>

CHECK

02

Minska trafik & data för slutanvändaren



03

Optimera SEO, UX, och Design

The screenshot shows the EcoByDesign website, which is a guide to sustainable digital development. The page has a light yellow background and a dark blue header. The header contains the EcoByDesign logo (a stylized asterisk) and the title "EcoByDesign - Our Guide to Sustainable Digital Development". Below the header is a navigation bar with links: Home, About this Guide, Our Principles, Considerations, Get started, Tools & Resources, and Recycle bin. On the right side of the navigation bar, there are links for "Public group", "Not following", "6 members", and "Share".

The main content area is divided into two columns. The left column contains the following text:

Our environmental obligation:

In Knowit Experience we consider the environment as a key stakeholder in all projects.

The principles we hold ourselves to:

Below this text are three columns, each starting with a stylized asterisk icon. The first column contains the text: "In our daily work we rely on the field of Eco Design and the work of W3C in development of the Sustainable Web Guidelines (as of now there are no better go-tos)." and a link "More about this principle". The second column contains the text: "We challenge and inspire our customers to have energy efficient digital product development on the agenda and to choose approaches accordingly." and a link "More about this principle". The third column contains the text: "We dare to set goals and are committed to measure the effects of our work. Benefits are demonstrated to colleagues, clients and shareholders." and a link "More about this principle".

The right column contains the following text:

External quick links:

- Web Sustainability Guidelines (WSG) 1.0
- Sustainable Web Design
- SUX - The Sustainable UX Network

About this guide

This is a pan-Nordic initiative to create a common guide on how to work with climate sustainability (other aspects of sustainability might be added to the guide later on) in our client deliveries. The target group for the guide is all Knowit Experience employees. [Read more about this guide](#)

AI & sustainability?

AI plays two important roles when it comes to energy use and greenhouse gas emissions — both as a challenge and as an opportunity.

04

Omsorgsfull användning av tredjepartsverktyg

Cookie  Tractor

Den hållbara cookie-lösningen

På [CookieTractor](#) är hållbarhet en viktig del i vår ambition att erbjuda den bästa hanteringen av cookies. Vi vill minimera vår miljöpåverkan utan att kompromissa med integritet, användbarhet eller prestanda. Som tur är går dessa hand i hand.

Effektiv teknik ger låg klimatpåverkan

Vår kod är betydligt mer resurseffektiv än många konkurrenters. Faktiskt upp till 60-80% mindre – våra klientfiler är i de flesta implementationerna under 20 kB. Det innebär mindre datastrafik, lägre belastning på servrar och minskad energiförbrukning – både hos oss och på användarens enhet. Med hjälp av ett globalt nätverk av servrar (CDN) levereras innehållet dessutom från den geografiskt närmaste noden, vilket minskar både laddningstider och elförbrukning.

Smartare crawling, lägre energiförbrukning

CookieTractor har funktionalitet som låter kunder exkludera sidor från att genomsökas för cookies. Detta är smart för mallade sidor som man vet inte sätter nya cookies. Det sparar inte bara tid – och potentiellt pengar – det

05

Använd AI ansvarsfullt

knowit

The AI Foundation Canvas

The screenshot shows the Azure AI Foundry Model catalog interface. The left sidebar contains a navigation menu with the following items: Overview, Model catalog (selected), Playgrounds, Build and customize, Agents, Templates, Fine-tuning, Content Understanding (marked as PREVIEW), Observe and optimize, Tracing (marked as PREVIEW), Monitoring, Protect and govern, Evaluation (marked as PREVIEW), Guardrails + controls, Risks + alerts (marked as PREVIEW), Governance (marked as PREVIEW), Azure OpenAI, Stored completions, Batch jobs, My assets, Data + indexes, and Models + endpoints. The main content area is titled "Find the right model to build your custom AI solution" and includes a link to "See all models". Below this is an "Announcements" section with four cards: "Introducing Grok 4" (xAI's flagship model), "Introducing Grok 4 Fast" (efficient, low-latency reasoning), "Introducing gpt-5-codex" (multimodal, repo-aware coding model), and "Introducing Grok Code Fast 1" (fast, economical AI model for agentic coding). Each card has "Check out model" and "Read blog" buttons. Below the announcements is a "Model leaderboards" section with a link to "Learn more" about the scoring methodology. It features three leaderboards: "Quality" (listing o3-pro, gpt-5, and o3), "Safety" (listing Phi-4, o3, and o1), and "Cost" (listing Ministral-3B, Phi-4-mini-instruct, and Phi-4-mini-reasoning). At the bottom, there are filters for Collections, Capabilities, Inference tasks, Fine-tuning tasks, and Licenses, followed by a search bar and a row of model cards including grok-4, grok-4-fast-reasoning, grok-4-fast-non-reasoning, and gpt-5-codex.

