chromeOS

October 2025

ChromeOS: Powering a Sustainable Future

Now more than ever, businesses need to prioritize environmental stewardship. With ChromeOS, your business can fast-track sustainability efforts.

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In brief

- In a world of rapid change and pressing environmental challenges, action is needed now more than ever. Businesses have a critical role to play by embedding responsible workforce technology that benefits their people, the planet, and their profitability.
- Google ChromeOS and ChromeOS Flex offer businesses cost-effective and sustainably-designed solutions that enhance workforce productivity, strengthen security, and reduce environmental impacts by extending device lifespan and reducing device energy consumption.
- Read on to discover how ChromeOS can help you tackle your sustainability challenges and reduce your business's environmental footprint by making a simple change to your workforce technology.

ChromeOS offers tangible benefits across your business...

FOR YOUR PEOPLE:

90K

hours per year in increased employee productivity[1]

FOR THE PLANET:

46%

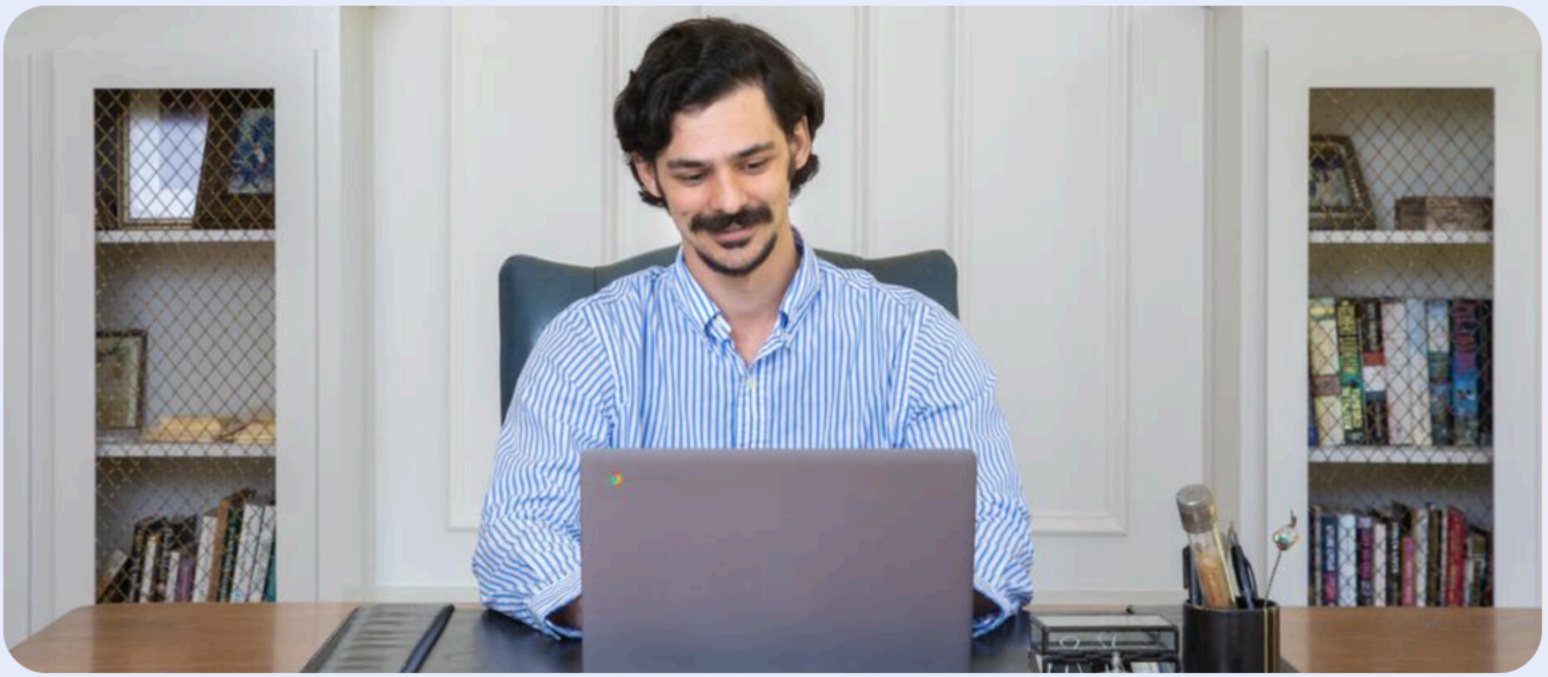
lower energy consumption in use[2]

FOR YOUR PROFITABILITY:

208%

return on investment over three years[1]

This report, created with the help of Accenture and 30+ primary and secondary sources, explores critical sustainability topics to power your future.



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Now is the time for decisive action

Now is the time for decisive action

> ***"Solving climate change is humanity's next big moonshot. But unlike the moon landing — there is a clear deadline for action, and severe consequences if we fail."*** [3]
>
> ***- Google CEO, Sundar Pichai, 2023***

Climate change is at a critical turning point for humanity. Rising forest fires, floodings, and extreme temperatures cost the world USD $16 million every hour.[4]

To begin to mitigate these massive economic and human costs, global climate organizations recommend that the information and communications technology sector cut its emissions in half by 2030.[5] Designing, manufacturing, and operating technology with sustainability in mind will play an essential role in bridging the gap.

