

# **ICT Sustainability through Innovation** GeSI Activity Report

June 2009



# About GeSI

The Global e-Sustainability Initiative (GeSI) is uniquely dedicated to information and communication technologies (ICT) sustainability through innovation.

GeSI brings together leading ICT companies — including telecommunications service providers and manufacturers as well as industry associations — and non-governmental organisations committed to achieving sustainability objectives through innovative technology.

The ICT industry faces some tough challenges on the road to sustainability – cutting the carbon footprint of our products and services, managing mounting volumes of electronic waste, and tackling environmental and social issues in the supply chain. But ICT also offers enormous opportunities to promote economic development while helping consumers and industry reduce their climate impacts by improving energy efficiency and replacing physical activities with 'virtual' alternatives.

GeSI aims to promote effective industry action and innovation to manage the risks associated with ICT and realise its potential in creating a low-carbon economy. We enable members to share and develop ideas, launch joint initiatives, and collaborate with others — within and outside the industry. Together, we are achieving real progress. Our work focuses on several key areas:

**Climate change:** To develop a methodology and standards to measure and cut the carbon footprint of the ICT sector, and enable other industries to reduce their emissions through innovative technology

**Supply chain:** To promote good conduct and develop or improve tools, management practices, processes or systems to assist each participant and their supply chain in dealing with CR supply chain risks

**E-waste**: To promote take-back and create tools to ensure electrical and electronic equipment is disposed of responsibly at end-of-life, and materials are reused or recycled wherever possible

**Standardisation:** To work with others to develop common industry standards in key areas such as energy efficiency

**Public policy:** To engage with policymakers to promote the contribution ICT can make to sustainability

**Communication:** To raise awareness of GeSI and the ICT sector's contribution to sustainability among external stakeholders and inform them about our activities.

Dedicated working groups for each of these areas meet regularly – often virtually via video or teleconference – to set objectives, develop strategy, create tools, implement programmes and discuss progress.

Here we report our activities from the beginning of 2008 up to June 2009, and the next steps planned in each key area.

Additional information on GeSI's organisation and activities is available on our website at www.gesi.org.

### **Message from the Chair**

GeSI – sharing visions and responding to expectations

The social and economic benefits of the ICT sector are well proven and rarely can the global economy have been in such need of added stimulus. But a responsible industry looks beyond its immediate economic success to assess the wider impact on the planet and its people. GeSI's purpose is to provide a focal point for critical discussion of ICT and sustainability.

Since GeSI's inception in 2001, GeSI members have shown leadership by identifying the critical areas where ICT can contribute towards sustainable development and working on ways to achieve this. In the past few years, we have engaged further with policy makers on energy efficiency in large-scale infrastructure and intelligent systems, research into methodologies to measure greenhouse gas emissions, as well as further develop our tools and systems in the deepest levels of our supply chains. For our membership, GeSI offers a unique platform to respond to the high level of expectations on our sector.

GeSI members are fully committed to demonstrate how ICT can enable other sectors to reduce their carbon output. In 2008, GeSI commissioned research into the potential of ICT technology to reduce carbon emissions. Our now well acclaimed report, 'SMART 2020 – enabling the low carbon economy in the information age', clearly demonstrates our sector's role for the future. The research identified the potential for ICT to save 7.8 gigatonnes of CO2e emissions by 2020 – equivalent to 15% of global emissions. This report has been widely cited and definitely raised expectations. The carbon cutting opportunities identified in the report now need to be implemented and GeSI will be instrumental in facilitating this.

This Activity Report marks GeSI's first year as a legal independent entity, an international non-profit organisation with an office near the EU institutions in Brussels, Belgium. During the year, we established a foundation, launched subsequent SMART 2020 regional reports (for the US and Portugal), and increased our membership and partnerships. GeSI's dedicated working group leaders, active members and partners enable GeSI to respond to stakeholders faster than before, engage with policy makers more frequently, disseminate information and overall, raise awareness on sustainability issues to wide and diverse audiences around the world.

Yet we have a major challenge, which is far more difficult to resolve than our current financial and economic crisis: climate change.

GeSI is fully aware of the complexity around the UNFCCC COP-15 meeting in Copenhagen in December 2009 and the related global post Kyoto Agreement that needs to take place. We acknowledge the challenges that governments and policy makers face: the call for vision, leadership and action. Our work on climate change and energy efficiency is crucial to make informed decisions during these negotiations.

