



Sustainable Devices for Positive Impact

Innovative technology solutions can
help organizations meet their business
and sustainability goals.

Contents:

• The Time to Act on Climate Change Is Now	3
• Increasing Demand for Climate Action	4
• Making a Difference with Sustainable Devices	6
• Electronic Waste and Climate Change	7
• How Dell and Intel Help Organizations Be More Sustainable	8
• In Focus: Concept Luna	12
• Dell and Intel: Partners You Can Trust	13



“The time to act on climate change is now.”

With global warming increasing temperatures at an accelerated rate, that message, from the **United Nations**, couldn't be any clearer.¹ Individuals and entire organizations, consumers and governments, corporations and business leaders—everyone needs to find a way to come together and commit to environmental sustainability.

But what does sustainability actually look like? What can a person or an organization do today to truly make a difference when it comes to climate action?

We've asked these questions ourselves at Dell Technologies, and decided the answer lies in driving innovation while holding ourselves truly accountable for our own impact.²

For us, sustainability means developing technology solutions in ethically and environmentally responsible ways. It also means working with our partners and customers to help them achieve their own sustainability goals.

Our technology and solutions are designed to reduce waste, energy use and emissions, helping our customers drive positive solutions to operate efficiently and effectively. In this eBook, we'll explain how we've made climate action central to our own path forward by developing products with sustainability built in. And we'll explain why this should matter to you as you push for sustainability in your organization.

The fact is that a focus on sustainability extends beyond the impact a company can have on the environment. With consumers and investors, employees and business partners expecting to see commitment and actions in this area, your corporate reputation is at stake as well.

Sustainable devices can't make an organization environmentally sustainable on their own. What they can do, however, is help your organization take a significant step in a more sustainable direction.





Increasing Demand for Climate Action

The UN may have the loudest voice in sounding the alarm about climate change, but it's hardly the only organization pressuring corporations to embrace sustainability.

The nonprofit World Resources Institute (WRI) has noted that the global industrial sector accounts for **40 percent** of all greenhouse gas emissions, and has called for policymakers and business leaders to adopt new strategies for decarbonization. This includes solutions that improve energy efficiency and procurement policies that accelerate deployment of “lower-carbon” technologies.³ Among those echoing the WRI are technology-focused organizations like the **WEEE Forum** and the sustainability-verification agency, **TCO Certified**.

The WEEE Forum is “driving the transformation to the circular economy” in the electronic equipment center,⁴ while TCO Certified independently verifies that IT products are produced in environmentally and socially sustainable ways.⁵ Leveraging new rules and regulations passed in the wake of the Paris Agreement—the international treaty on climate change adopted in 2015—these and other organizations have had great success in persuading corporations to adopt new sustainability measures.

What is a Circular Economy?

The U.S. Environmental Protection Agency defines a circular economy as one that “reduces material use, redesigns materials, products, and services to be less resource intensive, and recaptures ‘waste’ as a resource to manufacture new materials and products.”⁶ The Ellen MacArthur Foundation defines the concept as “a systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution.”⁷