The good news is that embedding sustainability as an enabler for driving financial and social impact is becoming a more commonly accepted practice. Companies with consistently high ESG performance tended to score 2.6x times higher on total shareholder returns and enjoyed 4.7x higher operating margins than companies with medium ESG performance.[6]

According to Accenture's latest research, **96% of people want sustainability** to be a part of their lives.[7]

On Earth Day 2023, we released a report detailing the importance of sustainability, the rising problem of electronic waste (e-waste), and how a circular model of production can be part of the solution.

So why revisit this topic? Despite positive momentum in climate action and Google's dedication to embracing Digital Sustainability — a framework valuing people, the planet, and profitability in every decision — our work is far from over.

We've seen positive momentum in climate efforts

Global Leaders Finally Reach A Climate Consensus

At COP28, over 200 world leaders committed to a historic shift, agreeing for the first time to a "swift, equitable, and just transition away from fossil fuels." Surprisingly, previous climate conferences had never agreed on language around transitioning away from fossil fuels.[8]

Why this matters: Climate consensus signals a direct and urgent acceleration in global decarbonizing efforts.

The Private Sector Is Set To Accelerate E-Waste Management

The International Telecommunications Union launched the Green Digital Action Campaign to drive increased private sector collaboration in e-waste recycling and disposal.[9]

Why this matters: There is increased pressure for global e-waste collection and recycling, focused on raw and critical materials.

CEOs Are Shifting Towards Circular Business Models

CEOs are prioritizing sustainability, with 50% actively cutting greenhouse gas emissions in 2023. Leading companies are taking a step further, with 49% of CEOs actively incorporating circular business models to enhance supply chain resilience and tackle environmental issues.[10]

Why this matters: The shift to circular business models includes designing more durable, repairable, and long-lasting products to minimize e-waste generation and drive decarbonization.

Despite momentum, follow through is still limited

While progress is being made, significant challenges remain, and businesses are key to addressing them.

Though leaders are speaking out about their sustainability responsibility, few are taking equivalent action. 98% of CEOs unequivocally feel sustainability is their responsibility, but only 37% of the world's largest companies have a net zero target, and nearly all are off track.[12] This epidemic of inaction extends to the small and medium business (SMB) community as well. Forbes shows 71% of SMBs are still not implementing sustainability in any way today (not even recycling), but it is not for a lack of caring. The majority (75%) of SMBs recognize sustainability as a moral imperative, so what is standing in the way of action? A lack of time and resources .[11]

This action gap largely stems from concerns over the cost of sustainability measures - concerns that do not play out when sustainability is implemented effectively. Companies with high sustainability performance ratings had 2.6x higher shareholder returns.[12]

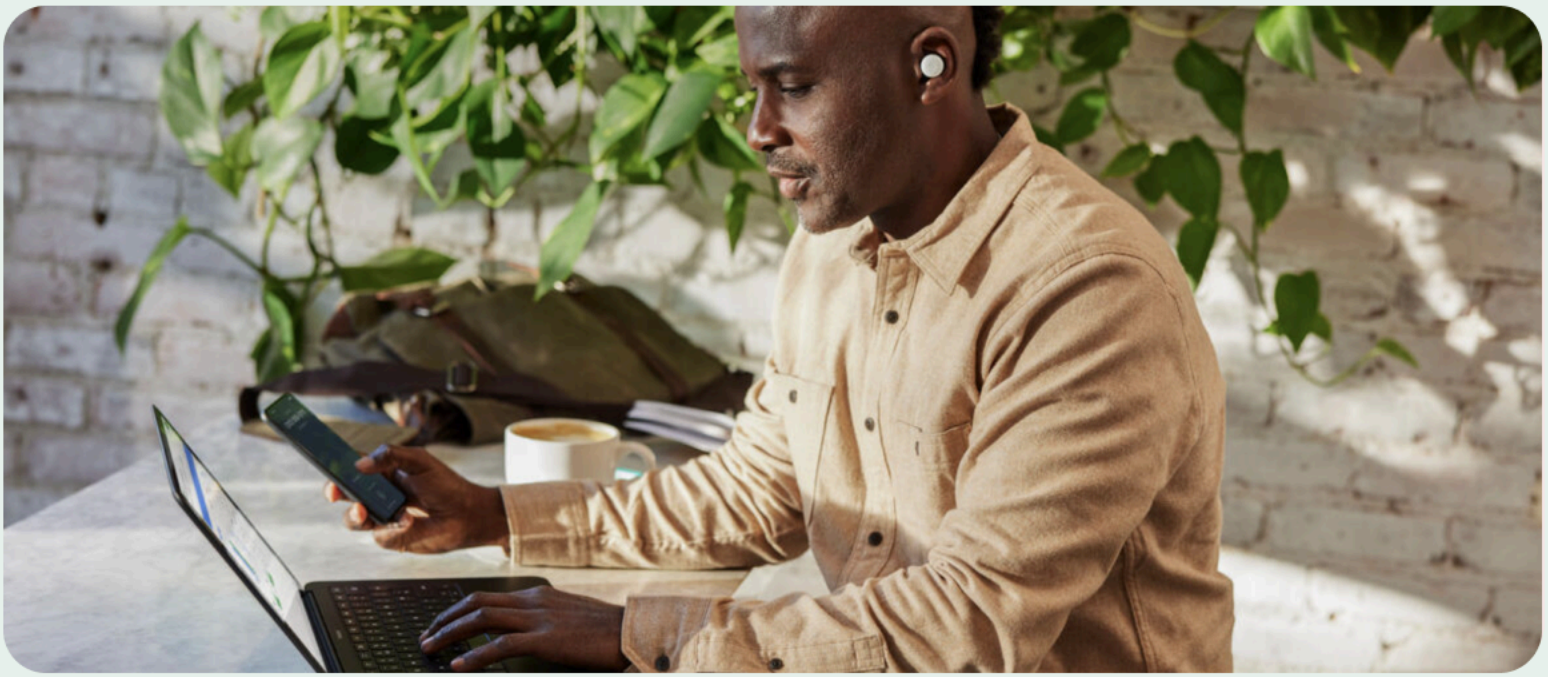
So, how is Google following through? By embracing Digital Sustainability, a framework that prioritizes the triple bottom line - your people, the planet, and your profitability - Google is designing products that empower customers to enhance employee well-being, lower their environmental footprints, and optimize technology budgets.[13]

