A SUSTAINABLE E-EUROPE:
Can ICT Create Economic, Social and Environmental Value?

Final Report on a Consultation Process on Enterprise-Relevant Aspects of the Relationship Between the eEurope Programme and Sustainable Development

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EXECUTIVE SUMMARY

This report summarises the results of a consultation process on the relationship between sustainable development and ICT. The exercise involved an international conference (held in London in May 2003), a subsequent on-line discussion forum and desk research and interviews.

Some key findings from the consultation were that:

There are many sustainability issues for the ICT sector but not all are being fully addressed at present

The digital divide is dynamic and still growing

More information is needed to understand and manage ICT-sustainability interactions

More could be done to increase the effectiveness of corporate social responsibility within the ICT sector

Focused multi-stakeholder partnerships are an effective mechanism for making progress

The right framework conditions such as full cost pricing of resources are essential if there are not to be major rebound effects from many ICT applications

Experimentation with – and celebration of – new ICT-based approaches to sustainable development is critical if progress is to be made

Well-managed e-work schemes can provide important sustainability benefits such as e-work and better quality of life for staff

The non-telecommunications branches of the ICT sector should collaborate more to address sustainability issues

The next page summarises the policy recommendations which have emerged from the consultation process.

Summary Of Policy Recommendations

Examine the role of building codes in facilitating the development of ICT infrastructure in residential and commercial buildings, and the opportunities which these might create for greater use of 'smart services'.

Develop the knowledge base about the extent of under-used capacity within the European economy, and opportunities to increase utilisation through better yield management and other ICT-based approaches.

Develop a new award scheme, either independently, or linked to existing schemes, to highlight e-business initiatives that create significant environmental and social benefit (including helping SMEs to overcome problems which they face vis-à-vis larger organisations).

Stimulate greater awareness amongst European business – and especially SMEs – about opportunities to reduce space costs, and create other business benefits, through advanced forms of e-work.

Encourage the development of sector-specific reporting guidelines for other parts of the ICT sector than telecommunications (e.g. hardware producers).

Support initiatives to develop common data coding standards for on-line reporting so that the information can be easily transmitted and integrated by users.
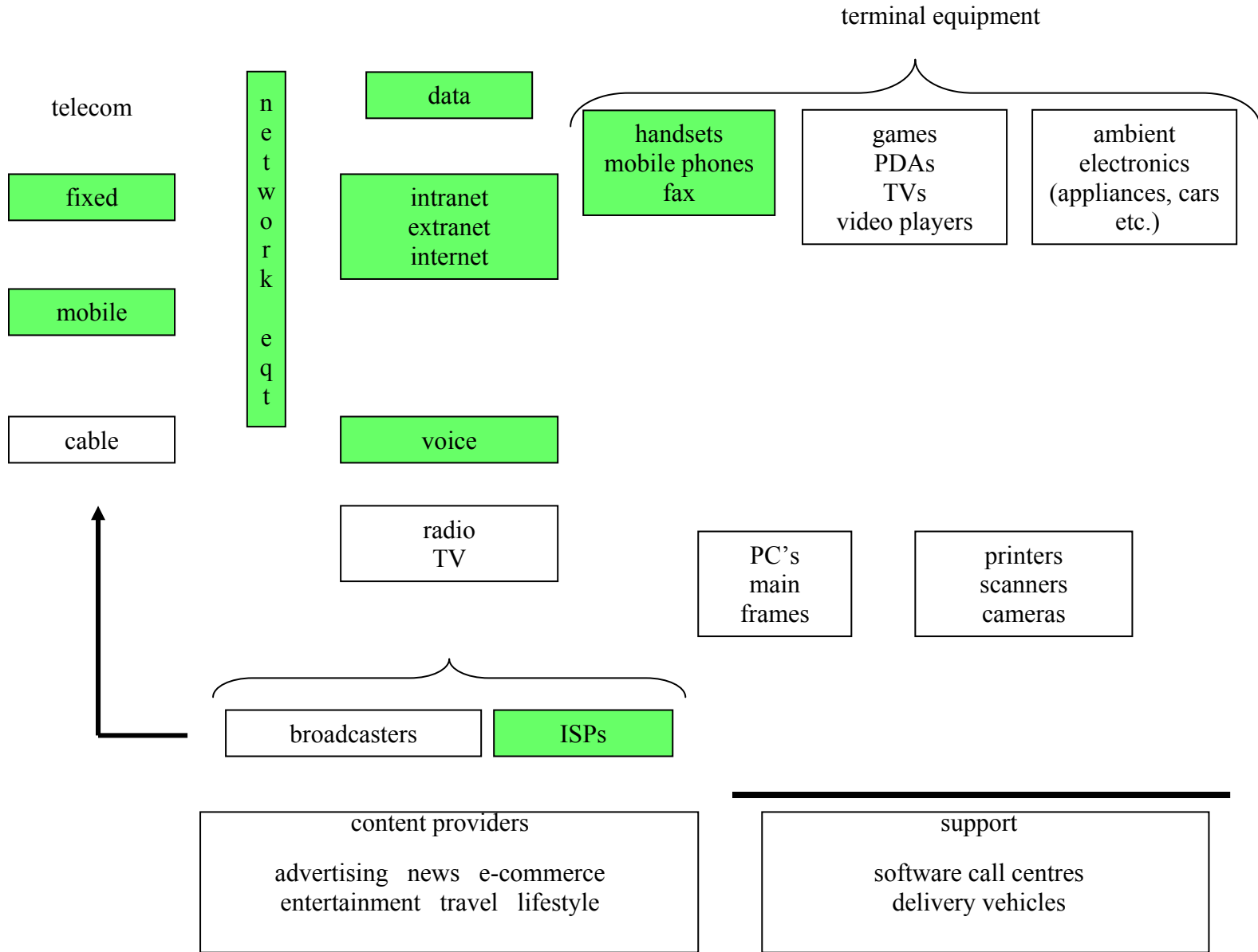
Encourage the development of collaborative initiatives to address e-sustainability issues amongst the non-telecommunications areas of the ICT sector, either through existing mechanisms such as GeSI or the creation of sub-sector specific organisations.