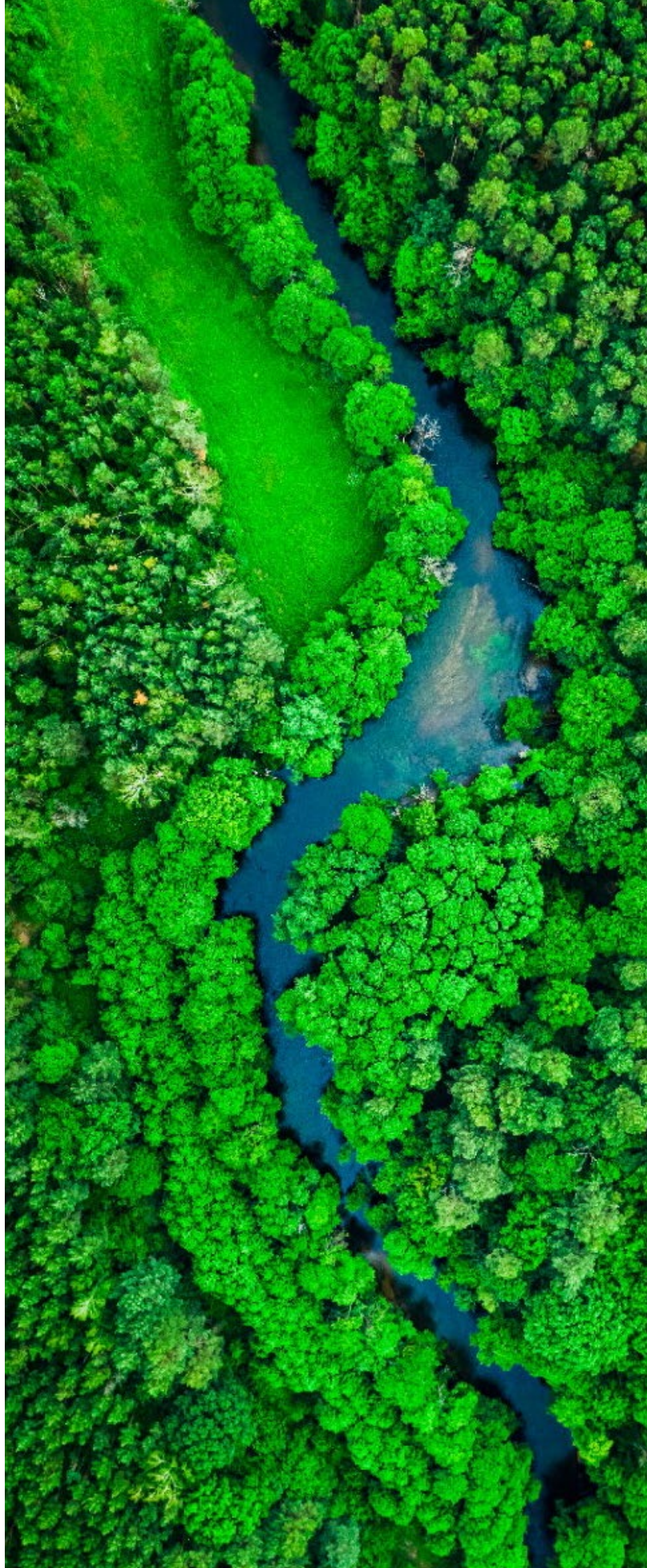
Material recovery—and maintaining circularity—is important to the fight against climate change because nearly half of global greenhouse gas emissions are produced in the mining and processing of natural resources, the EPA notes.

When it comes to IT devices and circularity, the World Economic Forum has said that “transitioning the electronics sector to circular practices is complex but necessary for a more sustainable future.”⁸

And yet it's not just legislators and advocacy organizations that are pushing for greater sustainability. Joining them are legions of consumers, business partners, and corporate stakeholders, many of whom are now on the same page. One 2021 survey, for example, found that 85 percent of consumers globally had shifted their purchasing behaviors to become more sustainable.⁹ And this insight from a recent analysis by Gartner: "The pressure on organizations to meet environmental, social and governance (ESG) criteria is more widespread than most finance leaders might realize."¹⁰

Nearly 9 in 10
investors now
include corporate
ESG compliance
as a factor in
their investment
decisions, Gartner
reported.

And finally, providing pressure from the inside, is employee sentiment around climate action. One recent survey found that 83 percent of workers think their employer isn't doing enough to address sustainability; and that 65 percent said they would prefer to work at an organization with strong environmental policies.¹¹





Making a Difference with Sustainable Devices

While every organization must decide for itself how to become more sustainable, there's no question that IT is a relatively important and easy place to start. The technologies an organization deploys are not just key to its daily operations; everything from how they're made to how they're managed and replaced has an environmental impact.

Also, part of the IT calculation: the fact that most employees would prefer to work with more sustainable technologies.

A 2020 survey of 4,000 workers, for example, found that 46 percent felt their employers should provide them with "green technology" to do their jobs. Among the key features these workers expected in their devices are durability (46%), energy efficiency (45%), and environmentally friendly packaging and manufacturing processes (34%).¹²

This suggests deployment of sustainable technologies could factor into an organization's ability to attract and retain talent. If the skilled and experienced workers you need would prefer to work at companies where sustainability is a priority, investing in a sustainable IT infrastructure is likely to help your cause.