Alarming Disparity Between Interest And Action

While nearly all of business leaders (94%) believe in the vision of the Sustainable Development Goals (SDGs) - the UNs' goals for global prosperity and environmental stewardship — less than half are confident these goals can be achieved by 2030.[14] Currently, only 15% of SDG targets are on track, signaling a profound urgency for change.[15]

Urgency Is Needed Now More Than Ever

In 2023, we experienced the warmest 12 month stretch in the last 173 years.[16] Continuation would lead to alarming environmental and social risks — rising sea levels, biodiversity loss, and deteriorating air quality leading to increased health risks. This trend also comes with significant financial costs for humanity. Inaction could expose businesses to heightened risks, causing substantial economic losses from climate-related disasters (an estimated USD $313B in 2022),[17] but also erode consumer trust of brands and prompt regulators to impose stricter penalties to encourage action.



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How ChromeOS and ChromeOS Flex can deliver value for your people, the planet, and your profitability

How ChromeOS can deliver value for your people, the planet, and your profitability

Google has been taking initiative on sustainability with its Digital Sustainability framework, which puts people, planet, and profitability at the center of every product. ChromeOS is no exception.

Operating systems, often overlooked in sustainability efforts, can actually offer a cost-effective way to enhance your sustainability initiatives. ChromeOS is a fast, efficient, and secure operating system designed to support your organization with its most important business tasks and sustainability goals. When compared to alternatives, ChromeOS can save your team time, money, and contribute to environmental sustainability by consuming less energy than other operating systems.

Social sustainability: benefits for your people

Seamless Deployment and Scalability

ChromeOS offers both seamless deployment and scalability for businesses. It facilitates a smooth transition for users, minimizing the time, and effort required for device migration. With zero-touch enrollment, users can deploy and onboard new devices (including laptops, desktops and even kiosks) in a matter of minutes, simplifying the switch from legacy systems. ChromeOS allows for seamless scalability across businesses of all sizes, and promotes resource efficiency through remote management tools, such as the Google Admin console.

DID YOU KNOW?

On average, ChromeOS delivers **90K** hours per year in increased employee productivity.[1]

"Deploying apps with ChromeOS is simple. Session management, load balancing, failover — all we had to focus on was the apps we wanted to publish. It was very easy to get set up, and ongoing management is a breeze when compared to traditional virtual desktop approaches."

- Mario Zúñiga, IT Director, Digital Workplace, Sanmina, United States

Next-Gen Security

ChromeOS is the most secure OS, out of the box when contrasted with macOS and Windows 11.[18] With built in features like sandboxing, verified boot, and a read-only OS that blocks executables, ChromeOS ensures robust protection against security threats. This technology not only safeguards users but also cuts costs, enhances device performance, and fosters user trust.

DID YOU KNOW?

ChromeOS delivers a **90% incremental security risk reduction**.[1] In fact, ChromeOS devices have had **zero** reported ransomware attacks, ever.*

"The read-only nature of ChromeOS makes navigating our rigorous bank audits and achieving certifications like ISO and BCIS significantly easier. We can make sure the same protections and access restrictions are applied to everyone."

- *Hiển Từ Thế (Jay), CTO, Cake Bank, Vietnam*

ChromeOS automatically blocks harmful executables and safeguards system files, preventing ransomware and other threats. Regular updates ensure your devices stay protected against emerging vulnerabilities.

Anywhere, Anytime Collaboration

Integration with Google Workspace applications ensures that documents are readily accessible from anywhere, fostering productivity and collaboration, while reducing the need for physical storage devices. By syncing everything in the cloud, ChromeOS enhances flexibility and efficiency for users, aligning with modern work practices and minimizing resource consumption.

DID YOU KNOW?

ChromeOS users gain back **18 hours per year in productive time lost** by reducing reboots and device log-ins when compared to similar devices.[1]

"Our move to ChromeOS was about more than just replacing old hardware. It was a strategic step in our journey to remove dependencies on legacy systems and build a more agile, secure, and efficient IT environment."

