CODES
COALITION FOR DIGITAL ENVIRONMENTAL SUSTAINABILITY

Mapping Global and Regional Stakeholders
Working on Digital Sustainability

Supplement Number 2 to the CODES Action Plan for a Sustainable Planet in the Digital Age

CODES

COALITION FOR DIGITAL ENVIRONMENTAL SUSTAINABILITY

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Introduction

This Supplement Number 2 to the CODES Action Plan for a Sustainable Planet in the Digital Age reflects the outcomes of a collective intelligence process across the CODES community to map key international and regional stakeholders who are working on the 3 Systemic Shifts and associated priorities for each shift. This initial mapping serves as an preliminary baseline to inventory the organizations that should consider engaging in the CODES Action Plan as of June 2022.

The following criteria were used:

- Organization or initiative with international or regional reach and influence

- Existence of a website where activities that are contributing to the 3 shifts could be clearly identified

- Organization identified by a member of the CODES community of practice or the CODES co-champions

This stakeholder map will become a living document and additional organizations or initiatives will be added over time. The underlying database will be published as an airtable and as a Kumu map on **www.sparkblue.org/CODES**.

Further information on this map can be obtained from **CODES@un.org**

Stakeholder Mapping and Entry Points for Systemic Shift 1

Enabler 1 — Connect communities and transformations

Entry points for action:

- Government:
    - Organize and support national platforms for exchange and collaboration of stakeholders in the field of sustainability and digital transformation.

- Corporations and Finance:
    - Take a globalized view to investing in, scaling, and merging green technology innovations by actively seeking and capturing new, low-carbon business opportunities.
    - Collaborate with the governments to define how the required short and long-term financing will be mobilized to implement climate objectives and facilitate a country's transition to a low-carbon, climate-resilient economy.

- Civil Society:
    - Expand and promote interdisciplinarity in scientific efforts for sustainable and equitable AI and digital technologies.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **Secretary General's Digital Cooperation Roadmap** and the **Coalition for Digital Environmental Sustainability (CODES)** should continue to convene key stakeholders from across the digital transformation and sustainability sectors to forge collaboration and a common vision.

- **The UN Environmental Assembly (UNEA)** should consider adopting a resolution or declaration on key principles for digital sustainability based on an inclusive multi-stakeholder process.

- **The International Telecommunications Union (ITU)-T Standardization Sector**

- **The Internet Governance Forum (IGF)** should continue to support the nascent Policy Network on Environment (PNE) to recommend principles on digital governance and sustainability using a multi-stakeholder engagement process.

- **UN Environmental Management Group (EMG)** should establish a working group on digital transformation and sustainability with a view to making recommendations on a common UN-wide policy on mitigating risks and harnessing opportunities.

Enabler 2   Build digital competencies

Entry points for action:

- Government:
  - National ministries should build up their own in-house digital transformation competencies and corresponding strategies, especially within ministries on environment, energy, sustainable development and nature.
  - States should promote digital and sustainability skills in all areas of training and further education.
- Corporations and Finance:
  - Invest in the development of education and training programmes on digital sustainability.
- Civil Society:
  - Demand increased access to digital literacy.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **Atingi Digital4Sustainability Learning Programme** should progressively build out open-source training modules on the different thematic areas linked to digital transformation and sustainability. Priority should be given to addressing risks and opportunities for climate action, nature protection and pollution prevention.
- **Principles for Digital Development Training Programme** should continue to be used as core training for digital development and be expanded to include environmental sustainability considerations.
- **IEEE's Course on Digital Transformation: Moving Toward a Digital Society** should be reviewed to ensure sufficient content is included on the environmental dimensions of digital transformation
- **Open SAP: Helping Business Thrive in a Circular Economy** increase outreach efforts to relevant stakeholder groups

Enabler 3   Harness science and systems thinking

Entry points for action:

- Government:
  - Implement a global assessment process on the opportunities and risks for sustainable development and a circular economy in the digital age.

- Corporations and Finance:
  - Align business, portfolios, and strategy with the objectives of the Paris Agreement consistent with achieving a global target of net-zero emissions by 2050.
- Civil Society:
  - Implement global and national research programmes and university curricula on sustainability in the digital age.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **Future Earth** to continue expanding multi-stakeholder efforts on **Sustainability in the Digital Age** and on advancing the **Montreal Statement on Sustainability in the Digital Age**.
- **Digitalization for Sustainability – Science in Dialogue (D4S)** to develop frameworks for systems analysis and the implications of digital transformation.
- **International Society for Digital Earth** to develop frameworks for systems analysis and the implications of digital transformation.
- **Research Group on Digitalization and Sustainability Transformations, IASS Potsdam** to develop frameworks for systems analysis and the implications of digital transformation.
- **UNEP's Global Environmental Outlook** process for the 7th report should begin to include digital transformation as both a risk and opportunity to achieve global environmental goals.

Enabler 4   Advance Digital Multilateralism

Entry points for action:

- Government:
  - Promote and pursue decentralized, agile, and collaborative governance to improve delivery of sustainable public services; and enable comprehensive and inclusive public participation in leveraging digital innovations.
  - Initiate new Frameworks that progress global cooperation on advancing digital sustainability and norm diffusion through transnational governance.
- Corporations and Finance:
  - Advocate, advance and collaborate on integrated sustainability centered policymaking across borders, sectors, and SDGs to account for the design, development, and deployment of digital technology.
- Civil Society:
  - Undertake purchasing practices that, within individual limits and capacities, favour.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **Climate Technology Centre and Network (CTCN)**
- **UNDP Accelerator Labs**
- **OECD Mission Oriented Innovation Lab**
- **Digital4Development Hub**
- **United 4 Smart Sustainable Cities (U4SSC)**
- **BMZ Digital Transformation Centers**
- **Secretary General's Digital Cooperation Roadmap**
- **Coalition for Digital Environmental Sustainability (CODES)**
- **The Dialogue on Global Digital Finance Governance**
- **UN Global Pulse**
- **The Global Partnership on AI (GPAI)**
- **OECD AI Policy Observatory**
- **European Council Conclusions on Digitalization for the Benefit of the Environment**