7 in 10

technology end users would prefer to use "sustainable devices"



Younger employees
(Gen Z and Millennials) are

twice as likely

as older workers to care about device sustainability¹³

Electronic Waste and Climate Change

The **World Health Organization** has noted that collection and recycling of electronic waste “is key to protect the environment and reduce climate emissions.” In fact, one study by the **Global E-waste Statistics Partnership** found the recycling of just 17 percent of global e-waste—the proportion recycled globally in 2019—prevented the release of 15 million metric tons of carbon dioxide into the environment.¹⁴

According to the WEEE Forum, worldwide e-waste generation amounts to more than 57 million metric tons annually.¹⁵

The Environmental Protection Agency suggests that better electronics stewardship is critical to solving the e-waste problem, and has called on manufacturers to address the issue in a variety of ways:¹⁶



Electronics materials: Resources used for electronics production typically include raw or virgin materials requiring energy-intensive and emissions-releasing mining, transport, and processing. “Source reducing raw materials can save natural resources, conserve energy and reduce pollution,” the EPA notes.



Supply chain and development: The negative impact of electronics manufacturing on the environment can be reduced when products are made with fewer materials, with recycled materials, and with materials that last longer and are recyclable themselves.



Procurement: According to the EPA, “the first step in using electronics sustainably involves purchasing equipment that has been designed with environmentally preferable attributes.”



Collection/Reuse/Refurbish/Recycling: Manufacturer take-back programs can ensure that used electronics are managed, recycled, or reused responsibly.

How Dell and Intel Help Organizations Be More Sustainable

In the remainder of this eBook, we'll show you how we've evolved our own technologies to meet the sustainability needs of organizations like yours. We've reimagined and redesigned our IT solutions to slash electricity requirements, make better use of sustainable materials, and cut waste out of the manufacturing process. Drawing on our partnership with Intel, our goal today is to not only make devices with the power and performance that organizations need to succeed; it's also to ensure these solutions are sustainable and can help others be sustainable as well.

What's behind climate goals?

To understand the sustainability initiatives that we have underway at Dell and Intel, it's important to first understand how greenhouse gas (GHG) emissions are measured and classified.

The most commonly used GHG accounting standards come from a group called **Greenhouse Gas Protocol**. The GHG Protocol "Corporate Standard" provides a way for corporations to categorize emissions under three "scopes."¹⁷

Scope 1

Direct emissions from company-owned or-controlled sources.

Example: Emissions from the burning of fuel used by a company-owned truck.

Scope 2

Indirect emissions from the generation of purchased energy.

Example: Emissions released by the utility company providing electricity to the organization.

Scope 3

Indirect emissions from all other aspects of a company's operations, both up and down the value chain.

Example: Emissions created in the manufacturing of a product.

At Dell, we've committed to reaching net zero GHG emissions across all three scopes by 2050.

Along the way, we will:

- We will reduce scopes 1 and 2 GHG emissions by 50% by 2030 (SBTi approved.)
- We will source 75% of electricity from renewable sources across all Dell Technologies global facilities by 2030—and 100% by 2040.
- We will reduce absolute scope 3 GHG emissions from purchased goods and services by 45% by 2030
- We will reduce absolute scope 3 GHG emissions associated with the use of sold products by 30% by 2030

Intel has committed to net zero GHG emission across the first two scopes by 2040.¹⁸



Here are just a few of the ways we're working to make progress on these goals in our products:

We're increasing our energy efficiency.

Our partner Intel, who manufactures leading edge technology for our computer devices, is increasing the energy efficiency of its products to reduce overall power consumption. These gains are attainable thanks to innovations in their Core hybrid architecture, which allows the processor to prioritize tasks based on workload usage and offload background tasks to new efficiency cores, making the compute capabilities much more efficient.

Innovations in layout, selection and modularity of internal components also allow for smaller mainboards.

Intel vPro®: Dell Commercial PCs powered by the Intel vPro® platform are among the most energy-efficient in the business: optimized 9+ hours of use with full high definition (FHD) displays and 4+ hours of life on a 30-minute charge.



We're reducing our product carbon footprint.

We're reducing greenhouse gas (GHG) emissions at every stage of the product life cycle. From raw materials extraction to manufacturing, energy intensity, packaging and shipping through to end of life.

