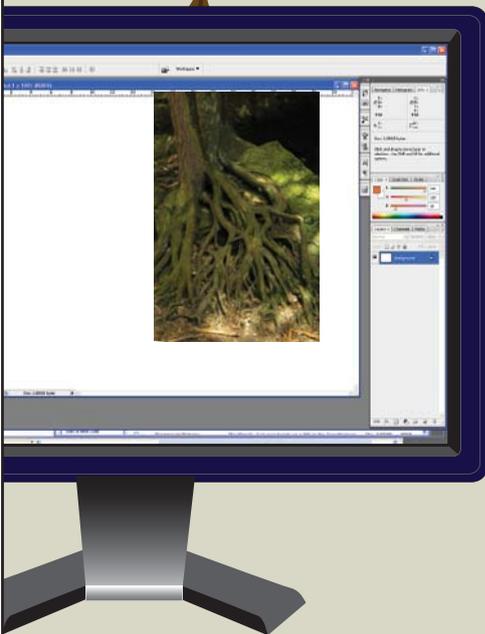


GlobalActionPlan  
creating the climate for change

# A Shared Vision for Smarter Services



## Meeting the Challenge

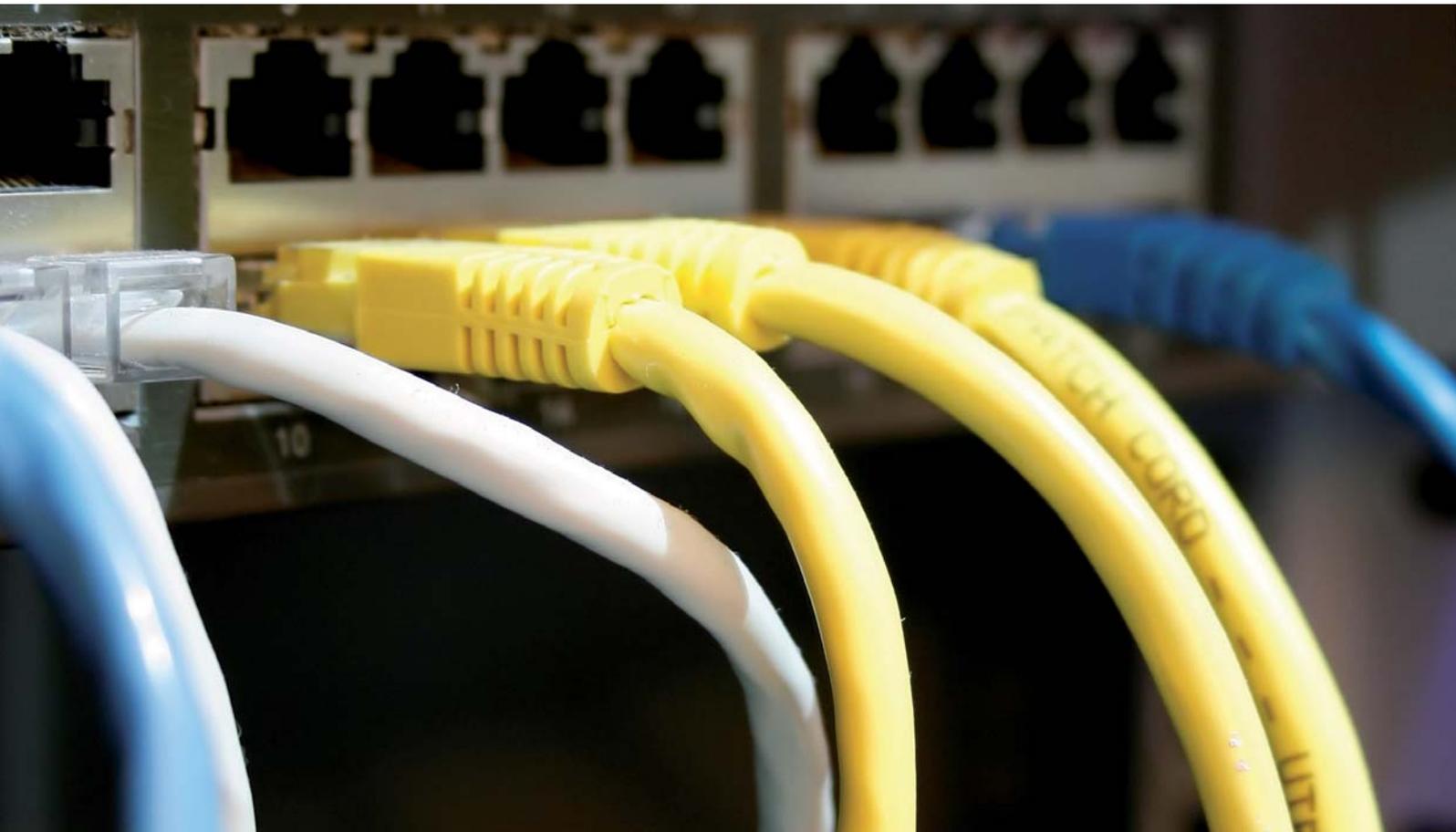
The UK Government is committed both to spending its way out of recession and a significant, legally-binding carbon reduction. By making smart investments in ICT, the government will create economic stimulus, make environmental savings and a return on investment, saving the taxpayer in the long term.