Azure AI Foundry / ai-dennisadolfi7813ai10-project / Model catalog

Find the right model to build your custom AI solution

Models shown are available for deployment in this project. [See all models](#)

Announcements

Introducing Grok 4

xAI's flagship model, excelling in language, math, and reasoning

[Check out model](#) [Read blog](#)

Introducing Grok 4 Fast

Efficient, low-latency reasoning with robust safety features

[Check out models](#) [Read blog](#)

Introducing gpt-5-codex

gpt-5-codex is a multimodal, repo-aware coding model delivering intelligent,...

[Check out model](#) [Read blog](#)

Introducing Grok Code Fast 1

Grok Code Fast 1 is a fast, economical AI model for agentic coding

[Check out model](#) [Read blog](#)

Model leaderboards

See what models are performing best in different criteria. [Learn more](#) about our scoring methodology.

Quality

- o3-pro
- gpt-5
- o3

Safety

- Phi-4
- o3
- o1

Cost

- Ministral-3B
- Phi-4-mini-instruct
- Phi-4-mini-reasoning

[Collections](#) [Capabilities](#) [Inference tasks](#) [Fine-tuning tasks](#) [Licenses](#)

Search

grok-4
Chat completion

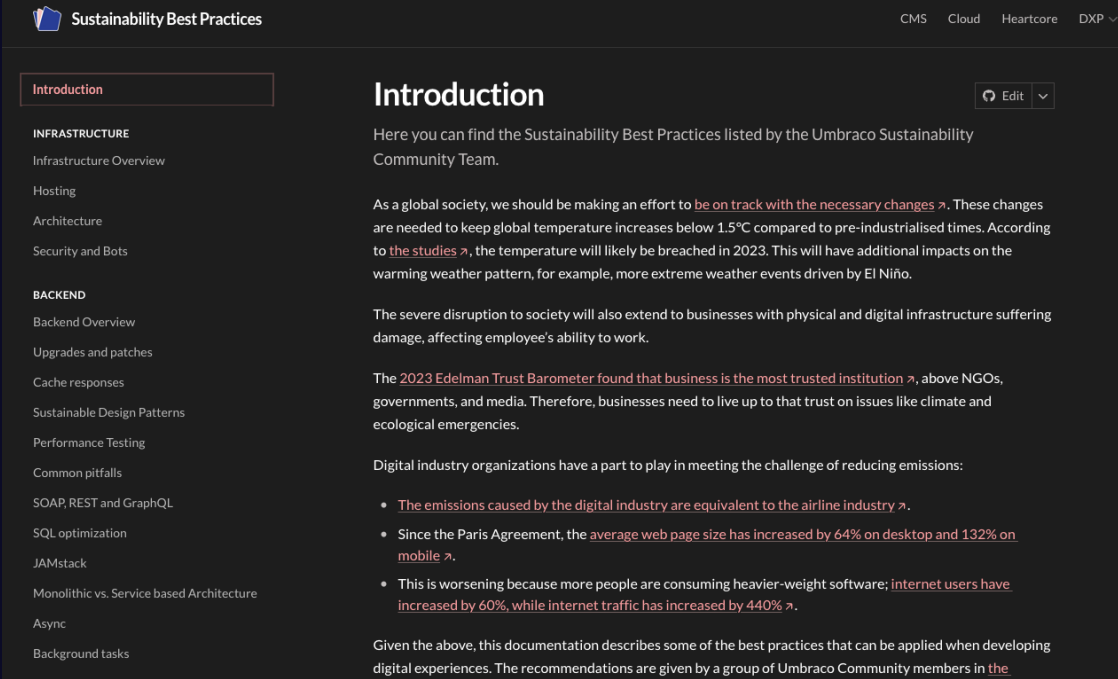
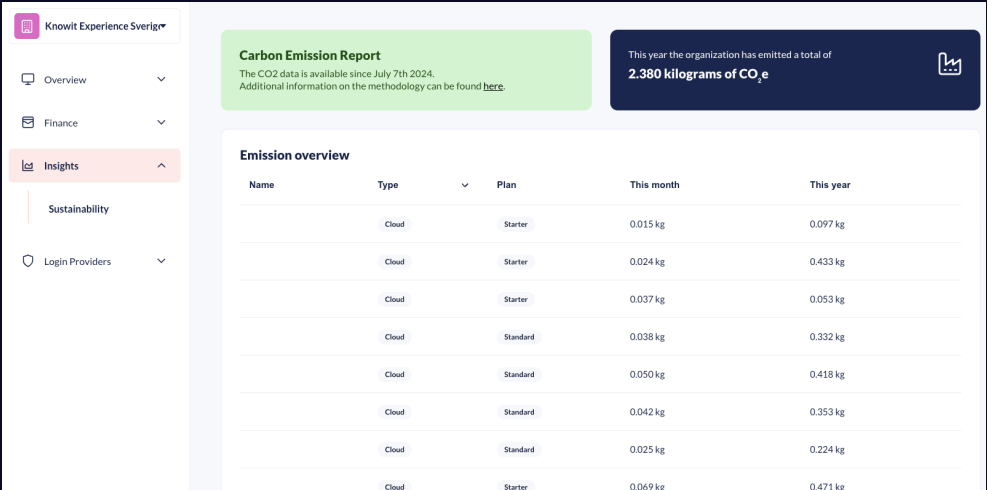
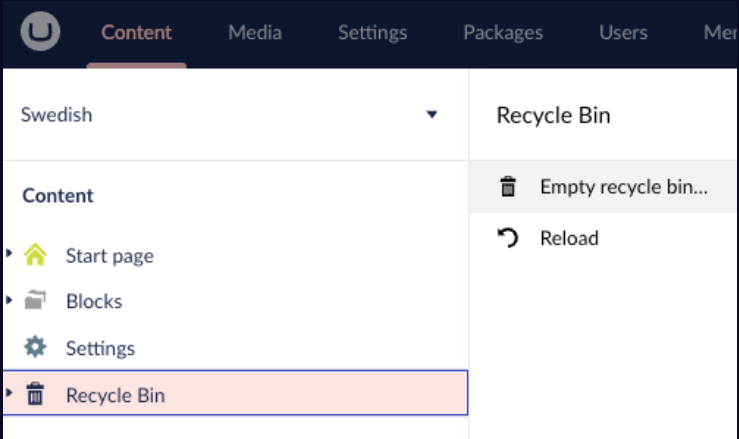
grok-4-fast-reasoning
Chat completion

grok-4-fast-non-reasoning
Chat completion

gpt-5-codex
Responses

grok-4-fast-reasoning
Chat completion

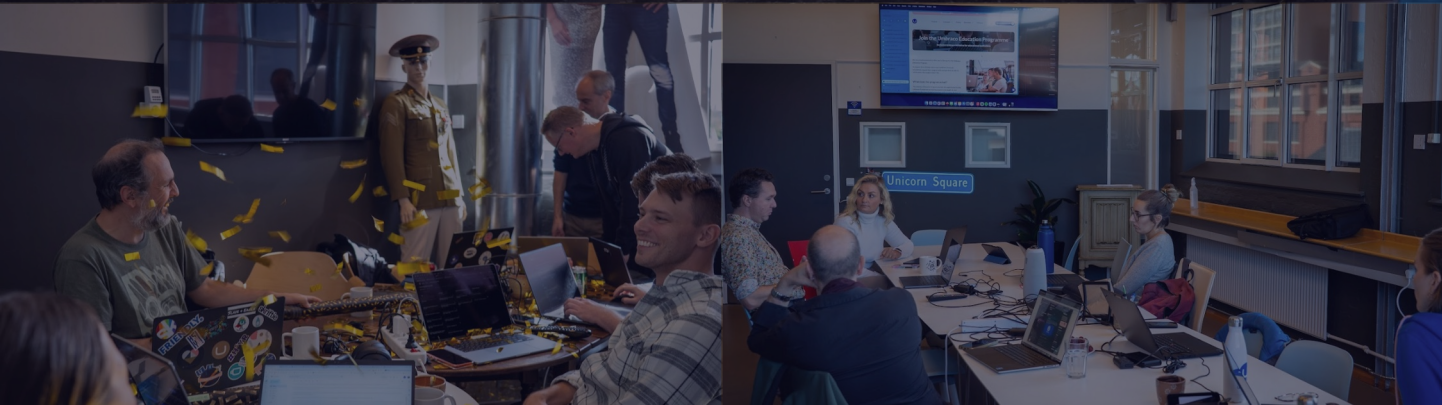
Nyttja Umbraco på bästa sätt!