Enabler 5   Build pioneering coalitions

Entry points for action:

- Government:
    - Promote and pursue decentralized, agile, and collaborative governance to improve delivery of sustainable public services; and enable comprehensive and inclusive public participation in leveraging digital innovations.
- Corporations and Finance:
    - Collaborate with the governments to define how the required short and long-term financing will be mobilized to implement climate objectives and facilitate a country's transition to a low-carbon, climate-resilient economy.
    - Align investment agendas with climate-conscious investors.
- Civil Society:
    - Seek and establish synergic relationships with citizens, governance, and private sectors through digital infrastructure.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **Open Collaboration for Next Generation Digital Solutions for MRV**
- **Digital Goes Green**
- **Digital Public Goods Alliance**

- **Digital With Purpose Movement**
- **Every Actions Counts Coalition**
- **Green Digital Finance Alliance**
- **Global Enabling Sustainability Initiative**
- **Digital Future Society**
- **Greentech Alliance**
- **The Future Society**
- **UN Innovation Network**

Enabler 6   Adopt norms and standards

Entry points for action:

- Government:
  - Increase investments in global standards for digital cooperation and sustainability.
  - Advance new global Digital commons perspective on data governance with a focus on global sustainability, transnational fairness, and justice.
- Corporations and Finance:
  - Adopt global digital interoperability and accounting frameworks for carbon accounting.
  - Standardize and simplify sustainability reporting so statistical analysis and bench-marking are possible including setting precise criteria for ESG definitions and taxonomy.
- Civil Society:
  - Demand standardized digital information about the environmental and carbon performance of products and services in order to align spending decisions with sustainability values.
  - Exert pressure as shareholders, employees, and consumers to demand standardized digital information about the environmental and carbon performance of products and services in order to align spending decisions with sustainability values.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **The International Telecommunications Union-T (ITU) Standardization Sector** and other organizations such as ISO, IETF, IEEE should continue to play lead roles in the development and coordination of international standards needed for digital sustainability. The process to develop such standards must be multi-stakeholder, globally representative and include further coordination.

- **The UN Environmental Assembly (UNEA)** should adopt a resolution on key principles linked to digital sustainability.
- **Secretary General's Data Strategy** should continue to develop API standards for UN validated data and interoperability standards to support digital ecosystems of SDG data.
- **Global Partnership for Sustainable Development Data** should recommend API standards for UN validated data and interoperability standards to support digital ecosystems of SDG data.
- **Principles for Digital Development** should be expanded to include environmental sustainability considerations.
- **Corporate Digital Responsibility** should be considered and/or adopted by companies as they undergo digital transformation processes.
- **The International Sustainability Standards Board (ISSB)** should consider how ESG disclosures can be disclosed digitally.
- **Global Agreement on the Ethics of Artificial Intelligence** should be used as an international normative foundation on the ethical application of AI on environment and social sustainability.
- **Open Collaboration for Next Generation Digital Solutions for Measurement, Reporting and Verification (MRV)** should recommend API standards for environment and climate performance disclosures and interoperability standards to support digital ecosystems of MRV data.
- **Certified B-Corporation requirements** should be augmented to consider digital sustainability opportunities in their assessment frameworks.
- **Science-based Targets Initiative** should showcase digital technologies that can support monitoring, reporting and verification of environment and climate targets.
- **The Internet Governance Forum (IGF)** should continue to support the nascent Policy Network on Environment (PNE) to recommend principles on digital governance and sustainability
- **The Global Partnership on AI (GPAI)** should issue norms and principles on the use of AI for environmental sustainability.
- **The Coalition for Digital Environmental Sustainability (CODES)** should formulate a workstream to develop core principles on digital sustainability.
- **Digital Public Goods Alliance** should continue to develop open standards for digital public goods that can support environmental sustainability.
- **Digital With Purpose movement** should continue to be expanded with an international multi-stakeholder governance board and applicability for small and medium-sized enterprises (SMEs).
- **The Dialogue on Global Digital Finance Governance** should advance the testing the "Principles and Recommendations to align BigFintech governance with the SDGs"

Stakeholder Mapping and Entry Points for Systemic Shift 2

Problem 1   Energy and Emissions

Entry points for action:

- Government:
    - Enforce stricter regulations to encourage divestment from carbon heavy to low/no carbon energy and resource use.

- Corporations and Finance:
    - Achieve full ESG transparency, accountability and disclosure across the entire value chain using digital technologies.
    - Enhance market transparency and facilitate the alignment of capital flows with low-carbon, climate-resilient energy, and resource efficient circular activities.