The London Borough of Hillingdon recently reduced costs by £250,000 through a smarter ICT investment of £70,000. The case study on page 7 shows how this impressive saving was achieved.

This report will look at how smart investment in green ICT can be stimulated. It will also show how the pressures of recession on public services and the challenges that climate change brings can be confronted through investment in green ICT. It will illustrate the need for action, detail the importance of green ICT and provide a practical case study demonstrating what could be achieved.

*“ A green ICT stimulus is essential in helping deliver the urgently required step-change needed to help government hit legally-binding carbon targets ”*

Trewin Restorick, CEO, Global Action Plan



## The Need for Public Sector Energy Efficiency

In his Budget earlier this year, the Chancellor announced that he is seeking to make £9 billion worth of efficiency savings per annum by 2013/14, while also continuing to invest in public services.

These savings will have to be made at a time when the credit crunch is likely to place higher demands on public services. Unemployment is rising, leading to increased demand for welfare services, effective back-to-work programmes and good quality education and skills. These are all particularly important for a healthy economy when recovering from recession and re-entering sustained growth.

### Government targets and the Climate Change Act

The Government has recognised the scientific imperative to take significant action to reduce carbon emissions. The Climate Change Act 2008 establishes a legally binding target of at least an 80% reduction in greenhouse gas emissions by 2050, with at least a 34% reduction in carbon dioxide emissions by 2020 against a 1990 baseline. Public sector energy efficiency must play a significant role in meeting these targets.

The public sector is responsible for 8% of UK carbon dioxide emissions and spends over £3 billion each year on energy. The need for the public sector to lead by example is further supported by the fact that improving energy efficiency is embedded within the EU Energy End-Use Efficiency and Energy Services Directive.

Despite the directive, the Government's watchdog the Sustainable Development Commission (SDC) recently reported that Central Government is not on course to meet its own carbon target of reducing carbon emissions by 12.5% by 2010/11. Reductions of 6.3% in carbon emissions from offices have been achieved since 1999/2000, however in 2007/08 the SDC revealed that Central Government recorded a 3% increase in carbon emissions from electricity use.

They identified that one of the key drivers of this increase was the energy use of computers, printers, laptops, chargers, lobby televisions, mobile phones and other ICT equipment.

# How Green IT will Deliver Public Sector Energy Efficiency

There are more than one billion computers on the planet<sup>1</sup> and in the UK, there are an estimated 10 million office PCs<sup>2</sup>; ICT equipment accounts for roughly 10% of the UK's total electricity consumption<sup>3</sup>. Research has shown that the ICT sector is responsible for around 2% of man-made CO<sub>2</sub> emissions each year – a similar figure to the global airline industry<sup>4</sup>.