- *Choi HeeJung, CIO, Korean Air, Korea*

Environmental sustainability: benefits for the planet

Energy-Efficient By Design

ChromeOS devices use up to 46% less energy than similar devices while in use thanks to their sustainable design and features (like efficient charging and adaptive power use). These benefits not only save money, but also reduce electricity usage and carbon emissions.[2]

> ***"Together with the research company Px3, we have seen that over the next eight years we will save as much as 1.5 million kilos of CO2 with Flex. That amounts to 2,000 acres of a mature forest. And in addition, it saves 20 percent electricity for our computer usage. In total, we expect to save NOK60 million (US$6.7 million)."***
>
> - ***Kari Anna Fiskvik, VP of Technology, Strawberry Hotels, Scandinavia***

> ***"In a two-year period, about 85% of our Windows devices had some level of critical failure—ranging from re-imaging to complete hardware failure. Today, with about 200 ChromeOS devices in use by our office and remote workers, less than 5% have ever required IT help."***
>
> - ***Jim Buck, VP of IT, Nerdery, United States***

Future-Proof Sustainability

Since the publication of our last Earth Day report in 2023, Google's extended its support for automatic updates on ChromeOS devices up to 10 years (from 8 years), underscoring a commitment to promoting both device longevity and sustainability.[19] This extended support reduces the frequency of hardware replacements and minimizes e-waste generation.

In contrast, competing operating systems offer a shorter, version-specific support lifecycle—typically limited to 2 years for baseline editions. ChromeOS's 10-years of automatic updates offers longer-term stability and security, all while minimizing cost and e-waste associated with hardware turnover.[19]

Financial sustainability: benefits for your profitability

Cost-Effective Solutions

ChromeOS offers a lower total cost of ownership, (for both hardware and software) compared to alternative operating systems and devices. And with ChromeOS Flex, customers eliminate the need for additional hardware purchases, achieving cost savings and promoting sustainability.

DID YOU KNOW?

ChromeOS devices **cost $500 less** over 3 years, delivering a net present value of $6.5 million.[1]

"By choosing ChromeOS with Cameyo, we achieved a major digital transformation, cutting operational expenses and avoiding a $15 million infrastructure refresh. The transition also accelerated performance and simplified our IT management."

- *Alyson Butler, Director of Team Member Experiences, TELUS, Canada*

ChromeOS comes pre-installed on Chromebooks and is available for your existing hardware at no cost through ChromeOS Flex. This offers a more affordable entry point, with Chromebook devices typically priced lower and updates provided free of charge.[1][2]

Built-In Third-Party Services

By leveraging ChromeOS built-in features, organizations decrease reliance on third-party solutions, including security services. This enhances security posture and lowers costs associated with purchasing, deploying, and maintaining external software.

DID YOU KNOW?

ChromeOS offers on average **USD $1.3 million** in IT management cost savings over 3 years.[1]

"Before ChromeOS, we had to travel across Mexico to install anti-virus software and upgrade operating systems. ChromeOS updates automatically, so we no longer have to worry about security issues."

- *Carlos Ramo Rodriguez, IT Director, IT Strategy, Mexico*

ChromeOS Flex brings the best of ChromeOS to give your older devices a second life

Repurpose, Don't Replace

ChromeOS Flex is an operating system by Google that enables companies to repurpose their PCs and Macs, reducing e-waste while making their existing devices run faster and more securely. By replacing an existing operating system with ChromeOS Flex, enterprises can extend the hardware lifespan, promoting sustainability through responsible resource usage and disposal practices.

Competing operating systems do not offer native solutions like ChromeOS Flex for repurposing devices. In fact, competing operating systems often accelerate device refreshes by prematurely raising their hardware requirements. This practice makes perfectly good devices obsolete, turning them into a prime target for e-waste and forcing additional expenses on business.

DID YOU KNOW?

By allowing businesses to give their existing devices a new life, and increasing the efficiency of devices in use, ChromeOS Flex can **reduce emissions by 83%, enable cost-savings of up to 96% and eliminate 100% of e-waste** — all in the first year.[20]

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Success story: How Strawberry Hotels harnesses ChromeOS Flex to benefit people, planet, and profit

Success story: How Strawberry Hotels harnesses ChromeOS Flex to benefit people, planet, and profit

Strawberry Hotels (previously Nordic Choice), one of the largest hotel companies in Scandinavia, embarked on a digital transformation journey by integrating ChromeOS Flex in 2021. The switch to ChromeOS Flex was driven by a desire to extend the lifespan of their devices and integrate more seamlessly with their existing Google Workspace ecosystem. The decision was further solidified by ChromeOS Flex's leading security features, cloud-first architecture, and operational efficiency potential.

> ***"ChromeOS Flex just works. There's much less downtime waiting for updates to finish, or worrying about the battery dying on our older devices (thanks to the energy savings). It also just feels more secure for our employees, we're less afraid that at any moment someone might cripple the organization because they clicked a bad link in an email."***
>
> - *Kjetil Neergaard, Green Tech Manager, Strawberry Hotel, Norway*

Although Strawberry Hotels had set environmental sustainability goals, they were forced to act even more swiftly when a ransomware attack compromised over 90% of their 5,000 computers across 220 hotels overnight. By deploying ChromeOS Flex to these existing devices, they restored essential customer service functions in under 48 hours and avoided 4-6 weeks of critical downtime. This action not only showcases ChromeOS Flex's security capabilities, but also how vital it is in keeping business operations running smoothly.

> ***"We got all the customer systems up in 48 hours. Then we decided to fast-track ChromeOS Flex for as many computers as we could, and that would be our top priority. And that basically saved us from four to six weeks of work."***
>
> - *Kari Anna Fiskvik, VP of Technology, Strawberry Hotels, Norway*

ChromeOS Flex was crucial in the hotel chain's security and sustainability, extending device life by 60-80%, reducing power consumption by 20%, and saving 1.5M Kgs of CO_2 — equivalent to 2,000 forest acres. Beyond sustainability, ChromeOS Flex also yielded USD $700-800k in annual savings, demonstrating true benefits across the triple bottom line model.