Extend the remit of the European Information Technology Observatory to gather data relevant to e-sustainability.

Develop an on-line consultation initiative to gain further information about the relationship between e-sustainability issues and competitiveness.

Examine the implications of open source software for sustainable development.

FIGURE 1 - THE ICT SECTOR (BASED ON GESI DEFINITION)

terminal equipment

telecom

network eqt

data

handsets
mobile phones
fax

games
PDAs
TVs
video players

ambient
electronics
(appliances, cars
etc.)

fixed

intranet
extranet
internet

mobile

cable

voice

radio
TV

PC's
main
frames

printers
scanners
cameras

broadcasters

ISPs

content providers

advertising   news   e-commerce
entertainment   travel   lifestyle

support

software call centres
delivery vehicles

INTRODUCTION

This report summarises the results of a consultation process organised on behalf of DG Enterprise. The aim was to obtain the views of business, NGOs and others on the relationship between sustainable development and ICT, with particular reference to the eEurope initiative (European Commission, 2002). The process has involved three main activities:

> Organising an international conference on the topic in London on May 22 2003 (see appendix for a summary of the discussions and presentations)

> Organising a subsequent on-line discussion forum

> Desk research and interviews with experts about key topics identified during the conference and on-line discussion.

The activities have taken place against a background of growing international interest in the relationship between ICT and sustainable development (see for example, Digital Europe, 2003a, EITO, 2002, IEE, 2003, Park and Roome, 2002). As noted below, many people believe that ICT has the capability to help reduce the environmental impacts of economic activities, create greater social inclusion and enable poorer countries to develop more quickly than has been possible in the past. This was a theme of the 2002 Johannesburg World Summit, and will be explored further in the World Summit on the Information Society whose first stage will take place in Geneva during December 2003.[1]

Figure 1 identifies the economic sectors, which can be considered as part of the ICT industry (as identified by GeSI - the Global e-Sustainability Initiative which is described further below). One general point, which has emerged from the consultation exercise, is that, although all sections of the industry have environment and social impacts, most of the collective activity to deal with them has occurred within the telecommunications sector of the industry (indicated by the shaded sections of the figure).

An integration of the three consultation activities has identified four key topics, which are of relevance to DG Enterprise's mission of improving competitiveness and efficient production, and supporting the development of small-medium sized enterprises:

- Eco-efficiency

- Digital divide

- E-work

- Corporate social responsibility.

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[1] See www.wsis.org for further information.

The following sections summarise the current 'state of the art' with regard to these topics, and make recommendations as to measures which DG Enterprise could take to better understand, and influence, their development.

The bibliography provides further information on each of these topics, and also on another conference theme, which was the relationship between ICT and human capital.

1. ECO-EFFICIENCY

ICT can create many environmental benefits, for example through:

> Improved management of supply chains, leading to less holding of inventory (and associated storage requirements) and reduced wastage from stocks which become obsolescent or damaged before they can be sold

> Better understanding – and improved control - processes resulting in more optimal operation

> Substitution of electronic for physical activities (sometimes called dematerialisation)

There have been several optimistic assessments about the overall relationship between e-business and sustainable development, notably Romm (2002). He argues that the IT sector is less energy–intensive than traditional manufacturing, so growth in this sector engenders less incremental energy consumption. He also believes that the Internet economy itself seems to be generating both structural and efficiency gains. This is also the message of a report by UNEP & GeSI (2002).

However, electronic equipment itself consumes considerable amounts of energy (Deutsche Telekom, for example, accounts for around 0.5% of total German energy consumption) and also uses many non-renewable resources. Some sceptics such as Huber and Mills (2000) have argued that this increased energy consumption outweighs any energy benefits but Romm (2002) provides a detailed refutation. Burns (2003) also demonstrates that there are considerable opportunities to reduce the energy consumption of ICT equipment further.

The Digital Europe (2003a) project has undertaken detailed calculations of several physical and ICT processes – for example, e-banking, and demonstrated that the latter are more eco-efficient in the short term. However, they caution that any gains may be offset by 'rebound effects'. They also conclude that "a significant structural change towards a dematerialised e-economy induced or influenced by the ICT sector (as it can be defined statistically) cannot be observed" (Digital Europe, 2003b p.1).

Possible Actions by DG Enterprise

Examine the role of building codes in facilitating the development of ICT infrastructure in residential and commercial buildings, and the opportunities which these might create for greater use of 'smart services'.

Develop the knowledge base about utilisation of capacity in key economic sectors, and opportunities to increase this through better yield management and other approaches.

Smart Services Create Environmental Benefit

ICT-based 'smart services' gather and analyse vast amounts of information in order to improve the efficiency of processes and systems. For example:

Capturing detailed information about energy consumption in buildings through automatic meters and monitoring and control software allows wastage to be quickly identified and tackled and costs to be more easily allocated to users

Fleet management based on telematic data can track and control trucks in real time and enable them to avoid areas of congestion and enable reverse logistics

Precision agriculture combines GPS location data with satellite and local information about field and crop conditions to control the application of fertiliser and pesticides, resulting in less use to achieve the same results as traditional methods.