The Government is the largest buyer of information and communications technology in the UK and its ICT equipment is responsible for up to a fifth of the government's carbon emissions - 460,000 tonnes a year<sup>5</sup>. In total Government estates spend over £13 billion per annum on ICT<sup>6</sup>.

## Value for money

Reducing carbon emissions through switching to low carbon ICT will deliver better value for money for the tax payer through decreased energy costs. The ICT sector offers both a profitable opportunity and a critical role to play with other sectors to design and deploy solutions needed to create a low carbon society<sup>7</sup>.

## Green ICT Government initiatives

There is clear evidence that central government realises the importance of green ICT to tackle operational, financial and environmental challenges as shown in its implementation of a number of new green ICT initiatives. These initiatives are outlined in its latest Greening Government ICT Strategy<sup>8</sup>.

With the Government setting itself the target of achieving carbon neutrality for all of its Central Government office estates by 2012, and the commitment to reduce greenhouse gas emissions by at least 80% by 2050, it has made green ICT a major part of this delivery:

- The Chief Information Officer (CIO) Council has established a green ICT Delivery group to increase best practice for green ICT.
- A Green ICT 'roadmap' Plan has to be submitted by CIO's and the Chief Technical Officers to the Chief Information Officer Council. In April this year, 10 of the 18 steps included became mandatory.
- As part of the Government's Carbon Reduction Commitment launching in 2010 - public sector organisations will be obliged to measure and reduce their carbon emissions. The organisations will be charged £12 for each tonne of carbon emitted and then placed in league tables with other private sector companies.



## The Role of a Stimulus Package

However, despite these initiatives the Sustainable Development Commissions (SDC) report indicates that the up-take of green ICT initiatives is not happening at a sufficiently fast pace to meet carbon targets or to deliver the efficiency savings required by the Chancellor.

In April 2009, the SDC 'The Public Sector of Uptake of Low Carbon and Renewable Energy Technologies' report highlighted both the limited access to and availability of capital for investing in low carbon energy technology, as identified by stakeholders.

The report indicated that a financial stimulus package for public sector green ICT investment would help to overcome this significant barrier.

The report noted that at present capital must come from existing budgets because HM Treasury does not provide specific funds for low carbon energy projects. For the public sector, this leads to a perceived choice between front line service delivery and investment in energy projects.

## A Shared Vision

To overcome these barriers, **Global Action Plan**, **Socitm**, **Logicalis** and **CA** are calling on Central Government to make available a £1 billion ICT stimulus package, that will lead to smarter, higher quality public services and resources to meet carbon targets.

The consortium partners have estimated that the stimulus package would:

1. Generate cash savings of £2 billion over three years - these would be available for reinvestment in front line public services.
2. Achieve a 12% reduction in carbon emissions.
3. Help create high quality public services and help local authorities to meet their national indicator targets.
4. Stimulate action by showing tangible evidence of improvements through this package.
5. Create new partnerships through activity in new thinking and solutions.

To achieve these benefits the stimulus package needs to:

- Fund ICT projects that deliver three key areas, that of financial efficiency, carbon reduction and public service improvement or expansion.
- Stimulate public bodies to think differently and creatively about the delivery of ICT and look at opportunities for collaboration and shared services.
- Prioritise projects that can demonstrate highest return in the three key areas and support projects that are locally conceived and delivered.
- Ensure the package stimulates true efficiency and not additional ICT purchase and usage.

## The Call

The Shared Vision for Smarter Services report outlines how implementing green ICT in the workplace can not only make savings but also help the public sector meet the challenges of climate change.

By putting into place a stimulus package, Central Government will enable organisations to realise targets in both cost effectiveness and in tackling energy use that is so desperately needed both in these difficult economic times and for the future.