At the same time, GeSI members realise the critical impact ICT has on global economic development and therefore, we must consider the needs of the lesser developed countries – for they will be affected the most from our efforts. Our work in the supply chain is focused on these areas.

GeSI is a well established, increasingly recognised organisation that has both vision and the ability to take action. We can be proud of what we have achieved so far. Together, GeSI members will continue to lead the way, anticipate needs and meet expectations.

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Luis Neves Deutsche Telekom *Chair* 

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### Engagement with policymakers and stakeholders

GeSI communicates with policymakers and key stakeholders to explain the significant contribution that ICT can make in supporting sustainable development and promote policies that enable this.

GeSI wants the contribution of ICT to be recognised and integrated in government plans to achieve sustainability goals - at national, regional and global level.

We believe it is important that the regulatory environment enables ICT to realise its full sustainability potential. Our role is to inform policymakers about ICT and sustainability, contribute to the debate and help to develop joint initiatives.

In 2008, we concentrated on ICT's role in creating a low-carbon economy, following the significant findings of our SMART 2020 research. The research highlights the potential for ICT to enable emissions reductions through, for example, energy-efficient 'smart' grids and buildings (see page 4). We also continued to communicate about supply chain and e-waste issues.

Our public policy activities have been mainly in the European Union and the United States, but are increasingly in Asia as well.

#### **Europe**

We presented the SMART 2020 findings to the European Commission, together with the Commissioner for Information Society and Media, Vivien Reding. The Commission's Communication on ICT for energy efficiency in March 2009 refers extensively to our report. It highlights the need to accurately forecast the emissions reductions ICT can deliver, and GeSI will work with the European Commission and others to develop a common methodology to achieve this.

We are participating in several EU initiatives researching ways to reduce climate impacts through ICT:

The EU Ad-Hoc Advisory Group for Energy Efficiency, which reported in October 2008 that ICT can play a key role in helping to achieve EU energy efficiency targets, but only with effective policy support

**The ICT Policy Support Programme** of the EU Commission's Competitiveness and Innovation Framework Programme – investigating how ICT can support energy efficiency in smart grids through a number of programmes, including:

 The EU Commission ICT21EE project – working on how ICT can contribute to energy efficiency in transport and infrastructure to create Smart cities **– SEESGEN-ICT** (Supporting Energy Efficiency in Smart GENeration Grids through ICT) – an EU funded research project to produce policy recommendations and identify best practices for the next generation of electricity grids.

**Sustainable Energy Europe campaign** – run by the EU Commission Directorate-General for Energy and Transport, including the EU Sustainable Energy Week.

Representatives of the GeSI Supply Chain Working Group participated in an international roundtable in Brussels in January 2008 on the responsibilities of electronics companies down the supply chain to extraction of raw materials. Participants included electronics companies, NGOs and trade unions as well as organisations from developing countries.

#### **United States**

We published a US Addendum to the SMART 2020 report in November 2008. GeSI wrote to the Environmental Protection Agency to establish a dialogue and inform the incoming Obama administration about the role of ICT in facilitating a low-carbon economy in the US.

GeSI also engaged with US policy makers to tell them about our work on the extraction of metals in the ICT supply chain, in response to the proposed Congo Conflict Minerals Act of 2008. We held stakeholder workshops in New York and Washington in November 2008 with participants from the World Bank, the US State Department, mining associations and NGOs including SOMO, MakeITFair, and RESOLVE.

#### Global

We presented the findings of the SMART 2020 report at industry events and public policy forums around the world, including:

- EU Conference on Information and Communication Technologies for Energy Efficiency, Brussels, Belgium, January 2008
- ICT and climate change conference held by the International Telecommunications Union and the Japanese government. Kyoto, Japan, April 2008
- High-level OECD Conference: ICT, the Environment and Climate Change, Copenhagen, Denmark, May 2008
- ITU Symposium on ICT and Climate Change, London, June 2008

#### SMART 2020 Portugal Project, Lisbon Technical University, Portugal, July 2008

- Call for action: ICT as part of the solution APDC Congress, Lisbon, Portugal, November 2008
- Global Green Telecom Summit, Driving a Low Carbon Economy Involving the ICT Sector, Berlin, Germany, November 2008
- ITU Conference on Internet and Climate Change the first meeting of the Dynamic Coalition on Internet and Climate Change. Hyderabad, India, December 2008
- UN Climate Change Conference, Poznan, Poland, December 2008.

