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Digitally-enabled Environmental Sustainability Priorities for Policymakers

Introduction

Last year, we presented the next generation of Cisco's corporate environmental sustainability strategy: "The Plan for Possible." At a time when climate change is amplifying natural disasters, food shortages, and mass migrations, Cisco is embedding sustainability into the way we operate.

There is a business imperative to act for industry. Our 2023 **Cisco Broadband survey revealed that 65% of consumers in EMEA are now concerned about the carbon footprint of their broadband,** with young people the most concerned. In addition, 77% said they would be willing to pay more for sustainable broadband.[1] This supports a wider market trend, showing[2] widespread consumer awareness around the environmental impact of the products they use and a demand for companies to step up and mitigate their impact on the planet.

Governments across the world have also recognized the imperative to address environmental challenges. Nearly 200 governments have joined the **UNFCCC Paris Agreement, the leading international treaty on climate change.** The European Union has passed the European Climate Law, driving Europe to become the first climate-neutral continent by 2050. In a historic move, the United States enacted in 2022 the Inflation Reduction Act, marking the most significant action the US Congress has taken on clean energy and climate change in the nation's history. The Asia-Pacific region also has many climate and environmental, social, and governance (ESG) initiatives on the rise, including ESG reporting, carbon emissions management and supply chain due diligence.[3]

[1]Cisco, "Cisco Survey Reveals: As Consumers Shift Towards A 'Smarter' Digital Life, Reliability, Security and Sustainability Emerge as Key Needs", 14 July 2023, https://investor.cisco.com/news/news-details/2023/Cisco-Survey-Reveals-As-Consumers-Shift-Towards-A-Smarter-Digital-Life-Reliability-Security-and-Sustainability-Emerge-as-Key-Needs/default.aspx. The Cisco Broadband Survey is based on a survey of 21,629 workers across 12 EMEA countries completed during January and February 2023. The sample included respondents based in every region of each country, who either work full-time remotely; full-time in an office; hybrid, between home and the office; or on the frontline.

[2]2019 survey by Nielsen and a 2022 survey by Globescan

[3]Goldman Sachs Equity Research, "A new era for ESG in Asia-Pacific", February 2022, https://www.goldmansachs.com/ intelligence/pages/gs-research/gs-sustain-our-analysis-of-apac-esg-regulation/report-new-era.pdf

However, more can be done to support the sustainable and digital agenda, incentivize industrial success and create positive social impact There remains ample room for improvement in aligning the green and digital agendas, catalyzing industrial success and fostering positive social impact through thoughtful regulation.

In 2024, we will have the biggest election year in history, featuring seven of the ten most populated nations in the world.[4] As we stand at a significant crossroad for global governance, Cisco's next-generation corporate environmental sustainability strategy, The **Plan for Possible, provides insights for policymakers** who will be tasked with the crucial responsibility of addressing the effects of climate change while fostering economic prosperity and enhancing social well-being. The Cisco strategy lays out **three priorities: accelerate the transition to clean energy, evolve to a regenerative circular model, and invest in resilient ecosystems.** In this paper, we lay out our policy recommendations to help achieve these priorities. While industry has an essential role to play, public policies and regulation are critical drivers to make a positive impact at scale.

"Technology can be a driving force behind organizations' transformation to sustainable practices and value chains. We need the right public policy and technological innovation to enable organizations to rethink their business models to be both digitally advanced and low carbon. Cisco is determined to innovate and support public policies that make a positive difference for future generations."

– Pastora Valero
Senior Vice President, International Government Affairs, Cisco

[4]Time, "The Ultimate Election Year: All the Elections Around the World in 2024", 28 December 2023, https://time.com/6550920/world-elections-2024/

1. Accelerate the transition to clean energy and greater energy efficiency

To power the world with renewables, **the grid urgently requires updated digital infrastructure that connects diverse, decentralized sources of clean energy.** Electric grids must now handle more distributed and variable energy sources from renewables. They must be ready to face dramatic environmental impacts, such as forest fires and extreme weather conditions that can damage the grid, causing blackouts for days.

Energy utilities **face the demands of a rapidly transforming industry, including challenges related to reliability and availability of power, stringent security regulations, and power grid management requirements.**

Utilities **are the foundational catalyst of the global energy transition.** They are the backbone of the transformation of the energy ecosystem, as they empower other industrial entities to enhance their resilience and reduce their emissions footprint through the use of renewable energy. Digitalization of the energy sector is crucial to its decarbonization and to surmount related challenges.

The rise of artificial intelligence (AI) is adding to this urgency. AI offers many opportunities, but it also requires significant amounts of energy and is straining our existing electrical grids. A January 2024 report from the International Energy Agency says electricity consumption from data centers, AI and the cryptocurrency sector could double by 2026.