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*This is a time of significant change and change brings significant opportunity. The pressure on public sector finances means that it is often not possible to create the headroom necessary to create local investment funds. A properly structured investment package, with clear guarantees for bidders on their responsibilities on achieving a rate of return, would help kick start innovative and groundbreaking approaches to both carbon reductions and efficiencies. ”*

Steve Palmer, President, Socitm

“

*The Digital Britain Report released on June 16th 2009 spells out a clear need for major investment and improvements in the digital infrastructure of our public service organisations. Once again, missing from Central Government thinking is the dramatic improvements achievable through investment in the ideas and innovation produced by IT professionals across the thousands of local public service organisations in the UK. All across the country, efficiency and improvement projects could deliver significant carbon reduction and cost efficiencies required to make continued digital investments sustainable.*

*However, efficiency does not have to mean constraining the vision of public service IT professionals. Efficiency improvements will unlock the potential to invest in new digital led services that the British public expect and deserve. This report is timely as it comes directly after The Digital Britain Report. It fills in the gaps that always appear in central government thinking when they fail to recognise the local expertise and passion within our regional and local public service organisations and the potential for environmental and economic rewards that a stimulus package in the hands of these professionals could deliver. ”*

Chris Gabriel, Marketing and Solutions Director, Logicalis UK



# The Potential for Greener ICT

## Case Study: London Borough of Hillingdon

The consortium believes that a stimulus package would help to speed up the creation and implementation of green ICT initiatives. The experiences of the London Borough of Hillingdon demonstrates what can be achieved through green ICT.

With a population of over 250,000 Hillingdon is the second largest of London's 32 boroughs, has 7500 registered businesses and is home to Heathrow Airport and Brunel University.

In 2005, the IT department at the council found that the 1970's building housing their five year-old storage area network (SAN) did not have the power to support the new hardware necessary for essential upgrades.

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*The existing approach to meeting business demand for hardware was no longer going to be sustainable because there was no more power to meet demand and very little physical space... We had a situation which was described by my ICT Projects Manager as the \$1 million dollar server.*”

Roger Bearpark, Assistant Head of ICT, London Borough of Hillingdon

Faced with a 100% year-on-year data growth the IT department needed to come up with a fast and cost effective solution. At the time server and storage virtualisation were still considered a fringe technology but, in spite of this, the ICT team decided to take the plunge and virtualised 40 of their production servers.

Seeing the cost and power savings given by the new server initiative the team then took the decision to develop a Greener ICT Strategy helping to deliver similar financial and environmental savings across the whole of the ICT landscape at the council. The team focussed on four key areas:

- ICT purchasing
- Desktop environment
- Computer room and back office environment
- Disposal

## Improving Efficiency in Technology

The strategy first concentrated on the actual operation of ICT equipment. The aim was to make long-term cost savings while reducing the burden on the environment by cutting energy consumption.

New initiatives included the installation of a Compellent Storage Area Network, upgrading CRT monitors to TFT (Thin Film Transistor) flat screen monitors and replacing LaserJet printers with HP 9500 series printers. The results can be seen on the 'Summary table of reductions resulting from improved efficient in technology' on page 9.

## Improving Staff Culture and Awareness of Green ICT

The team quickly realised that greening Hillingdon's ICT technology was only the tip of the iceberg and that real cost savings could be made through changing staff's ICT habits.

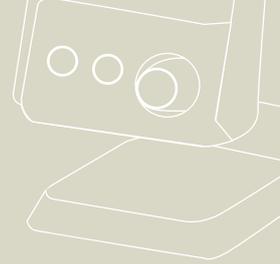
### Power save

An audit of council offices showed that 470 PCs were either left on or powered down when not in use. Legitimate use of a workstation over an average 8.4 hour day should use 175–210kW of power per year, but when the PC is powered down rather than switched off this increases energy use to 702–843 kW a year.

As a result of these findings the council encouraged staff to switch off their PCs at the end of the work day and implemented a pilot programme that automatically shutdown any PCs not in use after 6.30pm.

Automatic messages were sent out over a period of time to try to establish whether the user was temporarily or permanently away from their workstation. After a number of prompts the system would then automatically shutdown.

Duplex printing was also introduced as the default and staff were encouraged to stop all unnecessary printing. In addition, a new system for auditing the procurement and use of printer supplies was also implemented.