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How to
get started

How to get started

We've explored the impacts of ChromeOS across education and hospitality sectors, now discover how you can integrate ChromeOS into your business, regardless of the industry. To get started, here are the three things you need to know.

01

Evaluate your organization's current tech stack

How many devices does your organization have in use? Could any of those devices be revitalized with ChromeOS Flex? We have a dedicated team actively certifying devices, and you can check our list here.

02

Contact a Google representative to understand the best options for your business:

a. Understand how ChromeOS and ChromeOS Flex could be beneficial for your business.

b. Try it out for yourself. All you need is a USB drive to install ChromeOS Flex on your device, or simply boot and run from the USB to try it out before deciding to install it on your device. Get started in less than 5 minutes.

c. Discuss next steps for installation and management across your workforce.

d. Work with your ChromeOS representative to develop a change management strategy and rollout plan for your business and workforce.

03

Plan for end-of-life

a. Start incorporating the principles of circularity. Rather than leveraging a 'take-make-waste' approach, focus on keeping devices useful, productive, and profitable over time, while reducing raw materials that go into landfills.

b. Considerations for sustainability begin when devices are initially purchased. When purchasing additional hardware for your workforce, prioritize devices that are durable and easy to repair to keep your hardware functioning for as long as possible.

c. When devices reach their end of life due to hardware constraints and require disposal, ensure your enterprise is taking the steps to properly dispose of, recycle, and reuse e-waste. E-waste cannot be disposed of in regular waste bins, so a plan must be made according to local protocols and regulations to ensure toxic waste and hazardous byproducts are not leached into the environment. For more information on e-waste disposal and region- specific resources, check out Google's recycling program and recycling resources by region.

d. Learn more about e-waste in this report's "E-waste deep dive: the global picture", featuring key data highlighting regions of high e-waste production and regulatory measures for mitigation.

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E-waste deep dive:

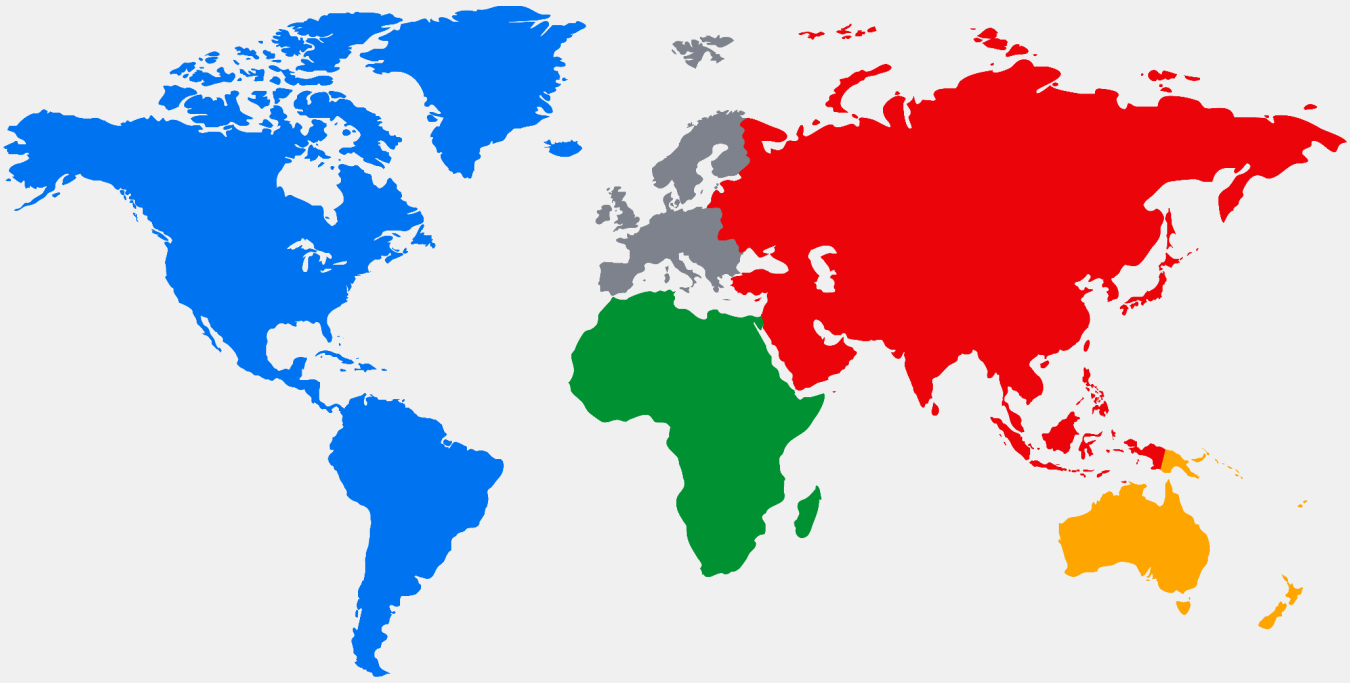
the global picture

E-waste deep dive: the impact of e-waste on the environment

What is e-waste? E-waste refers to old, end-of-life, or prematurely discarded electrical and electronic equipment that may or may not be recycled, reused, or repurposed. It can encompass anything from broken refrigerators that end up in a landfill to prematurely discarded laptops, thrown out with household waste to make room for the latest model.[21]