E-business and the Environment

A study of the environmental effects of e-business summarised them as:

Waste – e-business can be positive in reducing wastage from stocks which become obsolescent or damaged before they can be sold, in creating waste markets, in facilitating reverse logistics and waste take-back, and in providing easier access to environmentally important information. However, achieving these benefits could be difficult in virtual organisations where many activities are outsourced. E-commerce might also speed up the rate at which new products are introduced – and phased out – with a risk of greater wastage from obsolescence. There is also evidence that e-retailing can increase demand for packaging because it is important to minimise returns – which are expensive – by providing more protection in transit.

Environmental risk – e-business can create easier access to critical information, and potentially providing more detailed audit trails. However, these do require commitment by companies, which may be hard to achieve if organisation is virtual.

Fuel, energy and water resources – e-business can be positive in substituting electronic for physical activities and in improving the efficiency of some existing processes. However, electronic equipment itself consumes considerable amounts of energy whilst there is a danger that savings from printing documents may be partially or completely offset by increased local printing.

Procurement - e-business can make environmental information more accessible and more up-to-date across the supply chain. In some cases e-procurement merely automates existing practices and therefore has no environmental implications. But open B2B exchanges can create new patterns of buying and selling. One potential advantage of such exchanges is that they can provide new mechanisms for environmental assurance of suppliers. However, if these are absent there is a risk that the impersonality and price driven nature of such exchanges could mean that little or no attention is paid to environment.

Local impacts – e-business can be positive in providing easier access to locally relevant information and reduced demand for office and possible retail space. However, there may be greater demand for warehousing.

Product stewardship – positive effects of e-business include more detailed audit trails and easier access to information. A possible negative is lack of responsibility within virtual organisations.

Emissions to air – this is not a major direct impact of e-business, although there indirect impacts as a result of changes in transport and energy consumption.

Transport –E-business can be positive in reducing work-related journeys and improving capacity utilisation within distribution, for example by revealing opportunities for reverse logistics. Negative effects may include greater van movements from home shopping, greater use of air freight because e-commerce makes international sourcing easier and cheaper, and possible long-term rebound effects from flexi-working (James, 2001).

2. DIGITAL DIVIDE

Digital divides – differences in the use of, and access to, information and communication technology (ICT) tools, and particularly the Internet – exist both within countries and regions, and between countries. Today 88% of all internet users are amongst the 15% of the world's population in the industrialised world. Finland has more Internet users than the whole of Latin America. There are also big differences within the developed world. In 2002 58% of all Americans had Internet access at home, compared to only 38% in Europe. Within the EU, the percentage varies between 60% in the Netherlands and 10% in Greece (BBC Online, 2002).

Usage also differs by age. In 2001 85% of UK residents between 16-24 had Internet access compared to just 15% aged 65-74, and 6% over the age of 75. Only 23% of the lowest income group are riding on the information superhighway, compared to 68% of those in the highest income group. In France too, 74% of the highest income bracket in France has a personal computer, compared to only 11% in the lowest income bracket. And only 40.5% of French Internet users and 33.5% of the Spanish online population are female (Informing Science InSITE, 2002),

As these figures show, factors in creating a digital divide include age, gender, income, race, employment status, education and geography. Indeed, to a substantial degree the digital divide is a reflection of broader social divides, and is therefore as likely to be resolved by general policies to reduce these as ICT-specific measures.

One important point is that digital divides are dynamic – as new applications and technologies come into play then new forms of exclusion can occur. One example highlighted in the conference was the introduction of e-government. Poorer people tend to have many more contacts with Government than others so an inability to access web sites and other on-line mechanisms can be a growing disadvantage as they migrate to this platform. The Digital Europe project (2003c) has suggested that the concept of a digital ladder, with a range of rungs which people climb through, is a more appropriate way to think about the topic than a simple black and white divide.

The rapid and widespread use of mobile phones in all groups of society demonstrates that, once access is possible at a reasonable cost, none of the other barriers are insuperable if people want to use a technology. A major factor in reducing the digital divide will therefore be creating good reasons for people to want to use it.
These factors will also be important in developing countries but there the main problem is lack of access. It appears that wireless systems will be a major factor in achieving this over the next decade.

There is also a feeling amongst many experts that enough research has been done to understand the problems of the digital divide – the key requirement is to take action to deal with them. Some organisations, which are trying to achieve this at global level, include:

> Bridges (www.bridges.org)

> Digital Divide Network (www.digitaldividenetwork.org)

The World Economic Forum's Global Digital Divide Initiative
(www.weforum.org).

Possible Actions by DG Enterprise with regard to the digital divide

Develop a new award scheme, either independently, or linked to existing schemes to highlight e-business initiatives which create significant environmental and social benefit (including helping SMEs to overcome problems which they face vis-à-vis larger organisations).

3. E-WORK

More and more organisations and individuals are adopting e-work – in which staff work remotely from their normal location by using ICT tools – across the European Union. Penetration rates are now very high in most north European countries and there is growing interest in southern Europe (ECATT, 2000).. This increase is occurring for a number of reasons - whose relative importance varies between countries – with employees' desire for a better work-life balance being one of the most common.