## Summary table of reductions resulting from improved efficiency in technology

New Initiative	Description	Savings in kWh	Carbon Reductions
<b>Virtualisation of servers and installation of a Compellent Storage Area Network (SAN)</b>	Installation of new VMware virtual server and Compellent SAN has helped reduce server hardware by 97%, as well as reducing disk space requirements by 45%.	The SAN now runs with 2kWh of electricity, down from the 34kWh required by the old system, resulting in a 94% reduction in energy consumption.	33 tonnes
<b>Automatic shutdown of PCs</b>	As a result of an audit which found 470 PCs left on when not in use, the council implemented a pilot programme that automatically shutdown any PCs not in use after 6.30 pm.	A PC is in use over an average 8.4 hour day should consume roughly 175 – 210kW of power per year, however, when it is powered down rather than switched off this registers at 702 – 843 kW a year resulting in a potential saving of 633 kW per unit.	35 tonnes
<b>TFT (Thin Film Transistor) flat screen monitors</b>	The CRT display monitors of 2700 PCs were replaced with thinner, lightweight TFT monitors.		90 tonnes
<b>Printing</b>	311 LaserJet and DeskJet printers were replaced with 48 HP 9500 series printers and duplex printing was introduced as the default.		7 tonnes
<b>Total reduction achieved per annum</b>			<b>165 tonnes</b>

## Reducing Staff Mileage

A number of initiatives were also introduced in a bid to reduce staff mileage. These included:

- Implementing Citrix XenApp Server technologies which has enabled many of Hillingdon's staff to work from home.
- Installing T-Mobile's OfficeLink with the option of adding Web 'n' Walk has also enabled mobile staff to access and update records remotely, reducing travel required to and from the office.
- Improving the council's ICT support tools has also meant a reduction in the number of miles made by ICT staff travelling to visit outposts and home workers. See summary table below for more details.

### Summary table of reductions resulting from initiatives to reduce staff mileage

New Initiative	Description	Reduction in Mileage	Reduction in CO <sub>2</sub>
<b>Remote Server Access from home</b>	Implementing Citrix XenApp Server technologies has enabled more staff to work from home.	65,000 Km per Annum	14.5 tonnes
<b>Remote Server Access from any location</b>	Installing T-Mobile's OfficeLink with Web 'n Walk enables mobile staff to access and update records remotely. Cutting travel to the office to record, collect and access data.	55,000 Km	12.3 tonnes
<b>Remote diagnostic and support tools</b>	Improving the council's ICT support tools has reduced the number of miles made by ICT staff travelling to visit outposts and home workers.	2500 Km	0.56 tonnes
<b>Total reduction achieved per annum</b>		<b>122,500 Km</b>	<b>*27.36 tonnes</b>

\* In addition to staff mileage Hillingdon is working with key suppliers, reducing the number of weekly deliveries of ICT supplies resulting in a reduction of 0.5 tonnes of carbon per annum.



## What was saved

The project costs for the first phase of the server virtualisation amounted to £70K, the spend over and above what would have been spent maintaining the status quo. Hillingdon Council calculated an energy saving of £30K per annum through the implementation of green IT compared to its original infrastructure costs. Based solely on the result of the new virtualised SAN and server infrastructure this equates to a carbon reduction of 192 tonnes a year.

A further £35,000 per year was saved in wages as there was no longer a need to recruit an additional team member to deal with the growing data volume.

In total, operating costs have reduced by £250,000 over three years.

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*Three years ago the spend on the capital ICT programme was £750,000, this has now been reduced to £595,000 and we are delivering much better public services, with better availability, productivity and functionality. Is this not the very essence of smarter investment? ”*

Roger Bearpark



However, the measurable savings only tell part of the story. There were also additional savings to be made across the organisation. As the staff culture slowly adapts and evolves, more and more people will be choosing environmental options; to save time, money and resources.