The scale of the global e-waste crisis is staggering, with 62 billion kg of e-waste to be discarded globally in 2022 (equivalent to an average of 7.8 kg per capita per year), of which only 22% was properly recycled.[21] In 2014, the world collectively tossed an estimated 44.4 million metric tons of unwanted e-waste — battery-powered or plug-tethered devices such as laptops, smartphones and televisions. By 2030, that number is projected to grow to about 74.7 million tons. That's roughly equivalent to eight times the weight of China's Three Gorges Dam.[22]

Global E-Waste Emissions Per Capita & Recycling Rates (2022)[23]



Americas
♻ 14.1 kg
♻ 30%

Europe
♻ 17.6 kg
♻ 42.8%

Africa
♻ 2.5 kg
♻ 0.7%

Asia
♻ 5.6 kg
♻ 11.8%

Oceania
♻ 16.1 kg
♻ 41.4%

♻ *e-waste generated per capita, in KG*

♻ *annual e-waste formal collection and recycling rate, in 2022*

What's the impact of e-waste? By weight, laptops and similar devices account for more than 10% of global e-waste and currently, only 22.3% of it is properly recycled.[23] The global implications of e-waste are alarming, affecting our environment, economy, and society:

Environment

Improper e-waste disposal has far-reaching environmental consequences, primarily due to pollution and climate change. It is responsible for approximately **70%** of reported hazardous toxicants in the environment.[24]

Economy

In 2022, the estimated value of metals embedded in global e-waste was approximately **$91 billion**. If the single state of Minnesota recycles all of the e-waste it produces, approximately 266 million pounds of e-waste every year, it will recover 78 million pounds of valuable materials, which will cost over $2.8 billion annually.[25]

Society

16.5 million children were working in the industrial sector in 2020, of which waste processing is a subsector. According to the latest global estimates of the total number of informal waste workers, anywhere between **2.9 and 12.9 million women** are working in the informal waste sector. This potentially exposes them to hazardous substances from e-waste.[26]

E-waste deep dive: regional e-waste deep-dives

In this section, we'll explore how seven different countries are being affected by e-waste, and what their current mitigation strategies are to address this pressing problem. Note that these are not Google-specific or ChromeOS-specific metrics, but rather a global view of e-waste.

Global E-Waste Data (2022)[23]

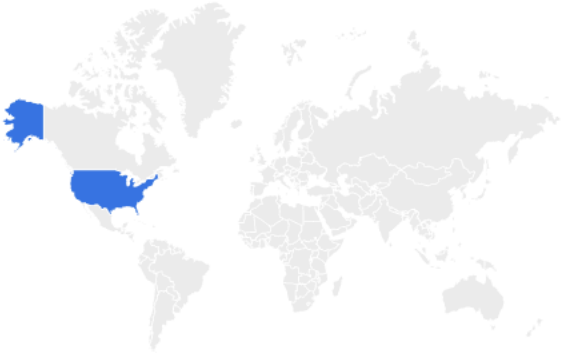
	Total E-waste Generated (Million KG)	E-waste Generated Per Capita (Kg / Capita)	Total E-waste Recycled (Million KG)	E-waste Recycling Rate (%)	Total Laptops in Landfill[28]
United States	7,188M	21.3 kg	4,052M	56%	50.9M
United Kingdom	1,652M	24.5 kg	501M	30%	3.5M
Germany	1,767M	21.2 kg	956M	54%	4.0M
France	1,445M	22.4 kg	860M	60%	3.1M
Australia	583M	22.4 kg	292M	50%	3.4M
India	4,137M	2.9 kg	59M	1%	10.2M
Japan	2,638M	21.2 kg	613M	23%	8.2M

Red signifies countries facing e-waste challenges, while green highlights those performing well in e-waste management.

United States

Impact Of E-Waste

The US is facing a substantial e-waste crisis, being the second-largest producer of e-waste in the world.



Total E-Waste Generated

7.2B Kg of e-waste is generated annually; the US is the second-largest producer of e-waste by volume, trailing only behind China.

E-Waste Recycled

56% of e-waste is recycled, which makes it one of the developed countries with **the highest e-waste recycling rates.**

E-Waste Generated Per Capita

21.3 kg of e-waste per person annually, equivalent to **35,263 times the weight of the Statue of Liberty.**

Laptops in Landfill

51M laptops end up in landfills every year, instead of being recycled or reused, according to Accenture.

Did you know?

Imagine if only 5% of these laptops were given a second life with ChromeOS Flex, we could save 6,357 tons of e-waste or the weight of about **14 Boeing 747-8 planes.**

Regulatory Response and Initiatives

In the US, e-waste is mainly managed by state-level regulations rather than national laws, with 25 states and the District of Columbia having specific regulations affecting 75-80% of the population.

Many states have adopted Extended Producer Responsibility (EPR) laws, requiring producers to manage the lifecycle of electronic products, including recycling and disposal. However, this results in varied approaches and lacks a unified national strategy.

Source: 22, 27, 32

United Kingdom

Impact Of E-Waste

The UK, one of Europe and the world's highest per capita e-waste producers, is confronting a significant e-waste crisis.

Total E-Waste Generated

1.6B Kg of e-waste is generated by the UK every year, equivalent to **128 times the weight of The Shard in London.**

E-Waste Recycled

30% of e-waste is recycled, which is considerably lower than other EU countries such as France and Germany.