- Civil Society:
    - Inform and influence policy development through evidence-based research, data, and knowledge to inform the development of global norms and standards for digital sustainability.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **ITU-T Focus Group on Environmental Efficiency for Artificial Intelligence and other Emerging Technologies.**
- **CodeCarbon**
- **Carbon Mark**
- **Sustainable IT Pledge by the Canadian CIO Strategy Council**
- **UNFCCC Race to Zero Climate Champions team**
- **UNFCCC Climate Action Pathways - ICT & Mobile**
- **Digital Goes Green**
- **ICT4S Research Community**
- **Digitalization for Sustainability – Science in Dialogue (D4S)**
- **Network for Digital Economy and Environment (nDEE)**
- **C-SERVES**
- **EFUTURES - Electronics for Sustainable Societies**
- **PARIS DE**
- **Exponential Roadmap Initiative**

- **WBCSD Carbon Transparency Partnership**
- **United 4 Smart Sustainable Cities (U4SSC)**
- **Sustainable Digital Infrastructure Alliance**
- **Playing for the Planet Alliance**
- **Digital With Purpose Movement**
- **Green Software Foundation**
- **Global Enabling Sustainability Initiative**
- **Green 500**
- **Greentech Alliance**
- **ICT Pact**
- **Icebreaker One**
- **Carbon Call**
- **RE100**
- **GSMA**
- **Internet Governance Forum - Policy Network on Environment**
- **Science-based Targets Network (SBTN)**
- **Global Electronics Council**

Key principles, standards and guidelines relevant to this strategic priority include:

- **ITU-T SG5: Environment Climate Change and Circular Economy, standards on:**
  - **ITU-T L.1000-series: E-waste and circular economy**
  - **ITU-T L.1200 series: Power feeding and energy storage**
  - **ITU-T L.1300-series Energy efficiency, smart energy and green data centers**
  - **ITU-T L.1400-series: Assessment methodologies of ICTs and CO2 trajectories (for goods, networks, services, organizations, cities and sector levels)**
  - **ITU-T L.1500 series: Adaptation to climate change**
  - **ITU-T L.1700 series: Low cost sustainable infrastructure standards**
- **ITU-D E-waste Policy Development**
- **Digital Nations - Sustainable Government Information Technology**
- **One Planet Programme on Sustainable Public Procurement (SPP)**
- **EU Green Public Procurement guidebook**
- **OECD Green ICT Assessments**
- **OECD.AI Policy Observatory (Task Force on AI Compute & Environment)**
- **OECD Recommendations on Information and Communication Technologies (ICTs) and the Environment**
- **Principles for Green Software Engineering**
- **European Committee for Standardization (CEN) Materials efficiency**
- **European Committee for Electrotechnical Standardization (CENELEC) Materials efficiency**
- **European Telecommunications Standardization Institute (ETSI) Materials Efficiency and Life Cycle Assessment**

Problem 2 Material Base

Entry points for action:

- Government:
    - Enforce stricter regulations that demand increased transparency on the ecological footprint of digital goods across the value chain.

- Corporations and Finance:
    - Achieve full ESG transparency, accountability and disclosure across the entire value chain using digital technologies.
    - Enhance market transparency and understanding of climate-related and environmental risks and opportunities in order to inform investment processes.

- Civil Society:
    - Demand standardized digital information about the social, environmental and carbon performance of products and services in order to align spending decisions with sustainability values.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **ITU E-waste Coalition**
- **Global E-waste Statistics Partnership**
- **Digital Goes Green**
- **ICT4S research community**
- **Digitalization for Sustainability – Science in Dialogue (D4S)**
- **Network for Digital Economy and Environment (nDEE)**
- **C-SERVES**
- **EFUTURES - Electronics for Sustainable Societies**
- **PARIS DE**
- **Global E-waste Statistics Partnership - Global and Regional E-waste Monitors**

- **FacProSUM Urban Mine Platformebook Climate Science Center**

- **Exponential Roadmap Initiative**

- **Sustainable Digital Infrastructure Alliance**

- **Playing for the Planet Alliance**

- **Digital With Purpose Movement**

- **Green Software Foundation**

- **Global Enabling Sustainability Initiative**

- **Green 500**

- **Greentech Alliance**

- **ICT Pact**

- **GSMA**

- **Internet Governance Forum - Policy Network on Environment**

- **Science-based Targets Network (SBTN)**

- **E-waste coalition**

- **Circular Electronics Partnership**

- **WEEE Forum**

- **International Pollution Elimination Network (IPEN)**

- **World Benchmarking Alliance**

- **Global Electronics Council**

Key principles, standards and guidelines relevant to this strategic priority include:

- **ITU-T SG5: Environment Climate Change and Circular Economy, standards on:**
    - **ITU-T L.1000-series: E-waste and circular economy**
    - **ITU-T L.1400-series: Assessment methodologies of ICTs and CO2 trajectories (for goods, networks, services, organizations, cities and sector levels)**
    - **ITU-T L.1700 series: Low cost sustainable infrastructure standards**
- **ITU-D E-waste Policy Development**
- **Digital Nations - Sustainable Government Information Technology**
- **One Planet Programme on Sustainable Public Procurement (SPP)**
- **EU Green Public Procurement guidebook**
- **OECD Green ICT Assessments**
- **OECD Recommendations on Information and Communication Technologies (ICTs) and the Environment**
- **Principles for Green Software Engineering**
- **European Committee for Standardization (CEN) Materials efficiency**
- **European Committee for Electrotechnical Standardization (CENELEC) Materials efficiency**

- **European Telecommunications Standardization Institute (ETSI) Materials Efficiency and Life Cycle Assessment**
- **Internet Engineering Task Force (IETF)**
- **Institute of Electrical and Electronics Engineers Standard Association (IEEE SA)**
- **Sustainable IT Pledge by the Canadian CIO Strategy Council**
- **Basel Convention on controlling transboundary movements of hazardous wastes and their disposal**

Key training opportunities include:

- **Open SAP: Clean-IT: Towards Sustainable Digital Technologies**

Problem 3 Consumption

Entry points for action:

- Government:
  - Increase knowledge about the impact of consumption on the environment needs and deepen cooperation at different levels in society to enable more eco-smart consumption and lifestyles. This must be done through convening multilateral forums, public broadcasting services and encouraging environmental focus in the education systems.
  - Enforce regulations that encourage sustainable consumption patterns in the food, transport, and housing areas, for example, requiring country of origin labeling of meat and related products.