#### Next steps

We will continue to communicate key messages from SMART 2020 in the lead up to the global climate change Summit in Copenhagen in December 2009. GeSI Chair, Luis Neves, will participate in the technology working group of the World Business Summit on Climate Change in May 2009 to discuss potential issues and find business solutions to feed into the talks in December.

Together with the Electronics Industry Citizenship Coalition (EICC), GeSI will continue to share the findings of its ongoing research on mining of metals with other stakeholders, including policy makers.

#### **Materiality matrix**



#### Significance to ICT businesses

# Sustainability issues for ICT

We set out to identify the key areas where the ICT sector can make the biggest contribution to sustainability.

Our objective was to make sure GeSI and member companies are focusing on the most material issues. GeSI commissioned the consultancy, Business for Social Responsibility (BSR), to carry out research in 2007. BSR's investigation of global trends and priority issues included a series of stakeholder events in China, Europe, India and the US.

We published a report in May 2008 (summary available at www.gesi.org) identifying 10 key sustainability issues for the ICT sector:

- Climate change
- Waste and materials use
- Access to ICT
- Freedom of expression
- Privacy and security
- Employee relationships
- Customer relationships
- Supply chain
- Product use issues (including health, safety and wellbeing)
- Economic development.

Based on these findings, we developed a methodology to help member companies assess their most material issues. It is used to create a materiality matrix (see diagram left) plotting the significance of around 80 core sustainability criteria for the company and its stakeholders. Reflecting the differences between sub-sectors, additional criteria are tailored for electronic equipment manufacturers, software developers, telecommunications and internet service providers.

#### Next steps

The materiality working group has completed its task and it is now the responsibility of member companies to put the methodology into use, identifying and addressing their material issues.

## **Climate change**

GeSI published SMART 2020 in June 2008 – the first major study identifying the significant contribution the ICT industry can make to creating a low-carbon economy. The report also includes a series of objectives to reduce the ICT industry's own emissions and set an example for other sectors.

We commissioned and funded the SMART 2020 study, which was carried out on behalf of GeSI by The Climate Group, with independent analysis from McKinsey.

#### **SMART 2020: Key findings**

Emissions from the ICT sector will represent an estimated 2.8% of total global emissions by 2020. But ICT will enable others to achieve significant emissions reductions, helping other industries and consumers avoid an estimated 7.8 gigatonnes of CO<sub>2</sub>e<sup>1</sup> emissions by 2020. That is 15% of predicted total global emissions – or five times ICT's own footprint.

The biggest opportunities are:

Smart motor systems: Reducing electricity consumption in industry through optimised motors and automation could save almost 1 GtCO2e in 2020, worth €68 billion (\$107.2 billion)<sup>2</sup>

Smart logistics: Improving the efficiency of transport and storage could save 1.5 GtCO2e in 2020, with energy savings worth €280 billion (\$441.7 billion)

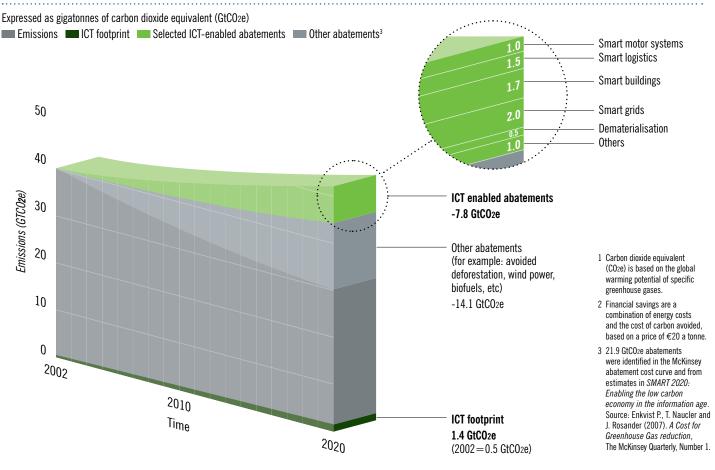
Smart buildings: Making living and working spaces more energy-efficient could save 1.7 GtC02e from building energy use in 2020, worth €216 billion (\$340.8 billion)

**Smart grids:** Improving the efficiency of electricity grids is the largest opportunity identified in the study – with potential savings of 2 GtC02e, worth  $\notin$ 79 billion (\$124.6 billion)

**Dematerialisation:** Dematerialising the way we live and work by replacing physical objects and activities with electronic or 'virtual' alternatives could save 500 Mt CO2e in 2020 – the equivalent of the total global footprint of the ICT industry in 2002.