E-Waste Generated Per Capita

24.5 kg of e-waste per person per year, the UK has one of the highest amounts of e-waste generated per capita.

Laptops in Landfill

3.5M laptops end up in landfills every year instead of being recycled or reused, according to Accenture.

Did you know?
Imagine if only 5% of these laptops were given a second life with ChromeOS Flex, we could save 439 tons of e-waste or the weight of about
36 double-decker London buses.

Regulatory Response and Initiatives

The UK entered into the EU's Waste Electrical and Electronic Equipment directive (WEEE) pre-Brexit. The directive's aim is to reduce e-waste through efforts to increase reuse, recycle and recovery. This directive covers 100% of the UK's population. This directive is akin to an EPR model, where producers are financially responsible for the collection, treatment, and recycling of e-waste. The UK has also defined a producer compliance scheme to facilitate the management and recycling of e-waste.

Source: 20, 24, 28

Germany

Impact Of E-Waste

Germany, known for stringent e-waste regulation, faces the challenge of maintaining e-waste control in the future.

Total E-Waste Generated

1.8B Kg of e-waste is generated by Germany annually (some of the most by any other European country); equivalent to **39 times the weight of the Titanic**.

E-Waste Recycled

54% of e-waste is recycled, a high number, similar to recycling other rates seen across Europe.

E-Waste Generated Per Capita

21.2 kg of e-waste per person per year, on par with other European countries studied.

Laptops in Landfill

4M laptops will end up in a landfill every year instead of being recycled or reused, according to Accenture.

Did you know?

Imagine if only 5% of these laptops were given a second life with ChromeOS Flex, we could save 505 tons of e-waste or the weight of about **490 European bison.**

Regulatory Response and Initiatives

Germany is recognized for its rigorous implementation and amendment of the EU's WEEE into a proprietary framework called the German Electrical and Electronic Equipment Act (ElektroG). Within this framework, it covers 100% of its population, producers are held accountable for entire lifecycle management of their products. This comprehensive approach means producers are also responsible for end-of-life take-back and recycling, an approach developed to ensure a high level of environmental protection.

Source: 20, 24, 28

France

Impact Of E-Waste

France, despite its high e-waste emissions, benefits from strict EU regulations to keep its e-waste crisis in check.

Total E-Waste Generated

1.4B Kg of e-waste is generated by France annually; equivalent to **139 times the weight of the Eiffel tower.**

E-Waste Recycled

60% of e-waste is recycled, one of the highest recycling rates amongst evaluated countries.

E-Waste Generated Per Capita

22.4 kg of e-waste per person per year, an emissions rate on par with European neighbors.

Laptops in Landfill

3.1M laptops will end up in a landfill every year instead of being recycled or reused, according to Accenture.

Did you know?

Imagine if only 5% of these laptops were given a second life with ChromeOS Flex, we could save 392 tons of e-waste or the weight of about **30 high speed French trains (TGV).**

Regulatory Response and Initiatives

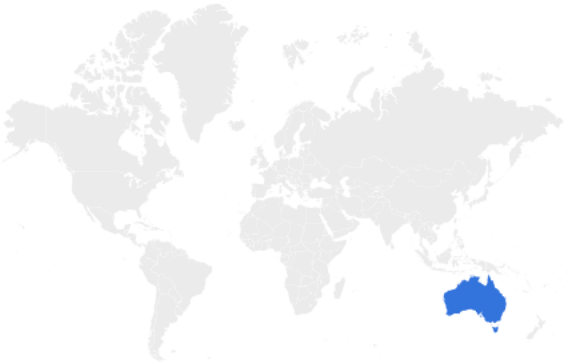
In response to the e-waste challenge, France, along with the rest of the EU, implemented the WEEE to cover 100% of its population through an EPR model. France also introduced a set of specific national initiatives; notably, the “one-for-one” take-back scheme requiring retailers to accept a similar used item to recycle when selling a new one to a customer. France also imposes an eco-contribution tax on electronics to bring awareness and transparency to the recycling costs required to process e-waste.

Source: 20, 24, 28

Australia

Impact Of E-Waste

Australia faces a growing e-waste crisis, struggling with high per capita emissions and relatively high recycling rates.



Total E-Waste Generated

0.6B Kg of e-waste is generated by Australia every year, equivalent to **4 times the weight of the Sydney Opera House**.

E-Waste Recycled

50% of e-waste is recycled, a high number on par leading countries such as the US and in Europe.

E-Waste Generated Per Capita

22.4 kg of e-waste per person per year, on par with other developed countries such as the US and France.

Laptops in Landfill

3.4M laptops end up in a landfill every year instead of being recycled or reused, according to Accenture.

Did you know?
Imagine if only 5% of these laptops were given a second life with ChromeOS Flex, we could save 423 tons of e-waste or the weight of about **141,000 standard 6-lb surfboards.**

Regulatory Response and Initiatives

Australia's e-waste is regulated by the National Television and Computer Recycling Scheme (NTCRS), an EPR scheme with oversight on 100% of the population, that mandates manufacturers and importers to fund electronic recycling. Under this scheme, households and small businesses are supposed to get better access to recycling options.

Source: 20, 24, 28

India

Impact Of E-Waste

India, generating vast amounts of e-waste and lacking recycling measures, is crucial in the global e-waste crisis evaluation.