Precision 3000 series workstations and Latitude 5000 series notebooks: These products are made with renewable bioplastics, recycled carbon fiber and ocean-bound plastics and other recycled materials.

Sustainable packaging: All new Latitude laptops and Precision mobile workstations feature packaging made from 100% recycled or renewable materials and is 100% recyclable.¹⁹



We're revolutionizing device management.

Intel vPro® platform enables sustainable management throughout the device life cycle, empowering IT organizations to reduce emissions.

Intel® Active Management Technology (AMT): Remote manageability can help IT save up 2,000 truck rolls with remote repairs.¹⁸ Allows IT departments to remotely power off or power down their PC fleet during out of hours or periods of non-use.



We're delivering innovative reuse and recovery services

Asset Recovery Services: Available in 36 countries, this offering manages the entire asset disposition process, regardless of the brand. Devices are sanitized aligned to strict industry-approved protocols and Dell prioritizes reuse of assets to minimize waste and maximize value back to the customer.

Sustainable Materials

Our use of sustainable materials helps reduce the environmental impact of making them and recycling them.



**Sustainability on
Latitude Notebooks**



**Sustainability on
Precision Workstations**



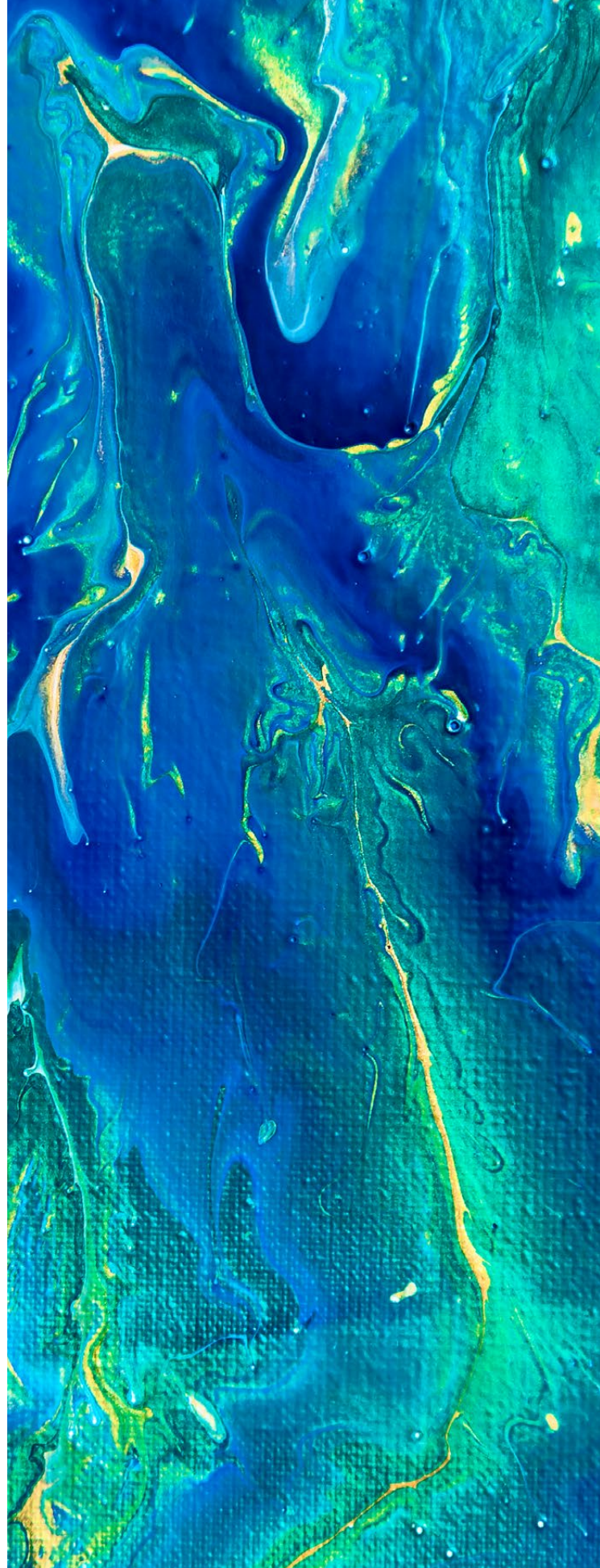
**Sustainability on
Optiplex Desktops**

“Collaboration is key if we want to find solutions to the significant environmental issues the world is grappling with. Intel has been an important partner in this regard, helping us drive joint innovation supporting motherboard optimization, development of the bio-based printed circuit board and increasing system power efficiency in Concept Luna, our prototype exploring the future of sustainable PC design. The ambition behind this ongoing work is to test, prove and evaluate opportunities to roll out innovative, sustainable design ideas at scale across our portfolio—it’s the only way we will sufficiently accelerate the circular economy and protect our planet for the generations to come.”

**Glen Robson, chief technology officer,
Client Solutions Group, Dell Technologies**

“The impact of climate change is an urgent global threat. Protecting our planet demands immediate action and fresh thinking about how the world operates. As one of the world’s leading semiconductor design and manufacturing companies, Intel is in a unique position to make a difference not only in our own operations, but in a way that makes it easier for customers, partners and our whole value chain to take meaningful action too.”

**Pat Gelsinger, chief executive officer,
Intel**



In Focus: Concept Luna