The full report and a summary of the findings are available at www.gesi.org.

#### ICT impact: The global footprint and the enabling effect



#### Follow up

We have shared the SMART 2020 findings with business, policymakers, scientists, investors, universities, research institutes and other stakeholders at events around the world. GeSI is using the report to emphasise the vital role the ICT sector can play on the road to a low-carbon economy. In the run-up to the crucial climate change Summit in Copenhagen in December 2009, GeSI is calling for global leaders to integrate ICT in the agreement to succeed the Kyoto Protocol. So far, no other sector has demonstrated such potential to contribute to a global low-carbon economy by helping consumers and other industries reduce their emissions.

SMART 2020 has already been widely referenced by experts in ICT and other industries, as well as in academic studies and government reports at EU and national level. Experienced technology and market research analyst, Forrester, produced an independent briefing on SMART 2020. Their briefing helped to raise awareness of SMART 2020 among the people in the industry who can help to make it happen, including IT companies and suppliers around the world.

Global interest in SMART 2020 has led to translations of the report into French, German and Spanish, with requests for further translations into Japanese and Korean. Additional research has also begun to explore the potential impact of ICT on emissions in individual countries. We have already published the findings of a US Addendum to SMART 2020, researched by the Boston Consulting Group on behalf of GeSI members in the US, and a Portugal Addendum, commissioned by the national industry association APDC. Both are available at www.gesi.org.

#### Next steps

GeSI will now focus on realising the opportunities outlined by SMART 2020 in two key areas:

- Achieving the commitments made in the SMART 2020 report
- Evolving the SMART 2020 research to explore specific areas in more depth.

#### Achieving SMART 2020 commitments

GeSI and member companies made a series of commitments published in the SMART 2020 report. These focus on reducing the carbon footprint of the ICT sector and realising the opportunities identified to enable emissions reductions in other sectors. We plan to achieve these by:

- Working with public policy makers to ensure that the right regulatory and fiscal frameworks are in place to move us all in the right direction
- Developing and agreeing an industry-wide methodology for the carbon footprinting of ICT products and services, working with the World Resource Institute, the World Business Council for Sustainable Development and the industry-led EU Methodology Consortium
- Working with organisations in the key opportunity areas transport, buildings, grids and industry systems – to help turn potential CO<sub>2</sub> reductions into reality, and highlight the significant opportunities offered by dematerialisation
- Ensuring that energy and climate change matters are fully considered by the organisations that set the technical standards for our industry, including the International Telecommunication Union, the European Telecommunications Standards Institute and the Alliance for Telecom Industry Solutions in the US
- Emphasising climate issues in our supply chain work to reduce emissions from manufacturing electronic equipment.

#### **Evolution of SMART 2020**

GeSI will expand the SMART 2020 research to focus on individual countries and regions. Research is planned for China, India, Europe and South America in 2009 and 2010. We will also commission further research to investigate how ICT can reduce emissions in each of the key areas identified by the global report, looking first at dematerialisation.

#### **Energy efficiency standards**

GeSI is working with others to develop common industry standards for energy efficiency ratings. The Energy Efficiency Inter Operators Collaboration Group (EE-IOCG), which was working separately on this issue, has now become part of GeSI to combine and strengthen our individual efforts in this area. The new GeSI-EE IOCG Standardisation Branch includes representatives from 21 telecommunications operators globally. It aims to define high level strategic actions for standardisation bodies to facilitate the availability of energy efficient equipment, networks and services.

# Supply chain

Poor labour and environmental standards in the ICT supply chain have been highlighted in the media and by NGO campaigns in recent years. Concerns begin right at the start of the supply chain, with mining in conflict zones for raw materials used in electronic equipment.

GeSI recognises the critical need to address these challenges and believes the industry must work together to achieve the necessary step change in attitudes throughout the supply chain. While our members are working hard to improve corporate responsibility (CR) standards among their suppliers, there are limits to what individual companies can achieve.

In partnership with the Electronic Industry Citizenship Coalition (EICC), GeSI has led industry efforts in this area since 2004. We have developed common tools to improve standards, including a self-assessment questionnaire and shared auditing programme. These standard industry approaches are designed to encourage suppliers to improve labour and environmental performance by presenting an industry-wide call to improve. The common approach will reduce the time and costs incurred by suppliers by avoiding duplication and inconsistency between customers.