Total E-Waste Generated

4.1B Kg of e-waste is generated in India annually, equivalent to **410 times the weight of the Taj Mahal.**

E-Waste Recycled

>1% of e-waste is recycled, which means that most, if not all, of the e-waste ends up in landfills not being recycled properly.

E-Waste Generated Per Capita

2.9 kg of e-waste is generated per person per year, much less than other countries evaluated in this report.

Laptops in Landfill

10.2M laptops end up in a landfill every year instead of being recycled or reused, according to Accenture.

Did you know?
Imagine if only 5% of these laptops were given a second life with ChromeOS Flex, we could save 1,276 tons of e-waste or the weight of about **1,904 auto rickshaws.**

Regulatory Response and Initiatives

South Asia's e-waste management relies mostly on informal practices, despite India's legal efforts to formalize the process. India stands out with dedicated legislation and 312 authorized recyclers for ~800 kt/year, but formal recycling remains underutilized due to the dominance of informal handlers. India's E-Waste Management Rules supports the EPR model, yet weak local enforcement is resulting in low formal recycling rates.

Source: 20, 24, 28

Japan

Impact Of E-Waste

Japan, with high e-waste volumes, must be closely monitored in the e-waste crisis evaluation.

Total E-Waste Generated

2.6B Kg of e-waste is generated in Japan every year, equivalent to 21,231 times the weight of the Great Buddha of Kamakura.

E-Waste Recycled

23% of e-waste is recycled, placing it higher than the US, but still considerably behind rates in Europe.

E-Waste Generated Per Capita

21.2 kg of e-waste per person per year, on par with average emissions of other developed countries.

Laptops in Landfill

8.2M laptops will end up in a landfill in 2023 instead of being recycled or reused, according to Accenture.

Did you know?
Imagine if only 5% of these laptops were given a second life with ChromeOS Flex, we could save 1,028 tons of e-waste or the weight of about **20 Japanese bullet trains (Shinkansen).**

Regulatory Response and Initiatives

In Japan, most electronic products are collected and recycled under the Act on Recycling of Specified Kinds of Home Appliances and the Act on Promotion of Recycling of Small Waste Electrical and Electronic Equipment. Japan was one of the first countries globally to implement an EPR-based system for e-waste. Japan relies on a strong legal framework, an advanced collection system, and developed processing infrastructure. In 2016, under the Act on Recycling of Specified Kinds of Home Appliances, Japan collected 570.3 kt through official channels.

Source: 20, 24, 28

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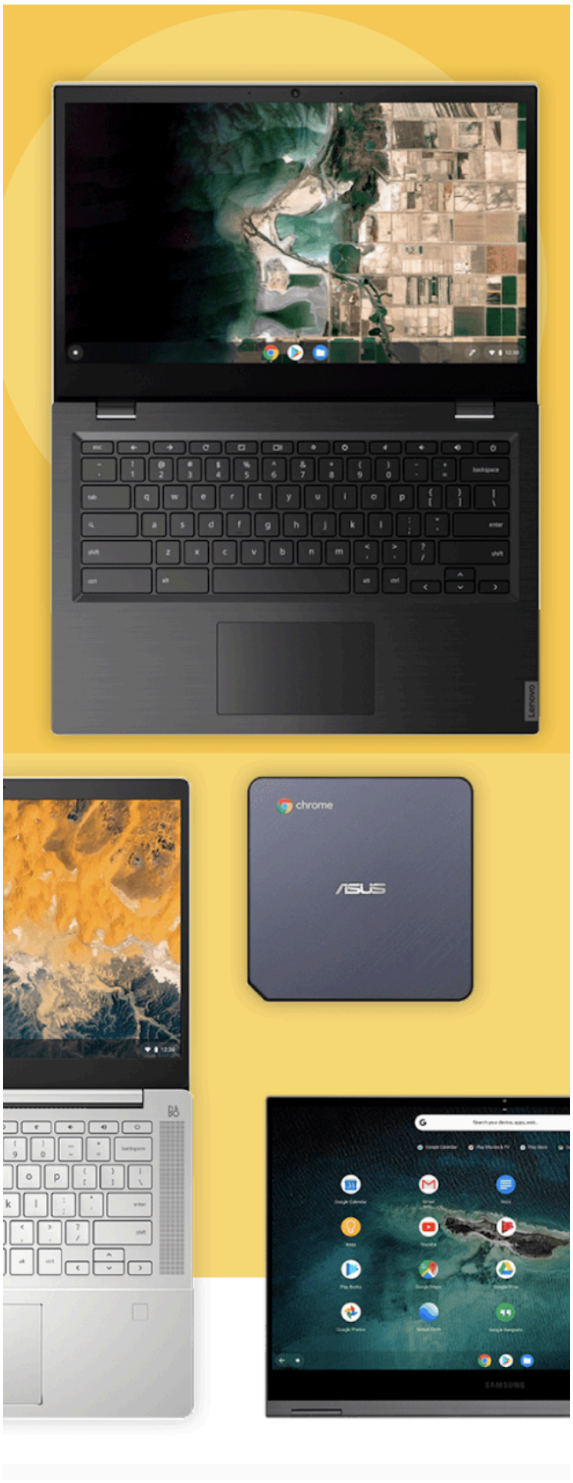

* As of 2025 there has been no evidence of any documented, successful virus attack or ransomware attack on ChromeOS. Data based on ChromeOS monitoring of various national and internal databases.