In 2021—with the help of Intel— we pushed the boundaries of laptop design with the first iteration of Concept Luna, a prototype that explores making components more accessible, replaceable and reusable.

Intel was integral in supporting main board optimization, battery exploration, and opportunities to increase power efficiency.

The project helps Dell Technologies assess sustainable design ideas to identify which have the greatest potential to scale up across our portfolio

When compared with a similar laptop in Dell's current portfolio, Concept Luna boasts:

50%

overall reduction in carbon footprint

10x fewer

screws for easy access to internal components

75%

reduction in the size of the motherboard

Low-carbon aluminum chassis

processed using hydropower

Dell Technologies: First Steps to Advancing Sustainability

At Dell, we've been committed to driving sustainability for decades. We've accomplished some industry-first milestones and are using that leadership as we continue to make progress for the future.

2014: First company in the industry to launch a UL Environment-certified closed-loop-plastics supply chain (recovering plastics from e-waste and recycling it for use in new parts for new computers).²⁰

2017: First company in the industry to use ocean-bound plastics to create commercial-scale packaging.²¹ We work with suppliers to collect, process, and mix plastics with other recycled materials to create molded trays used for packaging select products.

2018-2020: Expanded our closed-loop processes to include rare-earth magnets and aluminum.

2021: Introduced the first PC made with bioplastics (derived from a byproduct of the paper-making process).²²

2030: We will achieve our goal to reuse or recycle an equivalent product for every product we sell. 100% of packaging and over half of our product content will be made from recycled or renewable material.



Dell and Intel: Partners You Can Trust

As your organization moves toward greater sustainability, it's important to work with partners who are ready to move with you. Dell and Intel aren't the only companies innovating in the technology space, but we are among the leaders driving innovation to design and manufacture sustainable devices.

Our aligned commitments to sustainability are focused on minimizing our impact on the planet and society while helping our customers achieve their own environmental goals through products and services that are designed to reduce waste, energy intensity and emissions. Driving sustainable computing is one way we can do this today, for a more sustainable tomorrow.

We're reimagining and redesigning our technologies to make a positive impact on the world. As you work to advance your own sustainability goals, we hope you'll consider partnering with us.



Learn more about Dell and Intel's commitment to sustainability at [Dell Sustainable Devices](#) and [Intel.com](#).