- Corporations and Finance:
  - Begin transition towards a "beyond growth" paradigm where the application of digital technologies, in addition to profits, is baselined on social and environmental accountability with the goal of accelerating planetary sustainability and a circular economy.
  - Harness the power of social influence to elicit pro-environmental consumer behaviours.

- Civil Society:
  - Undertake purchasing practices that, within individual limits and capacities, favour sustainability.
  - Demand standardized digital information about the social, environmental and carbon performance of products and services in order to align spending decisions with sustainability values.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **Digital Goes Green**
- **ICT4S Research Community**
- **Digitalization for Sustainability – Science in Dialogue (D4S)**
- **Network for Digital Economy and Environment (nDEE)**
- **Internet Governance Forum - Policy Network on Environment**
- **Playing for the Planet Alliance**
- **Digital With Purpose Movement**
- **Green Software Foundation**
- **Global Enabling Sustainability Initiative**
- **Center for Humane Technology**
- **International Campaign for Responsible Technology**

Key principles, standards and guidelines relevant to this strategic priority include:

- **Guidelines for sustainability information on e-commerce platforms**
- **Global Agreement on the Ethics of Artificial Intelligence**
- **EU Ethics Guidelines for Trustworthy AI**

Problem 4 Misinformation

Entry points for action:

- Government:
  - Eliminate or reduce the immunity granted to platform companies that treats them differently from any other media and specifically immunizes them from liabilities that apply to all these other entities. This includes liabilities for fraud, for defamation, and for violating contract terms.
  - Enact rules that require platforms sharing the information about the algorithms and their uses with a watchdog, whether academic or nonprofit organizations.
  - Enact regulations that hold platforms accountable when they publish and promote information from other news sources without due approvals and validation.
- Corporations and Finance:
  - Invest in technology to find and flag misinformation and identify it for users through algorithms and crowdsourcing.
  - Weaken financial incentives and algorithmic amplification for misinformed content, especially false news and disinformation.
  - Strengthen online accountability through stronger real-name policies and enforcement against fake accounts.

- Civil Society:
  - Continue conducting research on the spread of misinformation combined with the social and political implications for sustainability.
  - Academic Institutions must enhance news literacy; learning how to evaluate news sources, not accept at face value all content that gets published on social media or digital news site.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **Center for Human Technology**
- **International Campaign for Responsible Technology**
- **Center for Countering Digital Hate**
- **Facebook Climate Science Center**
- **Google Initiative on Verified Climate Science**
- **Twitter Initiative on Authoritative Climate Information**

Key principles, standards and guidelines relevant to this strategic priority include:

- **Global Agreement on the Ethics of Artificial Intelligence**
- **EU Ethics Guidelines for Trustworthy AI**

Problem 5 Digital Divide

Entry points for action:

- Government:
  - Increase investment in human-centered and sustainable digital and data infrastructure programs, to address digital divides: including but not limited to access, affordability, gender, income, rural-urban, and cultural divide.
  - Encourage the development of new social contracts premised on Digital Humanism - new framework and governance structures that protect people from digital authoritarianism.
  - Undertake the development of new transnational governance systems that regulate data control and access, and hold private and public actors accountable.
- Corporations and Finance:
  - Provide financing for, and invest in broadband infrastructure in low to no connectivity areas to ensure basic internet connectivity.
  - Work collaboratively with public entities and nonprofit leaders to build the tech-enabled systems and structures with a focus on improving digital literacy.

- Civil Society:
  - Citizens in areas with favored connectivity must advocate for equity in connectivity in less favored areas.
  - Advocate for the development and deployment of increased e-government tools in order to enhance e-readiness, encourage and educate the usage of ICT, and support the development of ICT skills in a non-discriminatory manner.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **Roundtable on Global Connectivity within the Secretary General's Digital Cooperation Roadmap**
- **Partner Connect Digital Coalition**
- **Digital Poverty Alliance**
- **ITU / UNESCO Broadband Commission**
- **GMSA**
- **ITU's International Centre of Digital Innovation (I-CoDI)**
- **ITU Partner Connect Digital Coalition**
- **Alliance for Affordable Internet**
- **ITU-T Joint Coordination Activity on Accessibility and Human Factors (JCA-AHF)**

Key principles, standards and guidelines relevant to this strategic priority include:

- **World Wide Web Foundation REACT policy framework on Digital Inclusion**
- **Principles for Digital Development**

Key training opportunities include:

- **Principles for Digital Development**

Problem 6 Rights Violations

Entry points for action:

- Government:
  - Enforce stricter regulations that demand increased transparency on the human rights adherence in the end-to-end value chains associated with digital goods.
  - Enforce transnational agreements that ensure corporate accountability in meeting human rights in all jurisdictions of operations across national boundaries.

- Corporations and Finance:
    - Increase monitoring and reporting of rights violations across ICT supply chains.
    - Achieve full ESG transparency, accountability and disclosure across the entire value chain using digital technologies.
    - Lending organizations must publish guidelines on supervisory expectations in relation to approaches that borrowing organizations must take to enforce and protect human rights.
- Civil Society:
    - Connect the monitoring of human rights violations to potential drivers that originate in the digital sector.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **Center for Humane Technology**
- **International Campaign for Responsible Technology**
- **Amnesty International**
- **UN High Commissioner for Human Rights work on Privacy in the Digital Age**
- **Global Witness**
- **Responsible Business Alliance (RBA)**
- **Roundtable on Ensuring the Protection of Human Rights in the Digital Era**
- **ITU-T Joint Coordination Activity on Accessibility and Human Factors (JCA-AHF)**

Key principles, standards and guidelines relevant to this strategic priority include:

- **UN Declaration on the Rights of Indigenous Peoples (UNDRIP)**
- **Audit AI**
- **UNICEF Policy Guidance on AI for Children**
- **Responsible Data for Children**
- **OHCHR's Work on Privacy in the Digital Age**
- **GESI Good Practice Guide on Remedy Human Right Impacts**
- **UN Guiding Principles on Business and Human Rights**
- **Children's Rights and Business Principles**
- **UNICEF: The Case for Better Governance of Children's Data: A Manifesto**

Stakeholder Mapping and Entry Points for Systemic Shift 3

Innovation 1   Planetary Digital Twin

Entry points for action:

- Government:

  - Promote global safeguards and governance for managing and leveraging data as digital public good.

