

## **Retail: Energy savings and the environment**



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## 1. Introduction

Operating in an environmentally friendly fashion is a good way to lower expenses and grow a business. It's called going green. Savings come from slashing energy costs, recycling, recovering and reusing. Growth results because consumers today respond to green enterprises. In fact, 64% of decision makers say a green image is good for business.<sup>1</sup> That's why four out of five IT decision makers across government and corporate sectors said implementing green IT solutions in their organizations is important, and almost half cited positive reputation as the main benefit of adopting green IT.<sup>2</sup> And, according to a recent report by independent market analyst Datamonitor, this year will see a surge in CIO interest and vendor initiatives in eco-friendly computing.<sup>3</sup>

This white paper focuses on the retail green enterprise by first discussing what it means to have a green brand and how IBM can assist with this and then presenting three specific solution areas together with the IBM offerings in these areas that will assist retailers in building greener enterprises.

## 2. A green brand and strategy

Going green employs one of the basic colors of our world to symbolize policies and actions that help reduce negative effects on the environment. For retailers, going green means operating more efficiently, especially by controlling energy use, and, while doing this, creating a green brand that attracts consumers and fuels growth. It also means sourcing products that are sustainable and green, thus giving shoppers a chance to buy what they want – something that is friendly to the environment. Having green product choices on the shelves is, perhaps, more visible to consumers than how a store saves electricity. In other words, green product availability might be better for brand building than the number of compact fluorescent lightbulbs in a store.

<sup>1</sup> <http://www.environmentalleader.com/2008/08/14/64-of-decision-makers-say-green-image-is-good-for-business/>

<sup>2</sup> <http://communities.netapp.com/blogs/TheGreenIntern/2008/08/08/80-of-it-decision-makers-value-green-it-but-hurdles-remain;jsessionid=FB4B331133B9DE4FB3ECEB340C9FE037>

<sup>3</sup> <http://www.certmag.com/read.php?in=3462>

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**Highlights**

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***Forces that are pressuring companies towards greater environmental responsibility include increased prospects for growth and success, cost savings, governments, advocacy groups and investors.***

Green branding is becoming common. Witness a shop in Maine that describes its mission as promoting personal and planetary well-being by offering a full range of products and information for an environmentally sustainable lifestyle.<sup>4</sup> Witness also Marks & Spencer, the 16-million-customer retailer in the U.K. That company's "Plan A" is to work with customers and suppliers to combat climate change, reduce waste, safeguard natural resources, trade ethically and build a healthier nation. M&S is doing this not only because it's right, or because it's what customers want, but because, the retailer believes, it's the only way to do business today. M&S says there is no "Plan B."<sup>5</sup>

In addition to cost savings and prospects for growth, however, there are other strong forces pressuring businesses towards greater social responsibility. These include governments, advocacy groups and investors. The Internet which has enabled businesses to serve customers more effectively and profitably also makes it possible for special interest groups to gather and share vast amounts of company information on issues such as carbon emissions. This means they can organize and act quickly to reward or punish brands depending on what they observe – deciding what to buy, where to work, what to invest in, and how business should be regulated.

In sum, there are three drivers moving businesses to become greener: cost savings, brand growth, and outside pressures.

### ***2.1. Corporate social responsibility***

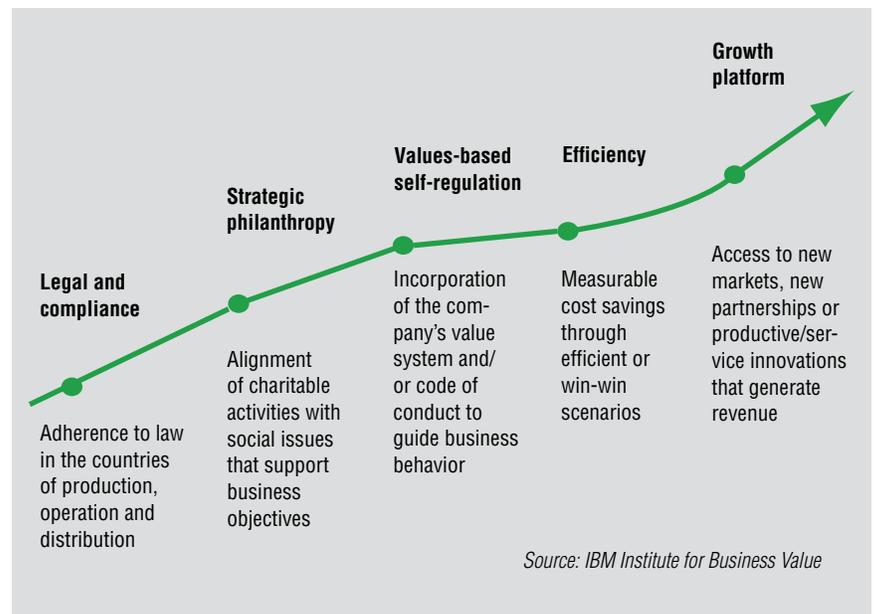
Environmentally friendly operations are part of the traditional notion of corporate social responsibility (CSR), the idea that companies do well by doing good in their communities. CSR is no longer just compliance with regulations. It's a commitment and investment that brings returns – 68% of businesses use CSR as a growth platform. Stated in another way, when a commitment to the