Different forms of e-work are also emerging. In particular, some organisations – often concentrated in the ICT sector itself- are moving towards highly mobile forms of e-working. Their staff spend little time in offices and mainly work from home, at customers premises or whilst travelling, making extensive use of technologies such as laptop computers, GSM mobile phones and wireless networking. When they do visit an employer's premises they no longer have a dedicated space. Instead they work at 'hot desks' (shared work spaces providing access to a network which people use sequentially) in specially adapted buildings (usually containing cafes and other social spaces, meeting rooms bookable over the Intranet and so on).

Most discussion of the relationship between e-work and sustainable development has focused on its transport impacts (Arnfalk, 2002). However, evidence is now emerging that e-work – and particularly its highly mobile forms – can greatly increase the competitiveness of employers and benefit the environment through its effects on office space. The best-documented benefit is with regard to space. The SUSTEL project, for example, has found that in Holland radical forms of e-work can reduce space requirements from a normal 25 square metres or so per employee by 50% or more (see www.sustel.org). In the case of the ICT services provider Solvision (which presented at the conference) this has fallen as low as 3 square metres.

At the macro level, a study by the UK Royal Institute of Chartered Surveyors (2002) concluded that UK businesses were wasting up to £18 billion a year – around 1.5% of GDP - through inefficiency in their use of property. Over a third - £6.5 billion – of the estimated savings were thought to be available from "hot desking" and other new working practices, of which e-working is an important component. In addition to increased office efficiency, and decreased need for new office construction, the report also concluded that the freed office space could help ease housing shortages in London and surrounding areas. Of course, the very high level of UK property costs means that potential savings would be less in other European countries. There may

also be 'rebound effects' from office space savings in the form of additional space requirements for working at home, or in other locations. Nonetheless, the potential space benefits of e-work appear to be considerable.

Evidence is also increasing that well-managed e-work generally improves work performance – manifested as higher productivity, better quality of work and in other ways – and reduces absenteeism and job turnover. Of course, there are often some negative effects of e-work – notably longer working hours by many staff and increased isolation – but in most cases these do not appear to offset the benefits for organisations or individuals. However, the SUSTEL research found that few organisations had a full understanding of the full benefits and costs of e-work, and were not therefore in a position to make fully rational decisions.

One sector where e-work could make a major difference to European competitiveness is with regard to call centres. These are often seen as low quality employment but is an important and growing source of employment in many areas of the Union. However, some of this employment is migrating to developing countries and more may follow because of their cost advantage. A number of cases have shown how modern technology now makes 'virtual' call centres – in which people work from home – feasible and appears to increase performance and job satisfaction. For example, Telecom Italia's Info412 call centre operation now has almost a quarter of its workforce e-working. It has found that home-based staff spends 15% less time on calls – and for this and other reasons – take 3.3% more calls per hour – than call centre-based colleagues. Other benefits include savings in office costs, reduced absenteeism and greater flexibility. The home workers themselves also feel that they have benefited from more time with family and less commuting (Bartolomeo and Federici, 2003).

E-work therefore seems to be a way of both humanising work, which can be unsatisfying in an office environment, and of enabling European call centre operators to become more competitive. As the Annie Connect example shows, it can also be a means of bringing excluded groups into the labour force.

Possible actions by DG Enterprise with regard to e-work

Stimulate greater awareness amongst European business – and especially SMEs – about opportunities to reduce space costs and create other business benefits through advanced forms of e-work.

> **Annie Connect**
>
> You might expect a call centre business set up by, to be unorthodox and you'd be right. founded The Dutch call centre company Annie Connect BV was established (by Leo Dijkgraaf, an actor and drama teacher) in January 2000. It now has over 500 agents answering calls from home, over half of them previously unemployed disabled people and many of the others mothers with young children.
>
> Annie Connect remedies two weaknesses of conventional call centre operations – demotivation of staff and a resulting high turnover. Employing people who would otherwise find it difficult to work, and training them well, results in high motivation, good customer service and retention of staff. Home working also gives greater flexibility in offering 24/7 service basis and fast responses, and greatly reduces office costs. These benefits more than outweigh the high costs of ADSL-based telecoms infrastructure, intense training and the lower productivity and higher absenteeism which occurs with some disabled staff (DeBruin, 2003).

4. CORPORATE SOCIAL RESPONSIBILITY

This has two main aspects of relevance to DG Enterprise's ICT responsibilities:

> CSR activities within the ICT sector itself
>
> The growing use by all sectors of on-line methods of reporting CSR activities.

CSR issues within ICT fall into three main categories:

> Supply side – the environmental and social impacts of producing hardware and software, running and disposing of hardware, and operating communications networks
>
> Demand side – the environmental and social impacts of the use of ICT products and services
>
> Access – the problems of accessing ICT products and services for particular groups, e.g. SMEs, the poor, people in developing countries, people in remote areas.

The ICT sector has a patchy record with regard to CSR. For example:

> A survey of directors and senior managers in 220 ICT companies in 2001 found that under 25% of the responding companies had a clear CSR strategy (Foley and Jayawardhena, 2001)
>
> The Digital Europe project has also found that only 120 ICT companies report on their environmental and social performance (Alakeson, 2003).

4 of the top 50 companies in the UNEP/Sustainability 'league table' of CSR reporting were from the ICT sector in 2000, and 6 (British Telecom, Cable and Wireless, Deutsche Telekom, Matsushita Electric, Siemens and Sony) in 2002 (UNEP/Sustainability, 2002).

However, a survey by the Digital Europe project has also shown that European companies leading in the take-up of e-business are more likely to engage in social and environmental issues than others (Digital Europe, 2003).