  - Co-finance, alongside private organizations, initiatives that seek to improve compute requirements required to process the vast volumes of data, especially for real-time data processing scenarios.

  - Enforce adoption of data standards and safeguards, open APIs and communication protocols that enable safety, privacy, interoperability, transferability, and quality control of key data across disparate systems.

- Corporations and Finance:

  - Co-finance, alongside governments, in initiatives that seek to improve compute requirements required to process the vast volumes of data, especially for real-time data processing scenarios.

  - Adopt and progress open data principles that encourage integration of validated citizen science contributions and observations as well as other open-source tools and algorithms into the digital twin ecosystems.

  - Progress the development of applications that enable real-time ingestion and processing of data from the digital twin ecosystem into governments, science, civil society, and private sector ecosystems and vice-versa to inform meaningful forms of analysis and decision support systems.

- Civil Society:

  - Continue undertaking research to validating the socio-ethical value and the socio-ethical risks of emerging technologies like digital twins

  - Advocate for responsible and socio-environmental values-based development of digital twin technologies

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **UNDP's Digital Transformation Initiative**
- **UNEP's Digital Transformation Programme**
- **Global Partnership on Artificial Intelligence (GPAI)**

- **Destination Earth - Digital Twin of the Planet**
- **System for Earth Observation, Data Access, Processing and Analysis (SEPAL)**
- **Big Earth Data Science Engineering Program (CASEarth)**
- **UNEP's World Environment Situation Room**
- Various applications of open data cube technology including **Digital Earth Africa**, **Digital Earth Pacific**
- **Group on Earth Observations (GEO) work on Digital Earth**
- **Computational Sustainability**
- **International Society for Digital Earth**
- **Joint Centre for Excellence in Environmental Intelligence**
- **Alan Turing Institute Environment and Sustainability Interest Group**
- **UNDP Data Futures Platform, Green Recovery Data Hub**
- **UN Secretary General's Future Labs**
- **Global Initiative on AI and Data Commons**
- **Artificial Intelligence for Environment & Sustainability (ARIES)**
- **Microsoft Planetary Computer**
- **Google Earth Engine**
- **Nvidia Omniverse platform for digital twinning and 3D simulations**
- **Amazon Sustainability Data Initiative**
- **Salesforce Sustainability Cloud**
- **Global Open Science Cloud Initiative**
- **Future of Sustainable Data Alliance (FoSDA)**
- **Global Data Access Framework (GDAF)**
- **United Nations Satellite Centre (UNOSAT)**
- **Copernicus Open Access Hub**

On Climate Change

- **Camda Data 2.0 Working Group**
- **Climate TRACE**
- **Climate Chain Coalition**
- **Climate Change AI**
- **Centre for AI & Climate**
- **Climate Informatics**
- **Icebreaker One**
- **Data Driven Lab**
- **Digital Public Goods Alliance - Climate Change Adaptation Community of Practice**

On Nature and Biodiversity

- **Framework on Ecosystem Restoration (FERM)**
- **UN Biodiversity Lab**
- **IPBES**

- **Restor**
- **The Life Map**
- **e-shape**

On Chemicals and Pollution

- **Global Partnership on Marine Litter (GPML)**

Key principles, standards and guidelines relevant to this strategic priority include:

- **Global Partnership for Sustainable Development Data**
- **Global Environmental Data Strategy requested by UNEA 4/23**
- **FAIR Principles for Scientific Data**
- **CARE Principles for Indigenous Data Governance**
- **First Nations principles of ownership, control, access, and possession (OCAP)**
- **ISC-CODATA's Decadal Programme Data for the Planet: Making Data Work For Cross-Domain Grand Challenges**
- **International Open Data Charter**
- **Data Interoperability Collaborative**

Key training opportunities include:

- **EO4GEO Alliance**

Innovation 2   Sustainable Circular Economy

Entry points for action:

- Government:
  - International Resource Panel should adopt a new track on digital transformation and a circular economy.
  - Countries should develop national circular economy action plans (e.g. like EUs CEAP).
  - Introduce a range of pilots for digital product passports.
- Corporations and Finance:
  - Use the process of digital transformation as an opportunity to rethink how business models can contribute to sustainability and how companies can achieve full environmental transparency and accountability across their entire value chain.
- Civil Society:
  - Undertake purchasing practices that, within individual limits and capacities, favour sustainability.