Learning and building capability is a key focus of our work and an important aspect of the assessments is educating suppliers on what they need to do to improve performance.

It is not enough to influence the industry's direct suppliers to improve. We also want them to improve conditions among their own suppliers, and so on down the supply chain. We recognise this will take time but we believe it is essential given the complex multi-layered nature of ICT supply chains.

#### Supplier assessments (E-TASC)

E-TASC (Electronics – Tool for Accountable Supply Chains) is a web-based self-assessment tool for suppliers, based on a comprehensive set of ethics, labour rights, health and safety, and environmental criteria. Launched by GeSI and the EICC at the end of 2007, it already has more than 270 subscribers.

Suppliers fill in a single questionnaire on E-TASC and can share their responses with multiple participating customers, rather than completing separate assessments from different companies. The tool includes a risk assessment that automatically provides a report identifying potential risk areas and best practice examples to help improve performance. The questionnaire is available in Chinese, English, Spanish and Japanese at www.gesi.org.

E-TASC also includes a tool to help members conduct an initial risk assessment of suppliers before proceeding to the more in-depth self-assessment. It is based on high-level information about the type of supplier and country of operation.

#### Validated audit programme

GeSI and the EICC have introduced a new validated audit programme to accompany E-TASC. This common auditing service is intended to save suppliers and GeSI members the time and expense of multiple audits. Suppliers are audited once and can share the findings with all GeSI member companies. In 2008, more than 50 suppliers took part in trial audits, and more are now joining the programme.

The audits are carried out by independent auditors, selected by the GeSI/EICC Supply Chain Working Group. Co-ordination and communication of audits is managed by an independent audit project manager to keep relationships between buyers and suppliers confidential and prevent anti-competitive behaviour.

#### Learning and capability

GeSI provides training and materials to increase awareness of social and environmental issues in the supply chain. In June 2008, around 180 people representing 76 companies attended an event in China to publicise our objectives, launch the validated audit programme and explain what to expect during the audit process. We plan to turn this into a regular training programme.

We have also commissioned a third party training developer to produce two new online training courses, to be launched in 2009. These will help buyers to understand CR issues, our expectations and the need to integrate CR into supply chain management, as well as introducing tools such as E-TASC. We plan to work with local training organisations and NGOs to continue building capability among suppliers.

#### **Extraction of metals**

NGO campaigns such as MakelTFair have highlighted social, environmental and humanitarian issues associated with the extraction of certain metals used in the production of ICT equipment. Mining coltan (a tantalum—bearing ore) in conflict regions such as the Democratic Republic of Congo is a particular concern.

It can often be very difficult to be certain about the origin of such materials due to the complexity of the ICT supply chain, but we have begun work to increase transparency. We are also exploring how ICT companies can effectively influence social and environmental issues associated with mining.

GeSI commissioned a study by independent researchers GHGm to understand how metals are mined, recycled, purchased and used within the electronics industry. The study – focusing on six key metals (aluminum, cobalt, copper, gold, palladium and tin) – was published in June 2008 and is available at www.gesi.org.

In November 2008, we engaged with key stakeholders (see page 2) to discuss the findings of the report and set goals to create an industry statement on mining and a model for transparency in the supply chain.

#### Next steps

GeSI will continue to promote the use of E-TASC within our industry and among suppliers, and plan to integrate our validated audit programme into the E-TASC system. Two new e-learning modules will be launched in 2009, and we will hold another event in China to raise awareness about CR issues in the supply chain.

In association with a third-party research partner, we plan to develop a model to make the sourcing of metals in the ICT supply chain more transparent and more sustainable, focusing initially on cobalt, tantalum and tin. We have already appointed the research partner and supplier candidates have been selected for the study.

Building on our work on the extraction of metals, we are now exploring a material declaration list which will help members understand the CR risks of materials used in their equipment.

### **E-waste**

As rapid innovation and changing fashions make products quickly obsolete, a mountain of waste electrical and electronic equipment (e-waste) is growing.

Between 20 and 50 million tonnes of e-waste are produced worldwide every year. GeSI aims to ensure these products are disposed of responsibly and material is reused or recycled wherever possible.