Umbraco Community Teams

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Umbraco Community Sustainability Team

What's cooking?

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- AI Agent sustainable instructions.
- Inspirationsrepo med lösningar.
- Sustainability Package/Health Checks
- Sustainability Audit
- Sustainability review of training material, documentation and add-ons.

Men var ska jag
börja då?



[Training](#) > [Open Source Best Practice](#) > Green Software for Practitioners (LFC131)

📖 TRAINING COURSE

Green Software for Practitioners (LFC131)

PLEASE NOTE: This course is now available directly through the [Green Software Foundation](#). Please [visit this link](#) to be redirected and gain access to the course. Those who already signed up for this course through the LF Education site will continue to have access until **December 10, 2025**.



Visit Green Software Foundation for Course Access



Who Is It For

This is an introductory course designed for software practitioners.



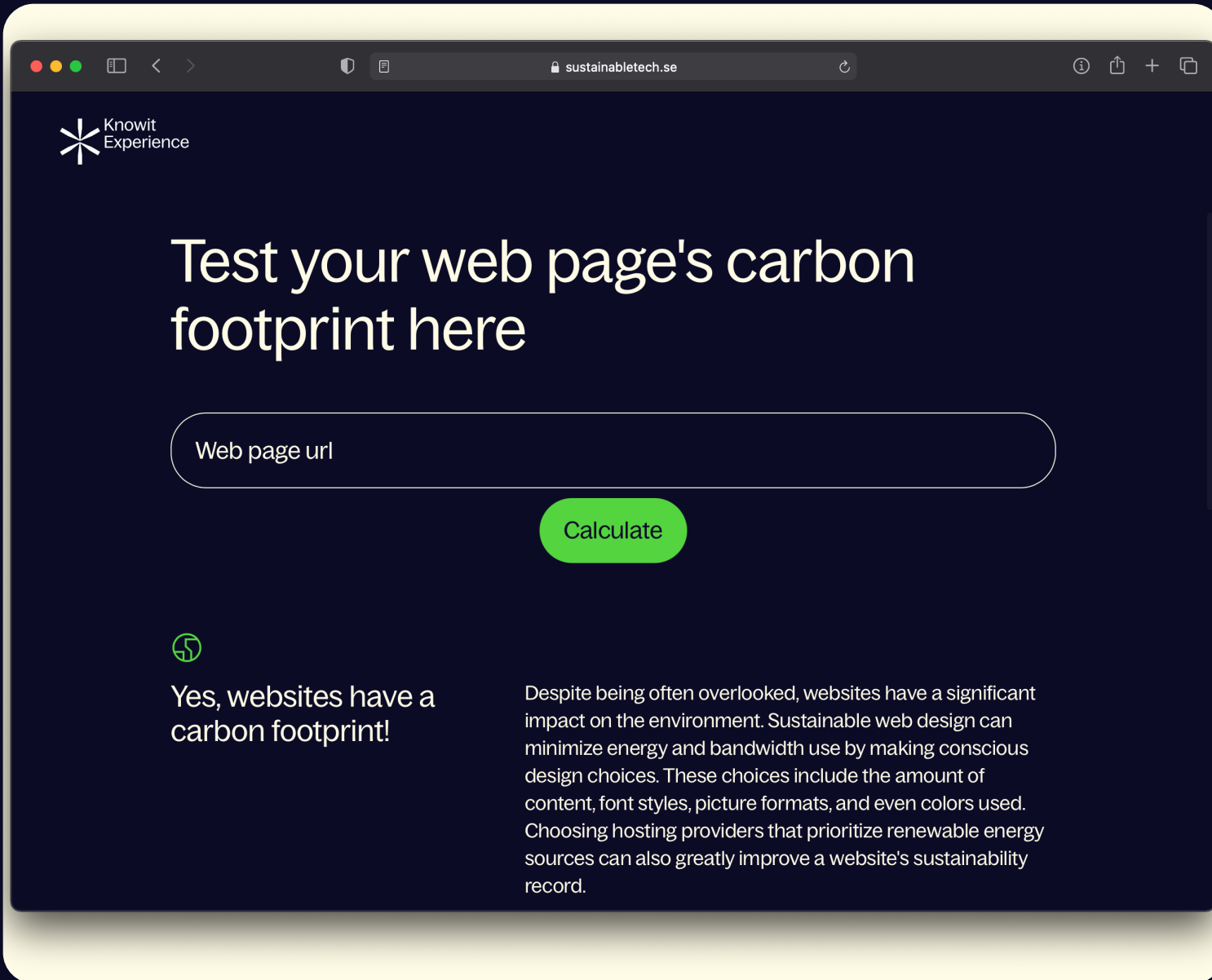
What You'll Learn

This course provides a framework to educate software practitioners in topics related to green software. Learners will



What It Prepares You For

This course will teach you how to apply green software principles to the design and development of your software.



The screenshot shows a web browser window with the address bar displaying 'sustainabletech.se'. The website has a dark blue background. In the top left corner, there is a logo for 'Knowit Experience' consisting of a white asterisk-like symbol. The main heading in white text reads 'Test your web page's carbon footprint here'. Below this is a large, rounded rectangular input field with a light blue border and the placeholder text 'Web page url'. To the right of the input field is a green rounded rectangular button with the text 'Calculate' in white. At the bottom left, there is a green circular icon with a white leaf-like shape inside. To its right, the text 'Yes, websites have a carbon footprint!' is displayed in white. Further to the right, a paragraph of white text explains the environmental impact of websites and the importance of sustainable web design.