- Demand standardized digital information about the social, environmental and carbon performance of products and services in order to align spending decisions with sustainability values.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **UNEP's Digital Transformation Programme**
- **GIZ's Innovation Challenge**
- **Ellen Macarthur Foundation**
- **Digital Public Goods Alliance**
- **United for Smart Sustainable Cities (U4SSC)**
- **UNFCCC Global Innovation Hub**
- **Global Partnership on Artificial Intelligence (GPAI)**
- **Coalition for Digital Environmental Sustainability (CODES)**
- **Computational Sustainability**
- **Joint Centre for Excellence in Environmental Intelligence**
- **Alan Turing Institute Environment and Sustainability Interest Group**
- **UN Secretary General's Future Labs**
- **Microsoft Planetary Computer**
- **Google Earth Engine**
- **Nvidia Omniverse Platform for Digital Twinning and 3D Simulations**
- **Amazon Sustainability Data Initiative**
- **Salesforce Sustainability Cloud**
- **Global Open Science Cloud Initiative**
- **Icebreaker One**
- **Digital Goes Green**
- **Climate Change AI**
- **ITU-T Study Group 5: Environment, Climate Change and Circular Economy**
- **International Resource Panel's workstream on "Sustainable Trade in Resources: Global Material Flows, Circularity and Trade"**
- **Green Digital Finance Alliance**
- **EU's Regulations on Sustainable Finance**
- **OECD International Programme for Action on Climate (IPAC)**
- **UNFCCC Resilience Frontiers**
- **UK Center for Greening Finance and Investment**
- **Greentech Alliance**
- **European Green Digital Coalition**
- **WEF 2030 Vision**
- **Platform for Accelerating a Circular Economy (PACE)**
- **Circular Electronics Partnership (CEP)**
- **Digital With Purpose**

- **Playing for the Planet Alliance**
- **Every Action Counts Coalition**
- **United 4 Smart Sustainable Cities (U4SSC)**
- **ITU and UNICEF Giga Connectivity**
- **Science-based Targets Initiative**
- **Climate Chain Coalition**
- **World Benchmarking Alliance**
- **Trase Earth**

Key principles, standards and guidelines relevant to this strategic priority include:

- **Global Partnership for Sustainable Development Data**
- **Global Environmental Data Strategy requested by UNEA 4/23**
- **FAIR Principles for Scientific Data**
- **CARE Principles for Indigenous Data Governance**
- **First Nations principles of ownership, control, access, and possession (OCAP)**
- **ISC-CODATA's Decadal Programme 'Data for the Planet'**
- **GS1 Digital Link**
- **ITU-T Study Group 5: Environment, Climate Change and Circular Economy**
  - **ITU-T L.1000-L.1199 standards: set of standards that can form the basis for circular economy**
  - **ITU-T L.1470 series to achieve net zero in the ICT sector**
  - **ITU Sustainability passport for digital products**
  - **ITU standards and guidelines on Green Procurement**
- **ITU-T Study Group 20: Internet of things (IoT) and smart cities and communities (SC&C)**
  - **ITU-T Y.4900 series: Evaluation and assessment of smart cities**
  - **ITU-T Y.4903: Key performance indicators for smart sustainable cities**
  - **ITU-T Y.4904: Smart Sustainable cities maturity model**
- **Green Fintech Taxonomy**
- **EU Digital Services Act**
- **EU Digital Markets Act**
- **UNEP Finance Initiative**
- **Responsible AI Strategy for the Environment (RAISE)**
- **EU Corporate Sustainability Reporting - Directive 2014/95/EU Non-Financial Reporting**
- **EU Proposal for a Corporate Sustainability Reporting Directive (CSRD)**

Key training opportunities include:

- **Open SAP: Helping Business Thrive in a Circular Economy**
- **ICLEI Europe: AI4 Cities**
- **ITU and UNDP's digital capacity database**

Innovation 3 Sustainable Consumption

Entry points for action:

- Government:

  - Commit to a circular global economy, enhancing it through digital innovations and digital product passports that better monitor and trace resources and foster sustainable business models.

  - Actively promote more eco-smart consumption and lifestyles. The assignment would include various ways of 'nudging' consumers by encouraging and making it easier for them to choose the best alternatives from an environmental perspective.

  - Enact policies that encourage positive developments in the sharing economy.

  - Promote effective, independently certified ecolabelling schemes.

- Corporations and Finance:

  - Actively invest in process and product innovation that advances circularity.

  - Actively invest in digital applications that influence consumer purchasing behaviour towards more sustainable products.

  - Scale-up private finance for circular projects through the development of new (local) green bond markets.

  - Facilitate private investment into domestic low-carbon and circular development through new green investment banks (strategic investment funds).

  - Consider new mechanisms to blend public finance with private investment to reduce risks and/or increase returns of green investments.

- Civil Society:

  - Undertake purchasing practices that, within individual limits and capacities, favour sustainability.

  - Demand standardized digital information about the social, environmental and carbon performance of products and services in order to align spending decisions with sustainability values.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **UNEP's Digital Transformation Programme**
- **GIZ's Innovation Challenge**
- **Ellen Macarthur Foundation**
- **Digital Public Goods Alliance**
- **United for Smart Sustainable Cities (U4SSC)**
- **UNFCCC Global Innovation Hub**
- **SITRA Sustainable Lifestyles**
- **Global Partnership on Artificial Intelligence (GPAI)**

- **Computational Sustainability**
- **Alan Turing Institute Environment and Sustainability Interest Group**
- **UN Secretary General's Future Labs**
- **Climate Change AI**
- **Centre for AI & Climate**
- **Icebreaker One**
- **GS1 Digital Link**
- **Digital Goes Green**
- **ICT4S Research Community**
- **Digitalization for Sustainability – Science in Dialogue (D4S)**
- **Stockholm Environment Institute (SEI)**
- **ITU E-agriculture**
- **Focus Group on AI for Natural Disaster Management (FG-AI4NDM)**
- **Focus Group on Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture (FG-AI4A)**
- **European Green Digital Coalition**
- **Digital With Purpose**
- **Playing for the Planet Alliance**
- **Google Sustainability Choices - Green Apps**
- **Amazon Climate Pledge Friendly Products**
- **Every Action Counts Coalition**
- **United 4 Smart Sustainable Cities (U4SSC)**
- **Science-based Targets Initiative**
- **Climate Chain Coalition**
- **Trase Earth**
- **E-mobility Toolbox**
- **Accelerating Access to Low Carbon Urban Mobility Solutions (ACCESS) through Digitalization**