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*By adopting smarter methods of supporting remote users we not only reduce our mileage but the response times are quicker. Reliability has also improved and the speed to deploy new virtual servers greatly exceeds previous experience. Time factors are also notably improved, the speed of data access and data restores now take a fraction of the time for any data created since the implementation of the new architecture. ”*

Roger Bearpark

## The Future

Hillingdon Council has consistently kept up with its advancements in green technology and will continue to do so. Roger Bearpark commented that;

*“ We have been fortunate enough that our politicians were enlightened enough to make the financial commitment in the first instance and now they have the payback. ”*

When asked how he would like to see the future of ICT development, Bearpark also added he would like to see more investment in effective communication strategies that enable the sharing of good practice across the sector:

*“ There is lack of awareness within the sector of the benefits of choosing green technologies. Money needs to be set aside for communication programmes to raise awareness of benefits and give examples of best practice. ”*

Bearpark feels that there is a desperate need for investment in pushing forward a more coherent strategic communications programme that would enable public sector organisations to access new technologies and the forum to share good practice:

*“ Serendipity may have played a role in leading Hillingdon’s ICT team to develop an effective Green ICT Strategy, but now that we have seen the proven benefits we do not want to leave the rest to chance. ”*



## **The Consortium**

The consortium represents organisations that can help to facilitate the delivery of green ICT initiatives.

### **Global Action Plan**

Over the past four years, independent environmental charity Global Action Plan has been actively supporting the gradual transition to greener ICT solutions. In 2007, Global Action Plan established the Environmental IT Leadership Team (EILT), an advisory body of ICT professionals who went on to define the scope for an investigation into the environmental impacts of ICT.

In December 2007, Global Action Plan published *An Inefficient Truth*. This report provided a unique insight into the level of understanding held by ICT Managers around environmental issues relating to their sector. It concluded that overall, organisations had been slow to respond to the environmental impacts of their activities. A recommendation was then made for Central Government to create a scenario in which ICT departments are incentivised and guided to implement 'Green IT'<sup>9</sup>.

### **Socitm**

Socitm is the professional association for ICT managers working in and for the public sector. With around 1,700 members from 550 different organisations including 98% of all UK local authorities, Socitm provides a widely respected forum for the promotion, use and development of ICT best practice. It is also playing a leading role in ICT-facilitated local government transformation in the UK.

### **Logicalis**

Logicalis is an international provider of integrated ICT solutions, delivering secure, converged computing and communications infrastructure and services to private and public service organisations. Logicalis provide the architecture, deployment, integration and management of networks and systems to deliver leading edge solutions that create value for public service organisations and meet their ever more demanding digital government needs, now and into the future.

Headquartered in the UK, Logicalis is a proud provider of ICT solutions to local and regional UK public services, and has strong links with Local Government, Higher Education, Further Education, and Health. In 2007, under contract with the Welsh Assembly Government, Logicalis embarked on the creation of a single public sector communications infrastructure in Wales, the Public Sector Broadband Aggregation (PSBA) network.

## **CA**

CA is one of the world's largest IT management software providers. Their software and expertise unify and simplify complex IT environments—in a secure way—across the enterprise for greater business results.

They call this Enterprise IT Management (EITM) and see it as the future of IT, managing systems, networks, security, storage, applications and databases securely and dynamically and building on existing IT investments, rather than replacing them, at your own pace.

Founded in 1976, CA today is a global company with headquarters in the United States and 150 offices in more than 45 countries. They serve more than 99% of Fortune 1000® companies, as well as government entities, educational institutions and thousands of other companies in diverse industries worldwide



## References

- 1 Richard Barrington, head of Public Policy for Sun UK and Ireland and UK government advisor
- 2 The PC Energy Report – A Report by the National Energy Foundation and 1E
- 3 Richard Barrington, head of Public Policy for Sun UK and Ireland and UK government advisor Gartner, 2007 Press Release
- 4 The Guardian Thursday 17 July 2008 - Environment: Whitehall to become carbon neutral with aid of smart PCs
- 5 Greening Government ICT Tom Watson launch speech, 17th July 2008 Science of Survival Exhibition, Science Museum
- 6 SMART 2020: Enabling the low carbon economy in the information age 2008
- 7 Greening Government ICT Efficient, Sustainable, Responsible, July 2008
- 8 Greening Government ICT Efficient, Sustainable, Responsible, July 2008
- 9 An Inefficient Truth – Executive summary December 2007