Sources

1. IPCC (April 2002) “The evidence is clear: the time for action is now. We can halve emissions by 2030”. Available at: <https://www.ipcc.ch/2022/04/04/ipcc-ar6-wgiii-pressrelease/>.
2. Dell Technologies (January 2022) “FY22 Environmental, Social and Governance Report”. Available at: <https://www.dell.com/en-us/dt/corporate/social-impact/esg-resources/reports/fy22-esg-report.htm#pdfoverlay=//www.delltechnologies.com/asset/en-us/solutions/business-solutions/briefs-summaries/delltechnologiesfy22-esg-report.pdf>.
3. World Resources Institute (2023). “Industrial Innovation & Decarbonization,” Available at: <https://www.wri.org/initiatives/industrial-innovation-decarbonization>.
4. WEEE Forum (c2019). Available at: <https://weee-forum.org/projects-campaigns-overview/>.
5. TCO Certified (c2023). Available at: <https://tcocertified.com/tco-certified/>.
6. U.S. Environmental Protection Agency. “What is a Circular Economy?”. Available at: <https://www.epa.gov/recyclingstrategy/what-circular-economy#:~:text=A%20circular%20economy%20reduces%20material,manufacture%20new%20materials%20and%20>.
7. Ellen MacArthur Foundation (2021) Circular Economy Introduction at: <https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview?>.
8. World Economic Forum (May 2021). “Electronics can trigger a more circular, sustainable world—here’s how,” Available at: <https://www.weforum.org/agenda/2021/05/electronics-can-trigger-a-more-circular-sustainable-world-here-s-how/>.
9. BusinessWire (October 2021). “Recent Study Reveals More than a Third of Global Consumers are Willing to Pay More for Sustainability as Demand Grows for Environmentally-Friendly Alternatives”. Available at: <https://www.businesswire.com/news/home/20211014005090/en/Recent-Study-Reveals-More-Than-a-Third-of-Global-Consumers-Are-Willing-to-Pay-More-for-Sustainability-as-Demand-Grows-for-Environmentally-Friendly-Alternatives>.
10. Gartner (June 2021). “The ESG Imperative: 7 Factors for Finance Leaders to Consider,” Available at: <https://www.gartner.com/smarterwithgartner/the-esg-imperative-7-factors-for-finance-leaders-to-consider>.
11. Unily (2020). “Future of the sustainable workplace in the age of COVID-19 and climate change,”. Available at: <https://www.unily.com/insights/guides/future-of-the-sustainable-workplace-in-the-age-of-covid-19-and-climate-change>.
12. Insight (December 2020). “Workers demand green office technology from their employers,”. Available at: <https://workplaceinsight.net/workers-demand-green-office-technology-from-their-employers/>.
13. Enterprise Strategy Group report commissioned by Dell Technologies. “How organizations drive business results and employee empowerment with leading digital work technology,”. June 2022. Available at: <https://www.dell.com/en-us/dt/unified-workspace/index.htm#pdf-overlay=//www.delltechnologies.com/asset/enus/solutions/business-solutions/industry-market/how-organizations-drive-employee-empowerment-and-businessresults-with-leading-digital-work-technology.pdf>.
14. World Health Organization (June 2021). “Soaring e-waste affects the health of millions of children, WHO warns,”. Available at: <https://www.who.int/news/item/15-06-2021-soaring-e-waste-affects-the-health-of-millions-of-children-who-warns>.
15. WEEE Forum (October 2022). “International E-Waste Day,”. Available at: <https://weee-forum.org/iewd-about/>.

Sources

16. U.S. EPA (Last Updated 28 Dec 2022). "Basic Information about Electronics Stewardship," Available at: <https://www.epa.gov/smm-electronics/basic-information-about-electronics-stewardship>.
17. Greenhouse Gas Protocol (Last modified 19 Jan 2023). "Corporate Standard,". Available at: <https://ghgprotocol.org/corporate-standard>.
18. Intel (c2022). "Corporate Social Responsibility Report". Available at: <https://www.intel.com/content/www/us/en/corporate-responsibility/corporate-responsibility.html>.
19. Approximately 95% recycled content and 5% renewable content in the form of FSC paper fibers. Excludes optional items added to order and included in box. Paper packaging materials can be recycled via municipal recycling, where available. System bag is made from recycled plastic and can be recycled along with other thin plastics.
20. UL Solutions (May 2014). "UL Environment Awards First Closed Loop Validation to Dell,". Available at: <https://www.ul.com/news/ul-environment-awards-first-closed-loop-validation-dell>.
21. Dell Technologies (February 2017). "Why Combating Ocean Plastics is our Business,". Available at: <https://www.dell.com/en-us/blog/why-combating-ocean-plastics-is-our-business>.
22. Based on Dell analysis, January 2021. 21% bioplastics in LCD coverlid - 21% bioplastic + 30% PCR plastic + 20% reclaimed carbon fiber = 71% recycled or renewable materials in the lid.