Key principles, standards and guidelines relevant to this strategic priority include:

- **ITU-T Study Group 5: Environment, Climate Change and Circular Economy**
  - **ITU Sustainability passport for digital products**
- **ITU-T Study Group 20: Internet of things (IoT) and smart cities and communities (SC&C)**
  - **ITU-T Y.4900 series: Evaluation and assessment of smart cities**
  - **ITU-T Y.4903: Key performance indicators for smart sustainable cities**
  - **ITU-T Y.4904: Smart Sustainable cities maturity model**
- **Green Fintech Taxonomy**
- **Planet Mark**
- **Guidelines for Sustainability Information on E-commerce Platforms**
- **Consumers International - Digital Trust**
- **EU Digital Services Act**

- **EU Digital Markets Act**
- **UNEP Finance Initiative**
- **Responsible AI Strategy for the Environment (RAISE)**
- **EU Corporate Sustainability Reporting - Directive 2014/95/EU Non-Financial Reporting**
- **EU Proposal for a Corporate Sustainability Reporting Directive (CSRD)**

Innovation 4 Knowledge Commons

Entry points for action:

- Government:

  - Increase investments in global standards for digital cooperation and sustainability.

  - Government can serve as an open-data provider, catalyst, user, and policy maker to create value and mitigate risks. Across all levels of government, millions of individual data records are collected, stored, and analyzed. By making these data available to enterprising companies and individuals, government can spur private-sector innovation and increase transparency.

  - Public-sector leaders must validate and address data risks that can threaten individuals and organizations or undermine open-data initiatives.

- Corporations and Finance:

  - Collaborate with governments to progress a Global Digital commons perspective on data governance with a focus on global sustainability, transnational fairness, and justice.

  - Enact bold regulations in investment criteria that progress data commons and open data frameworks.

- Civil Society:

  - Continue to undertake research and knowledge share to develop and progress new open science standards and governance structures.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **UNDP's Digital Transformation Initiative**
- **UNESCO International Research Centre in Artificial Intelligence**
- **Joint Centre for Excellence in Environmental Intelligence**
- **Microsoft Planetary Computer**
- **Google Earth Engine**
- **Climate Change AI**
- **Centre for AI & Climate**

- **Digital Public Goods Alliance - Climate Change Adaptation Community of Practice**
- **The GovLab**
- **Open North**
- **Stockholm Environment Institute (SEI)**
- **Alan Turing Institute Environment and Sustainability Interest Group**
- **ITU E-agriculture**
- **ITU-T Study Group 5: Environment, Climate Change and Circular Economy**
- **Ubuntoo - Environmental Solutions Platform**
- **AI Commons**
- **Greentech Alliance**
- **ITU and UNICEF Giga Connectivity**
- **UN Biodiversity Lab**
- **IPBES**
- **Global Partnership on Marine Litter (GPML)**
- **Coordinadora de las Organizaciones Indígenas de la Cuenca Amazonica (COICA)**
- **Indigenia Mundus**

Key principles, standards and guidelines relevant to this strategic priority include:

- **UNESCO Recommendations on Open Science**
- **FAIR Principles for Scientific Data**
- **Open Science Guidelines**
- **UNDP Digital Readiness Assessment**

Key training opportunities include:

- **ITU and UNDP's Digital Capacity Database**
- **ITU Centres of Excellence programme**

Innovation 5 — Networked and Agile Governance Breakthroughs

Entry points for action:

- Government:
  - Promote and pursue decentralized, agile, and collaborative governance to improve delivery of sustainable public services; and enable comprehensive and inclusive public participation in leveraging digital innovations.
  - Promote cooperation and global standards to enhance access to and use of data on sustainability data, and make these data digital public goods with comprehensive and universal access.

- Enact bold regulations that progress climate friendly behaviours for all sections of the society.
- Commit to a circular global economy, enhancing it through digital innovations and digital product passports that better monitor and trace resources and foster sustainable business models.
- Invest in new digital mechanisms to support public participation in decision-making to crowd sourcing governance priorities and solutions from citizens.

- Corporations and Finance:
  - Promote digital sustainability and protect citizens' digital rights, by embedding sustainability goals into the use of digital technologies.
  - Leverage digital tools and systems to facilitate monitoring and reporting of key KPIs.
  - Leverage digital tools and technologies to transition from a "do no harm' framework towards a "do good" framework –single bottom line to a triple bottom line; a collective framework across corporations and sectors.
  - Take higher accountability for scope 2 and 3 emissions and strive for increased transparency and accountability across the value chain of products/services.

- Civil Society:
  - Advocate and champion for more participatory spaces to influence intergovernmental negotiations on sustainability.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **UNDP's Digital Transformation Unitiative**
- **UNEP's Digital Transformation Programme**
- **GIZ's Innovation Challenge**
- **Ellen Macarthur Foundation**
- **Digital Public Goods Alliance**
- **United for Smart Sustainable Cities (U4SSC)**
- **UNFCCC Global Innovation Hub**
- **SITRA Sustainable Lifestyles**
- **Coalition for Digital Environmental Sustainability (CODES)**
- **European Green Digital Coalition**
- **Sustainability in the Digital Age**
- **Joint Centre for Excellence in Environmental Intelligence**
- **UN Secretary General's Future Labs**
- **Global Initiative on AI and Data Commons**
- **Artificial Intelligence for Environment & Sustainability (ARIES) to support the System of Environmental Economic Accounting (SEEA)**
- **Digital Public Goods Alliance - Climate Change Adaptation Community of Practice**
- **European Financial Reporting Advisory Group (EFRAG)/ Sustainability Reporting Board**