Knowit Experience

Test your web page's carbon footprint here

Web page url

Calculate

 Yes, websites have a carbon footprint!

Despite being often overlooked, websites have a significant impact on the environment. Sustainable web design can minimize energy and bandwidth use by making conscious design choices. These choices include the amount of content, font styles, picture formats, and even colors used. Choosing hosting providers that prioritize renewable energy sources can also greatly improve a website's sustainability record.

Testa din webbsplats!

Det finns flera olika verktyg, och vi på Knowit Experience har utvecklat vårt eget.

www.sustainabletech.se

0.39 g
CO₂ / visit

knowit.se

Hurray! This web page
produces only **0.39 g** of
CO₂ per visit.

The average page tested here emits 0,92 CO₂ per visit

Digital Sustainability Report

Client: www.knowit.se

Date: September 29, 2025 - September 30, 2025

Overview

Coverage: 1 views / -

CO₂e

0.12 g

Energy

0.17 Wh

★ Rating



Climate Impact

Digital Carbon Rating

C

Ecograder's digital carbon rating system gives this URL a "C" on a scale of A to E.

Page Emissions

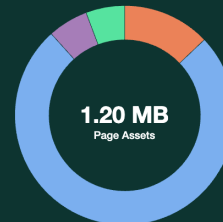
0.40 g

Assuming your page gets 1000 pageviews, you're emitting **400.00 grams** of carbon dioxide.

Page Weight

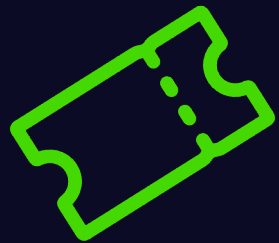
1.20 MB

This page is 58.98% smaller than the average web page.



Scripts and media assets contribute to your page's emissions estimate but they aren't the only factor. The chart below breaks down estimated emissions impact per page view of individual asset types at this URL.

- Images:** 154.22 KB, 0.0520 g of CO₂e
- Scripts:** 905.27 KB, 0.3054 g of CO₂e
- HTML/CSS:** 70.55 KB, 0.0238 g of CO₂e
- Other:** 67.90 KB, 0.0229 g of CO₂e



Gröna stories!