For most B2B information and communications technology (ICT) companies, the biggest source of emissions comes from the electricity used to power their technology—including the products they sell or the facilities they operate. To make progress toward our goal to reach net zero greenhouse gas (GHG) emissions across our value chain by 2040, Cisco has **prioritized 3 areas: energy efficiency innovation in products; connecting clean energy to the grid; and collaborating with our customers, partners, and suppliers to accelerate the transition to renewable sources of energy.**

The "green and digital" transformation is a dual challenge that public and private sectors **must come together to solve, by creating, developing, enabling and investing in technology solutions to reduce carbon emissions.** By working collaboratively, policymakers and utilities can advance their net zero goals.

Not only can technology help solve long-term challenges, but it can also support resilience in the face of extreme weather events by creating digital redundancy in energy systems, securing cyber ecosystems, and improving cooling efficiency in data centers.

While rethinking energy and the way we work and live, public policies that further enable **hybrid and remote work** should be part of the solution. According to a 2023 peer-reviewed study in the US,[5] the shift towards hybrid work and working from home could reduce a remote worker's carbon footprint by up to 58% compared to on-site workers.

[5]Y. Tao, L. Yang, S. Jaffe, F. You, "Climate mitigation potentials of teleworking are sensitive to changes in lifestyle and workplace rather than ICT usage", 18 September 2023, https://www.pnas.org/doi/full/10.1073/pnas.2304099120

The study finds that as office energy use is the main contributor to the carbon footprint of on-site and hybrid workers, remote workers could reduce greenhouse gas (GHG) emissions by half compared to on-site workers. The study recommends shifting the focus from ICT products' energy consumption to decarbonizing commutes, rethinking facilities' size, and increasing renewable energy use for office buildings to reduce offices' carbon footprint.

Smart buildings, hybrid work, smart transportation, smart cities, and smart grids are all examples of how the strategic deployment of ICT can be leveraged to help reduce carbon emissions as a whole.

Clean Energy Transition in Action

Data Centers: Data center power consumption can be 10 to 50 times the energy per floor space of a typical commercial office building.[1] At the same time, data centers are replacing more carbon-intensive activities in the economy. The strategic deployment of ICT can support positive environmental outcomes through dematerialization and decarbonization of more energy-intensive sectors (e.g., e-books, digital goods and services). Cisco enables Data Center IT to support network growth and performance with energy efficiency and product lifecycle management in mind, helping to build, deploy, and operate more energy efficient data centers, in line with regulators' objectives to address the sustainability impact of the infrastructure.

Smart buildings: Buildings account for 30% of global final energy consumption and 26% of global energy-related emissions.[2] This, tied to variability in building occupancy and mobility, means organizations often have under-used space that is set up inefficiently. This can accelerate the need for real estate transformation to achieve national climate objectives, which cannot be achieved effectively without technology. Cisco can help IT, Real Estate, and Facilities to support smarter buildings and workspaces by consolidating power and data networks, supporting smart environment automation, and improving space utilization.

[1]Source: US Department of Energy

[2]Source: IEA

Recommendations for Policymakers:

- Intensify the collaboration between the public and private sectors to connect their sustainability and digital agendas. Concretely, we recommend including digital modernization into the rate structures of utilities to modernize, decarbonize, stabilize and secure the grid.
- Set ambitious science-based targets and attendant incentives to deliver on these targets, such as green bonds, tax rebates, and low interest loans. This should be done at local (including municipalities) and national levels to accelerate the deployment of renewable energy (i.e., solar, wind, hydropower, biomass, geothermal, and ocean), as well as the deployment of ICT in more energy-intensive deployment of ICT in more energy-intensive sectors of the economy.
- Team up with the public and private sectors to work on the methodologies and solutions accelerating the clean energy transition, such as the International Telecommunication Union (ITU)'s Green Digital Action or the European Commission-led Green Digital Coalition.
- Adopt policies that promote hybrid work.

2. Evolve to a regenerative circular model

The planet needs us to urgently accelerate the transition from a linear economy that extracts resources and eventually wastes them, to a circular one that finds new uses for products and their inputs.

According to the Ellen MacArthur Foundation report "How the Circular Economy Tackles Climate Change," transitioning to renewable energy can only address about 55% of the world's emissions. The remaining 45% is directly linked to the production of goods and the management of land, which is why better adoption of a circular approach can help complete the picture of emissions reduction by transforming the way we make and use products.