Within the ICT sector, there is a disparity between the telecommunications sub-sector and others. In several countries receipt of reporting awards and other indicators shows telcos to be industry leaders in the areas of CSR (e.g. Deutsche Telekom in Germany, BT in the UK). These and other leading telcos have also been instrumental in establishing collaborative networks to develop CSR – such as the committees of the European Telecommunications Network Operators (ETNO) association and the GeSI, which links the sector with NGOs, UNEP and other stakeholders (REFs). (Although GeSI is in practice open to all ICT organisations, in practice it has been most successful in recruiting telcos). GeSI has also provided a vehicle for the sector to liaise with the Global Reporting Initiative, which has resulted in the publication of a sector-specific reporting protocol for telecommunications (GRI 2002). This recognises some of the specific problems of CSR with regard to ICT, particularly the difficulty in drawing 'system boundaries' as many of its impacts are created by the use of its products in society as a whole. The Digital Europe study (2003b) has also reported the feeling of many companies in the sector that flexibility and room for manoeuvre are very important and that there is a danger of overly restrictive guidelines stifling a sector driven by creativity and innovation.

As the conference revealed, there is still some scepticism as to the impact of CSR at operational level within the ICT sector (and more generally), particularly given the current very competitive conditions within the sector. There is also a lack of any agreed way of measuring the business benefits of CSR, although many ICT companies believe that they are real. (BT noted at the conference, for example, that its CSR activities account for 10% of its customer satisfaction ratings).

Whatever the impact of CSR there is no doubt that the Internet can help to make CSR information more readily available to stakeholders. Indeed, several leading companies – such as BT – have now abandoned paper-based reporting completely and solely report on-line. However, less attention has been paid to standardisation of this form of reporting compared to more traditional methods so this is likely to be a focus for future action by GRI and other initiatives.

On-line reporting also creates new technical possibilities of linking information on individual company impacts with other sources, e.g. other companies, public sector information. One effect of this would be to allow users to quickly obtain and integrate a variety of information e.g. downloading comparative data on all companies in a sector into a spreadsheet. This is the vision of the Neskey initiative, one of the 'road map' projects commissioned by DG Information Society (see www.neskey.com).

Possible actions by DG Enterprise with regard to CSR

Encourage the development of sector-specific reporting guidelines for other parts of the ICT sector than telecommunications (e.g. hardware producers)

Support initiatives to develop common data coding standards for on-line reporting so that the information can be easily transmitted and integrated by users.

Other actions which could be taken forward by DG Enterprise

Encourage the development of collaborative initiatives to address e-sustainability issues amongst the non-telecommunications areas of the ICT sector, either through existing mechanisms such ass GESI or the creation of sub-sector specific organisations.

Extend the remit of the European Information Technology Observatory to gather data relevant to e-sustainability.

Develop an on-line consultation initiative to gain further information about the relationship between e-sustainability issues and competitiveness.

Examine the implications of open source software for sustainable development.

TABLE 1 - THE MAJOR IMPLICATIONS OF USING THE WEB FOR REPORTING

Report Aspect	Advantage	Disadvantage
Visibility and accessibility	Web-based reports are accessible through an internet connection anytime, anyplace.	Without active promotion, websites can be invisible offline.
	Their visibility can also be increase through hyperlinks from other organisations.	Some stakeholder groups, such as employees and the local residents, may not have Internet access.
		Reports are often hard to find from a company's homepage.
Timeliness of data	It takes much less time to upload a website than it does to publish a hard-copy report.	Users may not be convinced that the Web pages and data verification are up to date (thereby detracting from their credibility) without extensive 'data stamping' or update reports.
	Reported data is much more current and therefore relevant as new information can be added to the website as soon as it is available.	
Ease of use	Interactive and can be fun to use, especially if using cutting-edge web technology.	Most users like to read off-screen - Web reports are hard to 'shelve' and often require long downloading and printing times.
	Multiple languages – easier to use multi-lingual versions.	A Web-only format will not meet the need of all stakeholders.
Additional aspects of reporting	Websites can offer users the ability to tailor a report to their needs.	A Web report is not the 'business card' a paper report can be.
	By making feedback easier websites can achieve high response rates.	Some users will be more inclined to leaf through a hard copy report arriving in the post, than to search for a web page.
Environmental impacts of publishing	Reduced energy, pulp and ink-use from e-publishing.	Reporting companies can manage the impact of its printing operations but has no control over the impacts of readers printing off personal copies.
	Avoids wastage from companies printing excess hard copies.	
Quantity of reported data	Avoids size restrictions of paper reports.	Navigation through many pages is often difficult, so careful design is needed to help the user.
	Larger quantities of information available.	

Source: ACCA and Next Steps (2002), Environmental, Social and Sustainability Reporting on the World Wide Web: A Guide to Best Practice, London: ACCA.

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APPENDIX – SUMMARY OF THE CONFERENCE DISCUSSIONS AND PRESENTATIONS

1. General Conference Themes

The conference was organised on behalf of DG Enterprise to obtain the views of business, NGOs and others on the relationship between sustainable development and ICT. The following paragraphs describe the main themes which where discussed during the day.

There Are Many Sustainability Issues for the ICT Sector

The main socio-economic issues identified were:

> The importance of ICT to Europe's economic development, which – in the view of many participants – also enables high environmental and social standards.

> The role of ICT in maintaining and developing Europe's human capital – positive aspects of this are the advanced skills needs of both the ICT sector itself and its application throughout the economy, and its general contribution to economic development and associated growth in human capital; potentially negative aspects may be export of work and skills outside the EU (but little reliable information currently exists about this). It can also be argued that savings in labour costs, through ICT-enabled job exports, can make companies increase their productivity and therefore offer cheaper goods/services to consumers, thereby increasing economic welfare. And in the long-run it is not clear whether there is a net destruction or creation of jobs as labour can potentially be reskilled and deployed to other tasks.