Our vision is for the sector to move from managing risks to encouraging more efficient use and more extensive re-use of materials by viewing e-waste as a valuable resource. Recycling more of the materials in used equipment — including precious metals — reduces environmental impacts from its disposal and reduces the need to extract more raw materials from the ground. This, in turn, reduces the associated environmental and social impacts of mining, tying in with our supply chain work on extraction (see left).

The ICT industry does not have direct control over a lot of equipment – such as computers and mobile phones – when it reaches the end of its useful life. Some of our member companies already have take-back schemes in place. But we rely on users to return products for recycling, and we will encourage them to do so.

ICT companies can make a difference with their own waste disposal contractors and in 2008 GeSI developed an end-of-life management tool that can be integrated into our existing E-TASC self-assessment questionnaire for suppliers. Specific criteria cover collection, recycling, reuse and disposal. This will help GeSI member companies ensure e-waste from their own operations is handled responsibly.

#### Next steps

We plan to publish the end-of-life questionnaire in 2009 following consultation within the industry and externally. The next step is to promote take-back schemes to reclaim more e-waste from consumers for reuse and recycling. Our E-Waste Working Group will increasingly focus on management of material resources as well as risk associated with end-of-life.

### Governance

GeSI was set up in 2001 as a voluntary industry initiative supported by the UN Environment Programme (UNEP) and the International Telecommunications Union (ITU). We became an independent legal entity as an international not-for-profit organisation in 2008. With this change of status GeSI members elected a new Board in June 2008. The Board includes four manufacturers and four service providers, with one additional director representing GeSI's associate members. Board members are elected at our annual general assembly for a two-year term.

Our secretariat is based at a new office in Brussels.

#### The Board

Luis Neves Michael Loch Danilo Riva Joaquim Croca ETNO Deutsche Motorola Vodafone Telekom Treasurer Communications Vice Chair Chair stakeholder engagement **Monique Meche** Markus Terho Paul Dickinson Joan Krajewski Silvia Guzmán Araña Nokia CDP Microsoft Cisco Telefónica Spain Working Working Policy and Policy and Climate change groups groups standards standards Katrina Destrée **GeSI Executive Director** Secretary

# A strategic partnership

We recognise that we cannot achieve our sustainability objectives alone. GeSI works closely with other industry associations, NGOs and inter-governmental organisations, drawing on their expertise in particular areas.

Our strategic partnerships include:



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International Telecommunications Union
(ITU) One of the founding members of GeSI
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**United Nations Environment Programme (UNEP)** A GeSI founding member, one of our original and principal supporters



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European Telecom Network Operators Association (ETNO) a founding member of GeSI and currently on the Board



**Carbon Disclosure Project (CDP)** an associate member and currently on the GeSI Board



World Wildlife Fund an associate member



World Business Council for Sustainable Development (WBCSD) collaborates on climate change initiatives



Electronic Industry Citizenship Coalition (EICC) partners on supply chain initiatives

### **GeSI** membership

We have 26 member companies from Asia, Europe and the US, and 2 associate members – the Carbon Disclosure Project and WWF.



#### Why join GeSI?

Join us to work with other members of the ICT community who aim to achieve sustainability through innovation. As a GeSI member, you will be able to:

- Share experience and knowledge with other global ICT companies and organisations committed to sustainability
- Collaborate with others to make technology work for sustainability, not against it
- Be at the forefront of efforts to raise awareness about the contribution ICT can make to society and the environment
- Benefit from the use of common industry tools developed by GeSI
- Interact with our strategic partner organisations.

Our focus is entirely on sustainability and entirely on the ICT sector. Other industry associations (such as ITU) touch on sustainability issues, and dedicated sustainability organisations (such as UNEP) often deal with issues that affect ICT. We collaborate with many of these organisations in specific areas of our work (see left). But we are unique in our focus on ICT sustainability through innovation.

#### **Applying for membership**

We welcome new members to help us achieve sustainability objectives across the ICT sector and around the world.

- Full membership open to companies or organisations in the ICT sector, including equipment manufacturers, software developers, telecommunications and internet service providers (annual fee US\$20,000).
- Associate membership open to any organisation (including NGOs and academic institutions) connected with the ICT industry that will make a specific contribution to GeSI activities (annual fee US\$1,000).

Membership applications must be approved by the Board. Enquiries should be addressed to the GeSI Secretariat at the address overleaf or by email to katrinadestree@gesi.org



#### Contact

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