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<sup>4</sup> <http://www.greenstore.com/>

<sup>5</sup> <http://plana.marksandspencer.com/index.php?action=PublicAboutDisplay>

environment is part of a company’s corporate social responsibility initiatives, operating in a green fashion becomes part of the company’s brand and identity. It will attract customers and build the business. Figure 1 illustrates how corporate social responsibility develops in this way.



**Figure 1.** As companies move from left to right up the corporate social responsibility value curve, greater returns are realized as CSR becomes more integrated into core business strategies.

IBM Global Business Services (GBS) has two offerings to help companies build a green brand. The first, Green Strategy Development, is a framework and roadmap to achieve best value for a company in the context of CSR and green operations. The solution helps clients better understand opportunities and challenges related to a green strategy and brand building. It can include:

- Assessment of global CSR activities
- Mapping the cost and impact of key drivers to stakeholders and a company’s CSR initiatives
- Portfolio mapping of a company’s approach to determine an overall CSR profile
- A roadmap to strategically align a company’s CSR objectives with its core business strategy

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**Highlights**

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***IBM Global Business Services (GBS) has two offerings to help companies build a green brand: IBM Green Strategy Development and IBM Environmental Product Life-cycle Management.***

Second, the IBM Environmental Product Life-cycle Management offering allows clients to analyze every phase of a product's existence and design it to be environmentally friendly from the start. The offering takes into account current environmental concerns, regulations, business issues and industry best practices. Based on this analysis, IBM can help clients understand gaps in current practices, develop realistic targets for reducing the environmental impact of products, and establish a plan for eventual recycling and responsible disposal. From that plan, IBM and the client can build new design-for-environment capabilities and integrate them into existing processes to improve the environmental competitiveness of operations and products.

Elements of this offering include the following processes:

- Design for compliance – ensuring products meet new regulatory requirements for energy use, material safety, etc.
- Design for end-of-life management – making a product that is easy to refurbish and reuse or disassemble and recycle
- Life-cycle assessment and carbon footprint reduction – reducing the environmental impact of producing the product, shipping it, use by the consumer, and reclamation and recycling by evaluating carbon trade-offs through the manufacturing, distribution and transportation processes
- Material selection – choosing materials that are renewable, recyclable and non-toxic
- Packaging design – packaging that minimizes waste and makes package materials lighter and easier to recycle
- Project delivery acceleration – reducing the time it takes to get eco-friendly products from the drawing board to market

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**Highlights**

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***IBM Global Asset Recovery Services can help clients dispose of end-of-lease assets like servers, hard drives and monitors through refurbishment, resale and recycling.***

***2.2 Strategic carbon management***

The environmental challenges for retailers are similar to those of other industries. These include the amount of energy used by their stores and enterprises, energy consumption and costs in their supply chains (including the manufacture and distribution of store brands), and the environmental impact of the products they offer. According to a recent study by Retail Systems Research, a majority of respondents indicated that packaging and material costs must become more environmentally friendly, and half said the same for energy costs and the supply chain.<sup>6</sup>

In a world where everything is becoming instantly knowable and connected, addressing energy and environmental challenges and opportunities requires innovative technology and deep business insight. IBM can help retailers develop a carbon strategy that includes diagnostics and assessments such as Carbon Management Diagnostic, Carbon Footprint, Green Action Planning, Business Case Modeling.