> The digital divide, both within Europe and between Europe (and the developing countries) and the rest of the world (see below for more detailed discussion).

> The value of easier access to the information which the Internet creates – information which can be used to develop environmental and social awareness, to help mobilise support for sustainable development, to reduce dependence (e.g. empowerment of patients through access to on-line health information) and to support personal development.

> The importance of establishing higher levels of security and trust on the Internet – something which is important not only for the continued growth of e-business, but also to ensure that privacy is guaranteed (OECD, 2003).

> The role of open standards – with some delegates arguing that this is not merely a technical issue but also an important prerequisite to widespread access and participation, and high levels of innovation.

The main environmental issues identified were:

The potential for electronic process or products to substitute for physical ones – for example, downloaded music for CDs, audio or videoconferencing for transport – and the precise environmental benefits of these.

The potential for ICT to achieve a much greater optimisation of economic processes than at present, with consequent improvements in eco-efficiency

The existence of 'rebound effects' and the extent to which these can offset initial environmental gains.

The Digital Divide is Dynamic and Still Growing

Some groups whose limited use of ICT was a focus of past discussion about the digital divide (e.g. women) are now mainstream users. However, the situation is worsening – either relatively or, in a few cases, absolutely - for others. BT research shows, for example, that the poorest people in the UK have 10 times more contact with Government services than the average – hence as e-Government grows, their relative position worsens. Disability is correlated with age so, with a greying population in most European countries, the doubly disadvantaged group of old people with accessibility problems is also increasing.

More Information is Needed to Understand and Manage ICT-Sustainability Interactions

Although the Commission and others have introduced new sources of information, such as e-Business Watch, analysis is still handicapped by lack of information. For example - in the economic area, the relationship between ICT and productivity improvement; in the social area, the exact nature of the digital divide between and within member states; and in the environmental area the exact nature and extent of rebound effects are all uncertain.

CSR is Widespread in the ICT Sector … But there Are Doubts About its Effectiveness

Leading ICT companies have a long history of CSR activity. A survey by Digital Europe project published on the same day as the conference also demonstrated that European companies leading in the take-up of e-business are more likely to engage on social and environmental issues (see.digital-eu.org). The Internet can also help to make CSR information more readily available. However, there is still some scepticism as to the impact of CSR at operational level, particularly given the current very competitive conditions within the sector. There is also a lack of any agreed way of measuring the business benefits of CSR, although many ICT companies believe that they are real. (BT estimates, for example, that its CSR activities account for 10% of its customer satisfaction ratings).

Focused Multi-stakeholder Partnerships can be Effective

Transparency of information, and dialogue with stakeholders, is an important element in business responses to sustainable development issues. The conference also provided a number of examples where collaboration between business, stakeholders and other bodies – variously described as multi-stakeholder dialogues, partnerships, collective actions etc. - has created sustainability benefits from ICT. These included:

> The telecommunication supplement developed by a working group of telecomms companies, NGOs and others under the auspices of the Global Reporting Initiative (which is itself a multi-stakeholder coalition bringing together environmental NGOs, leading multinationals, professional bodies and other organisations and experts to develop a standard template for environmental and sustainable development reporting)

> The Global e-Sustainability Initiative (GeSI – see above)

> The Digital Divide Taskforce of the World Economic Forum (see below)

> BT's Campaign for Digital Inclusion (see below).

The Right Framework Conditions Are Essential

In many respects, the sustainability challenges of ICT are created by – and to some extent therefore can only be met – by broader economic and social factors. In particular:

> The environmental rebound effects of ICT are exacerbated when energy and materials costs are low, and do not full reflect their environmental impacts. 'Full cost pricing' would therefore do much to minimise rebound effects.

> The digital divide is in many ways a symptom of social inequality – greater equity therefore may be as effective in reducing its extent as any specific measures.

Innovation is Critical

As knowledge is still limited, it is important that public authorities and business experiment with different approaches to tackling key sustainability issues, particularly the digital divide. Celebration of successful initiatives – for example by national and international - award schemes is also important.

The ICT Sector Should Collaborate More to Address Sustainability Issues

Whilst many individual ICT companies are doing much on an individual basis, a number of speakers highlighted the absence of a common response to the issues being discussed at the conference. This was felt to be important to develop better information, to make it easier to form multi-stakeholder coalitions and to create an access point for external stakeholders wanting to engage with the industry. Several speakers noted that this had been achieved by the telecomms sector, which has a single European trade association, ETNO (with regular meetings of member's environmental and CSR managers), has set up a Global e-Sustainability (GeSI)

initiative to prepare a co-ordinated response to the Johannesburg summit, and has worked with the Global Reporting Initiative to develop a telecommunications supplement to the GRI standard to encourage greater CSR reporting within the sector. None of these activities are really replicated within the ICT hardware and software sectors.

2. Summaries Of Presentations

WELCOME
- Jonathan Selwyn, Director, UK CEED and SustainIT, Chair

INTEGRATING SUSTAINABILITY INTO ENTERPRISE POLICY
- Pedro Ortún, Director, Enterprise Directorate-General, European Commission

The Commission sees the three pillars of sustainable development – economic, social and environmental - as being strongly interconnected, not least because effective environmental protection and social cohesion are enabled by dynamic economic development.