At Cisco we aim to transform our business to extend the useful life of our products and provide ongoing services. For example, we have set a goal for **100% of new Cisco products and packaging to incorporate Circular Design Principles by fiscal 2025.**[6] Our impact includes the design choices we make; the components and materials we use; the packaging used to deliver our products; the effort to optimize product energy consumption; and the ability to disassemble, repair, remanufacture, and reuse products once customers no longer need them.

Our customers are changing the way they acquire and consume software and infrastructure. The broad adoption of network automation and analytics over the last few years is resulting in **leaps forward in sustainability, agility, flexibility, and security.**

[6]The scope of this goal is limited to hardware products and associated packaging, excluding: standalone components (e.g., chassis, ASICs, Optical modules); standalone basic product accessories (e.g., power cables, brackets); Original Equipment Manufacturer products (where Cisco does not own the design); products and packaging of non-integrated acquisitions. Product and packaging designs achieving a score of 75 percent or higher are counted toward the goal.

For example, network-as-a-service is a trendwith **potential to reshape the industry over the next three to five years.** With the support of Artificial Intelligence (AI), businesses can optimize performance and minimize energy consumption, environmental impact and cost across on-premises and public cloud infrastructure environments.[7]

For instance, the "as-a-Service model" can support a circular economy by re-circulating products that come back to us. It reduces other environmental impacts by reusing products, while also supporting our customers' evolving needs.[8]

As policymakers consider evolving business models and ways to support product recirculation, it is **important to distinguish between the consumer (B2C) and business-to-business (B2B) markets.** The major differences between these markers are crucial in discussions around the "right to repair" or environmental claims.

In the B2B ICT market, product and spare part repairs (e.g., core routers, large networking equipment or data center servers) are managed in a closed-loop ecosystem, unlike for ICT consumer goods. Such repairs are done by dedicated specialized staff under repairs are done by dedicated specialized staff under contract by the manufacturer. They are trained so that data security and worker safety are not compromised.

Cisco and most B2B companies have put safety (high voltage/current), security, privacy, and Intellectual Property Rights (IPR) at the core of their repair models and are experienced with technical repair difficulties.

Cisco has programs to facilitate product returns for reuse and recycling, offer comprehensive service and repair, and remanufacture used equipment for sale through Cisco Refresh. These programs can create a second life for equipment, thereby saving resources required for new manufacturing and reducing waste.

Circular Transformation in Action

- **UCS-X servers:** For over a decade, Cisco's Unified Computing System (UCS) servers have been engineered to be sustainable by design. Built with modular, easily removable components, its upgradeable designs help to extend the use of the chassis, power supply, cooling, and other major components, and it is optimized for repair, reuse, and eventual recycling. This architecture allows the X-Series to consume roughly 50% less raw material over three generations than traditional rack servers. This product was awarded the 2023 SEAL Sustainable Product Award.
- **Cisco Takeback and Reuse Program:** Cisco facilitates product returns for end-of-use gear at no cost and processes it to its next-best use. Cisco reuses and recycles nearly 100% of the equipment that is returned, which helps our customers meet their sustainability objectives.
- **Cisco Green Pay:** Green Pay offers a 5% incentive on Cisco hardware, predictable payments for five years and free product returns.

[7]Cisco, "Organizations demand greater simplicity and cloud agility", https://www.cisco.com/c/en/us/products/collateral/as-a-service/nb-06-plus-simplified-info-cte-en.html?oid=ifgdnc025617, 2023

[8]Cisco, "CIO/IT Leader Guide: Getting started on Sustainability: white paper", August 2023, https://www.cisco.com/c/en/us/solutions/collateral/industries/csr/environmental-sustainability/getting-started-sustainability-wp.html

But these efforts require safeguards, such as clear processes and protections for shipping used products, to protect data stored on the equipment and prevent product diversion.

Recommendations for Policymakers:

- Create financial incentives for business models that extend the lifespan of products and reduce environmental impacts.
- Encourage a digital, nature-positive value chain leveraging industry's role with the right incentives such as creative financing models, co-funding or tax breaks.
- Develop and align internationally recognized standards for sustainable public procurements.
- Take into account the major differences between the B2C and B2B markets for 'right to repair' initiatives, with due consideration to B2B's existing policies and processes, contractual obligations and ecosystems.
- Support the free flow of repaired goods and spare parts for the B2B sector.
- Enable a circular economy approach in international trade, incentivizing more sustainable trade of goods and services, while looking at supporting a level playing field on the global market.

3. Invest in resilient ecosystems

Value chains benefit from resilient ecosystems, both financially and ecologically. It is in our shared interest to invest in technologies and workforces that support a regenerative economy, as well as invest in nature itself. This includes enabling communities to adapt to climate realities, cultivating skills and talent for the regenerative economy, and deploying technology to protect and restore ecosystems and biodiversity.