***2.3 Global Asset Recovery Services (GARS)***

For over 20 years, IBM Global Asset Recovery Services have been disposing of end-of-lease assets like servers, hard drives and monitors through refurbishment, resale and recycling. Started as a way to dispose of our own IT assets, IBM Global Asset Recovery Services have developed a worldwide capability to reuse, remarket and recycle computers in ways that are environmentally compliant and that safeguard data. IBM processes 40,000 used assets per week around the world. We have reused or resold almost 87% of the assets returned. From 2002 to 2005, we received and reused over 1.9 million machines, and processed over 147,000 metric tons of material and product waste. In a recent year, IBM processed over 108 million pounds of end-of-life products, and sent less than 1% of that to a landfill.

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<sup>6</sup> Retail Systems Research, "What Can Green Do For You?" [http://www.retailsystemsresearch.com/\\_document/summary/500](http://www.retailsystemsresearch.com/_document/summary/500)

### **Savings from POS replacement**

A retailer replacing 5,000 POS terminals with new versions that operate 33% more energy efficiently could see annual energy costs reduced by \$131,000. This would be nearly \$1 million over the average seven-year lifetime of newly deployed terminals. The need for retailers to “think green” has transformed from early political correctness to a real cost-reducing and consumer-oriented strategic initiative reflecting greater corporate social responsibility.<sup>7</sup>

<sup>7</sup> “Understanding Total Cost of Ownership in Building an Advanced Store Systems Business Case,” Global Retail Insights/IDC, February 2008.

## **3. Store solutions**

Stores, virtual and real, are the heart of retail. Every retailer uses energy, systems and servers, and, in brick-and-mortar operations, point-of-sale and kiosk solutions. IBM store solutions help build green brand identity and save costs by enabling retailers to conserve energy and operate more efficiently through offerings like the following:

- Energy Performance Management services
- Systems Management capabilities
- IBM BladeCenter® solutions, and
- IBM SurePOS™ and AnyPlace Kiosk offerings

### **3.1 Energy performance management**

To manage and better control the use of energy, an IBM Energy Performance Management solution gathers data from sensors in energy-consuming devices (HVAC, lighting, and POS systems) and communicates that data to in-store resources or to back-end business processes or applications. This information, in turn, enables decisions and actions that can lower energy use and help reduce maintenance costs and equipment downtime. The immediate goal is to save costs, increase operational efficiency, and extend equipment life. The ultimate goal is one more step towards a green brand.

An Energy Performance Management solution can include:

- Conservation and Demand Management (CDM) for efficiently managing non-critical energy-consuming assets and avoiding peak charges for HVAC, lighting and freezers
- Demand Response (DR) for off-loading non-essential energy loads to non-peak hours
- Price Response Load Management for curtailing loads based on price or demand
- Distributed Generation (DG) to monitor, control and aggregate all sizes of distributed generation assets, to manage mobile and fixed generators to respond to key performance indicators (KPIs), and to monitor fuel levels and use

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**Highlights**

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***BladeCenter S gives stores the energy-efficient technology they need and can lower energy costs up to 35%, reduce office noise by 50%, and maximize back-office space by running desk side.***

### ***3.2 Systems management***

Whether in one store or across multiple locations, systems management offerings can help decrease downtime through proactive monitoring of store device availability, threshold performance and utilization. Offerings in this area include IBM Remote Management Agent (RMA) resources for efficient management of store IT assets. An RMA offering provides:

- Asset management that improves utilization, decreases waste and prolongs life
- Software distribution offerings that eliminate travel-related energy and operational costs
- Remote power management to help lower energy costs and prolong asset life
- Remote monitoring and event management that help decrease service calls and associated energy costs

### ***3.3 BladeCenter solutions***

The IBM BladeCenter S system is the industry's first blade offering designed to help retailers simplify the management of the technology needed to operate a store – servers, POS terminals and phone systems. It is compatible with a wide range of operating systems including Windows,<sup>®</sup> Linux,<sup>®</sup> IBM AIX<sup>®</sup> and IBM 4690 for multiple application workloads; and it uses standard office power (110V or 220V). The BladeCenter S supports many retail-specific applications and seamlessly integrates with independent software solutions designed for next-generation, open standards-based store environments. By providing high capacity, performance and availability – all in a small footprint – BladeCenter S gives stores the hardened-for-retail, energy-efficient technology they need. The bottom line: BladeCenter S can lower energy costs up to 35% through IBM Cool Blue<sup>™</sup> technology, reduce office noise by 50%, and maximize back-office space by running desk side.