PRODUCT BACKLOG ITEM 3586

3586 Ladda in imbox när ikon klickas



12 Comments

BE X

FE X

Releass - 81 X

Green X

+

State ● Verified in Production

Area

Web Shop Online

Reason ● Moved out of state in Pr

Itigation

Web Shop Online/Release 16.9

Description/User story

För att förbättra sidans laddtid föreslår jag att vi endast ladda in imbox på någon/några specifika sidor där det verkligen behövs, tex startsidan är en sida där det inte behövs på men kassan & på en produktsida kan det behövas. Går säkert att i imbox gränsnitt se var kunderna står när de använder sig utav imbox

Details

Created By

● Martin Thoms

Created Date

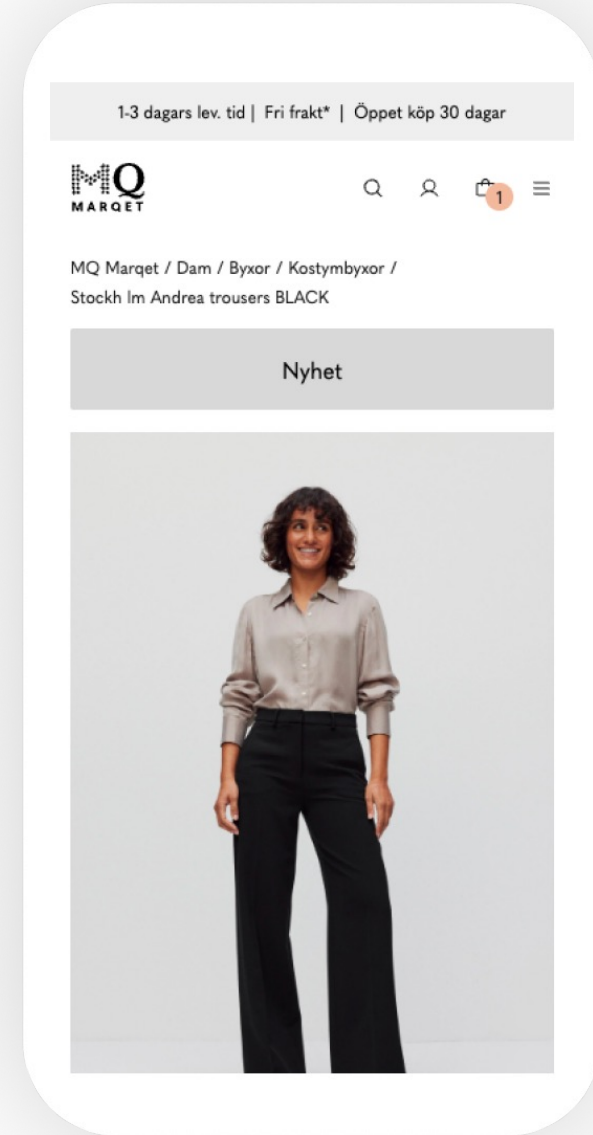


Case: MQ Marqet

En kund som bryr sig!

Hur vi hjälpte MQ att minska växthusgasutsläppen med 68% per sidvisning, samtidigt som vi förbättrade sidans hastighet och SEO.

<https://www.knowit.eu/cases/slashing-mq.se-carbon-footprint-with-two-thirds/>





Results



Sustainable Development
Goals 7 & 13

Minskat koldioxidavtrycket per
sidvisning från 2,82 till 1,09 g CO₂.

Förbättringar i Google Lighthouse

- Ökad SEO – poäng från 59 till 83
- Ökad prestandapoäng från 34 till 78
- Ökad bästa praxis-poäng från 67 till 95

Avslutningsvis: Hur övertygar jag min kund eller arbetsgivare?

Oanade sidoeffekter

knowit

- Bättre **prestanda**
- Bättre **SEO**
- Bättre för **plånboken**
- Bättre för **varumärke** (obs. undvik green-washing)
- Bättre för **magen..**



Tack/Takk/Kiitos

Dennis Adolfi

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<https://www.linkedin.com/in/dennis-adolfi/>

Följ mig på LinkedIn!