Operating more sustainably and equitably is the way to do business today and tomorrow. But to operate more sustainably, we also need to empower others along the way with the right tools and skills.

As an example, Cisco works with our suppliers to promote environmental stewardship practices throughout our value chain. Our products and solutions can themselves be used to monitor and manage local resources and ecosystems. Through its 10-year US $100 million commitment, the Cisco Foundation is helping to regenerate ecosystems, protect and scale natural carbon sinks, and support communities in adapting to the realities of a changing environment.

Workers and communities should be able to live on a planet that can support their livelihoods in a sustainable manner. Companies have a responsibility to prioritize workers and human rights in their supply chain. Responsible business conduct and a just transition to a low-carbon economy matter. By addressing environmental and human rights impact, companies can help ensure that the products enabling a sustainable economy are also upholding human rights across the value chain. Public-private partnerships are also key in this work, such as the European Partnership for Responsible Minerals and the collaboration on clean energy across the globe.

By setting bold goals with measurable near-term targets and internationally recognized standards, we can collectively demonstrate our progress. To achieve these goals, national policy for resilient supply chains plays a critical role. So do access to talent; sustainable access and use of raw materials and technologies; rule of law; and incentives to work collectively, rather than protectionism, localization measures, or other burdensome requirements.

Investing in resilient ecosystems

- In 2016, Cisco set a goal to positively impact one billion lives by 2025 through our social impact grants and Cisco Networking Academy programs. In 2023, we exceeded our goal – more than one year early.
- **Cisco Webex Control Hub** includes features like Office Hours and Hot Desking which can create the ability to turn off 'always on' features and optimize real estate with flexible seating options for hybrid work environments. Its Sustainability Insights feature also allows the user to view estimated energy consumption and the associated carbon emissions of Webex devices to help inform decisions on how to reduce energy usage.
- The **Cisco Foundation supports Vesta**, a hybrid nonprofit/public-benefit enterprise whose solution is to capture carbon from the atmosphere and support coastal resilience by using the mineral olivine. The carbon-capture properties and safety of olivine have been proven in lab settings. Our grant is enabling Vesta to test it in real-world circumstances – by spreading it on beaches to further assess olivine's effects on wildlife and ecosystems and the rate at which it sequesters carbon. Our support is intended to help Vesta find the best conditions for optimal sequestration and advance the technology, which will help them create a new carbon credit opportunity for $35/ton of carbon removed at full scale.

Recommendations to Policymakers:

- Encourage companies to be responsible leaders by supporting climate action and healthy ecosystems in the communities where they operate, efficiently using natural resources such as water, reducing pollution, and improving climate resilience.
- Promote industry-led initiatives and protocols to drive collective action regarding potentially adverse impacts on the environment and for human rights.
- Integrate water into industrial strategies by incentivizing water stewardship; leveraging technologies such as AI and Internet of Things (IoT) for monitoring water systems and enhancing infrastructure resilience; and encouraging public-private partnerships for water-resilient projects and for ecosystem protection and restoration — especially in water-scarce and water-stressed areas.

Conclusion

At Cisco, we want to transform challenges into opportunities together with governments, other businesses, academia and civil society. We also want to help, educate, and empower others as they embark on the journey towards net zero and circular business models.

Governments have an important role to play in defining the standards around science-based targets, transparent ESG management and reporting, and environmental and human rights due diligence. In doing so, they shouldn't lose sight of critical aspects such as alignment at the international level to help businesses scaling up their sustainability ambitions.

In parallel, we know that technology is a crucial enabler for the transition to more sustainable operations and for optimizing value chains. This is a time for thinking big and we have a plan:

- It is possible to **power the world with affordable clean energy,** and policies can help enable digitizing smart grids.
- It is possible **to evolve towards regenerative circular models and design out waste,** and policies can encourage companies to safely re-build products from used ones.
- It is possible to invest in resilient ecosystems and **strengthen nature with technology,** and policies can promote the use of digital technologies to protect ecosystems and the world's biodiversity.

What will make the difference is a strong ecosystem, the right partnerships, access to talent, and a long-term political vision to effectively mitigate climate change, resource depletion, and other environmental crises. We are convinced that sustainability is good for business and good for the world.

"Climate change, resource depletion and biodiversity loss are existential issues that no one company, country or person can solve alone. We must work together to transition our grids to clean energy, adopt circular business models, and enable communities to adapt to climate realities. We believe the public and private sector have a role to play in supporting holistic solutions that acknowledge the complex relationship between humanity and nature."

– Mary de Wysocki
Senior Vice President and Chief Sustainability Officer, Cisco