- **Digital Nations - Leading Digital Governments**
- **The GovLab**
- **Open Government Partnership: Workstream on Digital Governance**
- **Open North**
- **ITU and Digital Impact Alliance GovStack**
- **ITU GreenGovStack**
- **United Citizens Organization for Action for Climate Empowerment**

Key principles, standards and guidelines relevant to this strategic priority include:

- **Global Environmental Data Strategy requested by UNEA 4/23**
- **FAIR Principles for Scientific Data**
- **CARE Principles for Indigenous Data Governance**
- **First Nations Principles of Ownership, Control, Access, and Possession (OCAP)**
- **GS1 Digital Link**
- **Principles and Recommendations to Align BigFintech Governance with the SDGs**
- **EU Digital Services Act**
- **EU Digital Markets Act**
- **UNEP Finance Initiative**
- **Responsible AI Strategy for the Environment (RAISE)**
- **EU Corporate Sustainability Reporting - Directive 2014/95/EU Non-Financial Reporting**
- **EU Proposal for a Corporate Sustainability Reporting Directive (CSRD)**

Innovation 6   Green, Digital, Just Transition

Entry points for action:

- Government:
  - Progress UN Roadmap for a Green, Digital, Just Transition.
  - Enact policies and undertake national action against power imbalances and for digital inclusion.
  - Establish region specific digital equity offices. The offices would be responsible for publishing a Digital Equity Plan for the jurisdiction.
  - Collaborate with the private sector to advance digital infrastructure and digital public goods.

- Corporations and Finance:
  - Increase investments to foster local digital ecosystems, and establish multi-faceted partnerships that support open technology and infrastructure needs.
  - Increase investments to support access to micro-finance, access to open education as well as to develop and scale local business models for green digital jobs, products and services.
- Civil Society:
  - Inform and influence policy development through evidence-based research, data, and knowledge to inform the development of global norms and standards for digital public goods.
  - Advocate and champion for more participatory spaces to influence intergovernmental negotiations on sustainability.

Examples of multi-stakeholder and cross-cutting initiatives that can address this strategic priority:

- **UNDP's Digital Transformation Initiative**
- **UNESCO International Research Centre in Artificial Intelligence**
- **GIZ's Innovation Challenge**
- **Digital Public Goods Alliance**
- **United for Smart Sustainable Cities (U4SSC)**
- **E-mobility Toolbox**
- **Accelerating Access to Low Carbon Urban Mobility Solutions (ACCESS) through Digitalization**
- **UNFCCC Global Innovation Hub**
- **Sustainability in the Digital Age**
- **Focus Group on Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture (FG-AI4A)**
- **ITU and Digital Impact Alliance GovStack**
- **High-Speed Access for All: Canada's Connectivity Strategy**
- **Digital Connectivity and Cybersecurity Partnership (DCCP)**
- **Technology for Development**
- **Digital Impact Alliance**
- **Digital Poverty Alliance**
- **Coordinadora de las Organizaciones Indígenas de la Cuenca Amazonica (COICA)**
- **Indigenia Mundus**
- **Latin American Institute of Terraforming**

Key principles, standards and guidelines relevant to this strategic priority include:

- **CARE Principles for Indigenous Data Governance**
- **First Nations principles of ownership, control, access, and possession – (OCAP)**
- **Digital Investment Toolkit**
- **Gender Equality in Digitalization (UNDP)**

Digitalization is one of the most important drivers of economic, social and environmental transformation. It has given rise to powerful general-purpose technologies such as artificial intelligence and cloud computing that offer revolutionary scale and potential. Digital transformation is globally pervasive, increasing productivity, disrupting pre-existing business models and leading to diverse innovations with profound implications for the human future. This transformation has enormous potential to support progress towards sustainability however in its current form, it continues to enable and/or encourage unsustainable practices that are degrading natural systems, entrenching inequality and undermining human wellbeing.

There is an urgent need to reverse these negative trends and to utilize the potential of digital transformation as a vital tool in developing globally sustainable economic and social behaviours. We need to move the focus away from the pursuit of short-term, unsustainable gains towards the achievement of long-term values-driven sustainable outcomes. Three systemic shifts are needed to harness digital transformation as a positive and exponential force for progressing environmentally and socially sustainable development.

- **Shift 1 Enable Alignment:** Create the enabling conditions to align the vision, values and objectives of the digital age with sustainable development;

- **Shift 2 Mitigate Negative Impacts:** A commitment to "sustainable digitalization" that mitigates the negative environmental and social impacts of digital technologies;

- **Shift 3 Accelerate Innovation:** Advancing investments in "digitalization for sustainability" to accelerate the development and deployment of sustainability-driven digital innovation.

Within each shift, this Action Plan identifies six strategic priorities that must be addressed during the 2022-2025 timeline together with 9 global Impact Initiatives to catalyse systemic transformations. The Coalition for Digital Environmental Sustainability (CODES) will contribute the implementation of this Action Plan in four ways:

- Convene and connect a global community of common purpose to advance these 3 shifts;
- Identify enabling policies and map stakeholders for each strategic priority;
- Suggest Impact Initiatives as actionable items to concurrently progress strategic priorities;
- Foster and demonstrate political leadership in advocating for and realizing the Impact Initiatives.

All stakeholders are invited to engage in the CODES Action Plan in one or more of the following channels:

- **Catalyser:** Stakeholders seeking to engage directly with one or more of the Impact Initiatives that are proposed in the Action Plan.

- **Action Network:** Stakeholders contributing to and leveraging the 3 shifts proposed in the Action Plan to support the progression of digital sustainability.

- **Advocates:** Stakeholders seeking to contribute their expertise to the CODES community and become an advocate for the CODES vision and values.

More information is available on the CODES Community Page on **www.sparkblue.org/CODES**