In today's world a major driver of economic growth is more efficient production, which is increasingly associated with the application of ICT. Differences in the level – but, even, more, the effectiveness - of ICT investment appear to be a major factor in the productivity gap between the US and the EU. DG Enterprise has launched an e-business watch function to monitor the uptake and impact of e-business in European business at sectoral level.([www.ebusiness-watch.org).](www.ebusiness-watch.org). What seems clear so far is that European organizations need to reorganize their business processes in order to gain the full potential of ICT.

Skills are necessary to make this "digital transformation" happen. Investing in skills and knowledge is not only essential for productivity but also for a socially sustainable development and social cohesion. The introduction of ICT increases skill requirements, leads to empowerment and promotes innovation and positive externalities. However, it is unclear whether, in the light of the ICT sector's retrenchment in recent years, Europe still has the 'skills gap', which was widely publicized in the 1990s. It is also unclear whether an increasingly globalised ICT sector is creating net gains in employment in Europe, or whether new investment in some areas is offset by export of skills and work in others.

E-government is also a central theme in information society policy at all levels. Governments are important consumers of ICT goods and services themselves and can play a catalyst role for the economy through electronic public procurement. For citizens, e-Government has the potential to be more interactive, responsive, inclusive personalized, relevant and efficient.

The EU has already taken many actions to ensure that ICT creates environmental and social as well as economic benefit, including:

      Socio-economic research such as the Digital Europe project of DG INFSO

      The WEE Directive on end-of-life disposal of electronic equipment

      Encouragement of CSR actions by ICT (as well as other) sectors.

In conclusion, ICT is having – and will continue to have - an impact on all three aspects of sustainability. We should not think in terms of trade-offs between the three aspects because there are synergies between economic growth, social cohesion and

environmental protection. Maximising these synergies requires better information about the impacts of ICT, and dialogue with stakeholders to ensure that it is beneficial for all. The conference has been set up to help further both these objectives.

ICT AND CORPORATE SOCIAL RESPONSIBILITY
- Elena Bonfiglioli, Director, CSR, Microsoft Europe, Middle East and Africa

Microsoft has recently begun a process of corporate transformation in response to dialogue with its stakeholders. Its strategy is also one of decentralization and investing in local operations and talent. In Europe – where the company has been present for 20 years – this has resulted in a presence in 53 countries and over 10,000 employees. Microsoft also estimates that reselling, consultancy and other activities related to its products create an additional 1.8 million jobs in the continent. It has also won a number of European awards for being a good employer.

Key sustainability issues for Microsoft include:

> Enabling the growth of European business and the European economy, with consequent benefits of employment, enhanced human capital etc.

> Making the ICT space trustworthy through improving security, better privacy and other means

> Enabling economic, environmental and social innovation

> Reducing the digital divide so that all citizens can have access to the benefits of ICT

> Encouraging more women to join and progress within the industry

> Reducing the environmental footprint of ICT equipment and processes

> Creating easier access to sustainability-relevant information, e.g. by supporting the development of on-line CSR reporting.

The ICT sector is of major economic importance in its own right and also a major enabler of growth in other industries through productivity gain; catalysing change in business and work organisation; reducing routine transaction costs and rationalising supply chains. It creates 'knowledge work' which is highly skilled, rewarding and often flexible in time and location. If this flexibility is well-managed it can increase work performance whilst improving people's quality of life and work-life balance (for example, through telework). However, more research is needed on the actual use and impacts of ICT in society to ensure that these benefits are maximised.

The digital divide is growing, both within and between countries. International differences are particularly striking. Today 88% of all internet users are amongst the 15% of the world's population in the industrialised world. Finland has more Internet users than the whole of Latin America. The best solution to this and many other ICT-sustainability issues is collaborative action betwen business and stakeholders. Examples which Microsoft is involved in include:

The Digital Divide Taskforce - a unique partnership between World Economic Forum member companies, NGOs, and participating governments. The Taskforce has resulted in over $25 million in financial and in-kind donations raised to support educational technology initiatives, support for entrepreneurship and other activities in six target developing countries—India, Vietnam, Jordan, Ghana, South Africa, and Brazil.

The South African Digital Bridges project where Microsoft partners with the IBLF. This supports education and teacher training hand has reached 32,000 schools, 12 million students and 380,000 teachers. The savings to the SA government are estimated at $11.4 million pa.

The Kosovo Refugee Registration Project, in which Microsoft and its corporate partners (Compaq, Hewlett–Packard, Canon, Kingston Technology, Securit World Ltd. and ScreenCheck B.V.) worked with UNHCR to design and deploy a refugee registration system for people who hasd generally been stripped of all their documents.

Responses to the Zimbabwe famine – where integrated use of field PDAs has resulted in faster information gathering and response, and therefore fewer deaths.

BT'S CAMPAIGN FOR DIGITAL INCLUSION
- Mike Hughes, BT Group Head of Environment and CSR Campaign

BT is the main telco in the UK and one of the world's largest. It has a long history of environmental management and CSR and has won a number of national and European awards for its reporting on these. It has commissioned and published a number of research reports on the environmental and social impacts of its activities, including e-business, conferencing, teleworking and the energy impacts of its network. It also engages in regular consultations with stakeholders. One message from this has been that enough research on the digital divide has been done and that the main need is for action to reduce it.

Until recently BT's CSR activities were divided between different business units and departments but a more integrated approach has now been introduced to achieve greater impact and a better alignment with core business activities. The emphasis now is activities, which contribute to "Building a more communication-rich society in which individuals, families, communities and organisations can interact, learn and flourish to the full." The main components of this are supporting better communications in education and voluntary organisations (e.g. by providing free broadband links) and actions to reduce the digital divide within the UK.

Over 40% of UK households now have home access to the Internet. Most households, which do not have access, don't do so because they see little use for it and/or have accessibility problems. (Note that 25% of the UK population has illiteracy/ learning difficulties; 8% visual/ audio literacy problems i.e. difficulty in responding; 10% has physical difficulties and 12% has visual impairment/ hearing loss).

The initial focus of BT's Campaign for Digital Inclusion has been the piloting of an integrated approach – called Everybody Online - in six of the UK's most disadvantaged communities. In each a full-time project officer has been appointed, with a brief of working with local authorities, community groups, education providers and others to take actions to increase:

> Connectivity – i.e. Internet take-up amongst disadvantaged groups

> Content – creating an incentive to 'join in' through useful material, access to e-mail etc

> Capability – overcoming education and disability issues.

The Campaign is also supported by other activities, including the annual eWell-Being Awards (which celebrate ICT innovations which create environmental and social benefit at community level); a free web site building tool for community groups and provision of free broadband connections and/or PCs to selected ones.

In conclusion BT believes that:

> The digital divide can only be reduced by concrete and on-going actions at community level, which are focused on the needs of known individuals

> These activities have to be based on a good understanding of the incentives which can be provided to disadvantaged non-users

> Government, business and NGOs need to work together – BT regards its Campaign as being as much on behalf of the entire sector as itself and hopes to draw in other partners in future.

ICT AND SUSTAINABLE DEVELOPMENT
- Denis Pamlin, WWF Sweden (editor of *Sustainability at the Speed of Light*)

As the Johannesburg Summit declared, ecological impacts and social inequality (within and between nations) continue to worsen. ICT often works as a catalyst that can either speed up these current unsustainable trends or contribute to a shift towards sustainable development. It must also offset its own environmental footprint for there is no such thing as a weightless or friction-less economy: we will always need food and shelter, will own material objects, and need transport.

ICT can contribute to environmental sustainability in many ways, including:

> De-materialisation – as an example, a physical answering machine has 20 times the material impact, 230 times the energy impact and 240 times the greenhouse gas effect of a 'virtual' one.

> "De-transportation" i.e. substitution of electronic for physical communication – one study has shown that the total costs (which can act as a rough proxy for environmental impacts) of a Scandinavian travelling to a business meeting

range from 4 times greater than conferencing for a car journey within Scandinavia to more than 20 times greater for air travel outside Europe.

Increased efficiency of economic activities – for example, one study of on-line book selling found that its costs per square foot were 50% less than a bookstore, with many of the reasons for this difference (less floor space, less inventory) also being environmentally positive.

However, rebound effects can also be substantial. Hence, ICT's contribution to sustainable development can only be realised within the right policy framework. This requires:

Ongoing discussion about the overarching questions – particularly how ICT can foster greater democracy and a reduced and fairer environmental footprint from economic activity

Integrating a number of key principles – service not products; recognising and minimising rebound effects; ensuring that systems are robust; and working on parallel time horizons (short term and long term simultaneously) – in all areas

Choosing a limited number of areas that support each other and that give concrete results - ICT products; transport of people and goods; city planning/housing; production and consumption; relation to other technologies and the digital divide

There is still time to ensure that ICT supports rather than impedes sustainable development. The question is whether a sufficient number of the individuals who can influence outcomes will dare to go beyond their current roles and have the courage to be innovative.

ICT, SUSTAINABILITY AND SMALL BUSINESS - LESSONS FROM THE VISION WEB
- Marielle Roozemond, Coordinator, Corporate Communications, The Vision Web

The Vision Web is a Dutch-based company employing around 400 consultants in ICT applications such as data warehousing, wireless networks and e-commerce. The company has grown rapidly from its start in 1996 to 46m euros of turnover in 2002 (10% lower than in 2001 due to the ICT industry's recession).

The company's strategy is to make maximum use of networking as the best means to adapt to market changes. In people terms this means relying on self organising people working on 'micro enterprises' within a Vision Web group, a 'virtual' office (with no fixed desks and encouragement of mobile working) and a philosophy of respect, trust and synergy.

However, the need for rationalisation and reorganisation created by the ICT recession has highlighted some of the advantages and disadvantages of new ways of working. The problems are that self organizing people have a strong wish to create something new (which can be initially expensive in time and resources), to build and not to

consolidate. They don't get their kicks out of working from nine to five and just making money. But their qualities are also the solution because only new and creative solutions make a company a winner in a difficult market. Self-organizing people look in every direction for opportunities, not only the direction the CEO points out. As networkers they are able to 'sell themselves'.

Although Vision Web's main goal is to be a profitable business but to do this in the possible way for all stakeholders, including employees and society. It believes that quality of work is the main contributor to quality of life. For example, absenteeism is very low by Dutch standards at around 2%. The space savings from the virtual office approach are also estimated to be around 2% of turnover.

ICT-enabled mobile, self-organising, work of the type practiced by The Vision Web can therefore play a major part in achieving environmental as well as social sustainability.

PANEL DISCUSSIONS
- A morning panel of Elena Bonfiglioli (Microsoft), Mike Hughes (BT), and Pedro Ortún (DG Enterprise) responded to audience questions and comments.

- An afternoon panel of Sean Gilbert (Global Reporting Initiative), Denis Pamlin (WWF Sweden) and Marielle Roozemond (The Vision Web) responded to audience questions and comments.

Points discussed in these sessions have been incorporated into section 1.