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**Highlights**

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***IBM has a comprehensive set of sustainable supply chain tools that include product and package life-cycle management, supply chain strategy, procurement and integrated operations.***

### **3.4 SurePOS and AnyPlace solutions**

IBM SurePOS store systems and AnyPlace Kiosk offerings feature energy-efficient processors and chipsets, power management, long-life design, and recycled/recyclable components. Created for environmentally conscious retailers, the IBM SurePOS 700 series can reduce system energy consumption by almost 36%. Frost & Sullivan recently selected the SurePOS 700 for the 2008 Green Excellence of the Year.<sup>8</sup>

## **4. Sustainable (green) supply chain and distribution**

Companies see the link between greening the supply chain and distribution areas and cost savings and brand identification. GM, for example, recently reduced disposal costs by \$12 million by establishing a reusable-container program with suppliers; Commonwealth Edison saved \$25 million through more-effective resource management. Sustainable supply chain and distribution activities can range from purchasing, planning and managing the use of materials to shipping and distributing final products.

IBM has devised a comprehensive set of sustainable supply chain tools. These include product and package life-cycle management, supply chain strategy, procurement and integrated operations, and they can help pinpoint areas that offer the greatest efficiencies. The following offerings are designed with retailers in mind.

### **4.1 IBM Carbon Tradeoff Modeler**

The Carbon Tradeoff Modeler is a tool that can analyze and manage the impact a supply chain has on climate. Developed by IBM Research and IBM Global Business Services, this tool models the cost and carbon impact of several key operational levers and provides insights for balancing cost and carbon management objectives. Using this tool, IBM can recommend the most desirable actions to take among the many that can be used to achieve carbon dioxide (CO<sub>2</sub>) emissions reduction, while also balancing cost and service objectives. Ultimately, retailers can then incorporate carbon reduction into their overall corporate social responsibility (CSR) strategy to strengthen their brand for competitive advantage.

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<sup>8</sup> [http://money.aol.com/news/articles/qp/pr/\\_a/ibm-retail-store-solutions-cited-for/rfid140213849](http://money.aol.com/news/articles/qp/pr/_a/ibm-retail-store-solutions-cited-for/rfid140213849)

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**Highlights**

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***The IBM Green Supply Chain Network Optimization Workbench (SNOW) expedites the flow of products and services through the supply chain while reducing carbon emissions.***

The IBM Carbon Tradeoff Modeler addresses:

- The impact on cost and CO<sub>2</sub> emissions when changing package sizes and/or packaging materials
- The impact of lot sizes on transportation requirements, cost and CO<sub>2</sub> emissions
- Consolidating orders to reduce the CO<sub>2</sub> emissions in transportation as well as on-time delivery performance
- Inventory replenishment policies that influence CO<sub>2</sub> emissions
- How to evaluate alternative supply policies in terms of cost and climate impact

#### ***4.2 Green Supply Chain Network Optimization Workbench (SNOW)***

IBM's Green Supply Chain Network Optimization Workbench (SNOW) is a supply chain modeling and optimization solution used to expedite the flow of products and services through the physical supply chain network while reducing carbon emissions in operations. Green SNOW functional capabilities span supply chain facilities supporting raw material and/or sub-assembly supply, production, and finished goods warehousing and distribution.

Green SNOW supports carbon management for strategic decisions involving:

- Facility locations
- Sourcing strategies
- Production capability allocations
- Distribution strategies
- Service territory assignments
- Make vs. Buy decisions
- Global tax exposure minimization
- Carbon-sensitive supply chain design
- Business considerations such as investment capital and software configuration management (SCM) costs

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**Highlights**

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***For the enterprise and data center, IBM has more efficient servers and environmentally friendly storage systems.***

#### ***4.3 Sustainable Supply Chain Management and Procurement Services***

Sustainable procurement is a process whereby organizations meet their needs for goods, services, work and utilities in a way that optimizes cost, quality, social responsibility and the environment while further enhancing supplier partnerships. IBM can conduct a green supply chain assessment that helps a company utilize its environmental footprint to make procurement decisions and trade-offs. Outcomes include:

- Identification of sustainable procurement opportunities and creating a roadmap
- Development and establishment of an environmental procurement policy
- Deployment of procurement capabilities including socially responsible practices
- Deployment of commodity/category management that includes integration of sustainability into category strategies
- Supplier relationship management including sustainable supplier scorecards and strategies

### **5. Enterprise and data center**

Traditionally high consumers of energy, IT systems in the enterprise and data center are prime candidates for a green revolution. From more efficient servers to environmentally friendly storage systems, IBM has offerings like the following:

#### ***5.1 Server and storage solutions***

- IBM System x™ servers that are easy, open and green and offer energy-efficient design and IBM software tools that can plan, monitor and manage power consumption. Customers can also realize green value through virtualization on VMware, Xen or Microsoft® hypervisors.

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**Highlights**

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***IBM has helped over 2,000 clients reduce data center energy consumption and cut energy costs by as much as 40%.***

- IBM BladeCenter solutions that deliver innovative energy-efficient shared power and cooling infrastructure while reducing wasted air movement. These offerings utilize up to 90% energy-efficient power supplies that can reach peak efficiency even under small loads.
- IBM System z® mainframe systems that are now more energy efficient and boast the highest server utilization rates. These heavy-duty systems offer world-class multi-dimensional virtualization for workload consolidation, efficient power use and cooling, and security and management capabilities that can scale efficiently.
- The IBM System z9® Business Class (z9 BC), the first mainframe specifically designed for small and medium-sized businesses. Capable of replacing hundreds of stand-alone servers, the z9 BC can greatly improve energy efficiency.
- IBM POWER™ systems that provide more work per watt to reduce power at the system level. IBM PowerVM™ enables collaboration of underutilized servers. Active Energy Manager with IBM POWER6™ EnergyScale™ technology enables dynamic power saving and management. For optimal consolidation, these servers offer a broad range of platform and operating system choices.

### ***5.2 Green data center***

IBM has engaged with more than 2,000 clients to deliver hardware, software and services that have helped reduce data center energy consumption and cut energy costs by as much as 40%. In the data center, these technologies can:

- Evaluate existing facilities – energy assessment, virtual 3-D power management and thermal analytics
- Plan, build or update to energy-efficient data operation
- Virtualize IT infrastructures and special-purpose processors
- Gain better energy control with power management software
- Exploit liquid cooling solutions – in and out of the data center

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Highlights

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***IBM software can empower people to work more efficiently and IT systems and business processes to operate in ways more favorable to the environment.***

### **5.3 Software**

IBM software can empower people to work more efficiently and IT systems and business processes to operate in ways more favorable to the environment. The IBM Lotus,<sup>®</sup> DB2,<sup>®</sup> and WebSphere brands can be of significant assistance in these areas. Here are some examples:

- *For greener people costs:* Employees can generate high levels of carbon in the course of work activities – the daily commute, business travel, and the energy required by physical office space. IBM Lotus software offerings provide flexible and powerful collaboration tools that enable employees to work from virtual and home offices and collaborate through Web conferencing. This means reduced travel and lower utilities and infrastructure costs for daily operations, physical meetings, conferences and events.
- *For greener workloads:* IBM software like the IBM WebSphere suite helps model and redesign business processes to significantly reduce energy consumption and cost. IBM also has software offerings that help reduce paper use with eForms and images and that employ automation to enhance energy-efficient operations.
- *For a greener infrastructure:* IBM Tivoli<sup>®</sup> software can monitor, manage and report on IT resource to help reduce energy. IBM DB2 9 data management software provided with Storage Optimization can control data growth and storage costs by enabling tiered storage corresponding to the value of information.

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Highlights

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***IBM is committed to the proposition that a green brand means good business and better profits for retailers.***

## **6. IBM for green retailing**

The offerings described in this paper illustrate IBM's commitment to becoming Big Green as well as Big Blue. IBM has nearly four decades of commitment to environmental concerns starting in 1971 with the establishment of a corporate Policy on Environmental Affairs. Between 1990 and 2005, IBM reduced its total CO<sub>2</sub> emissions by 40%. We were a charter member of the EnergyStar program, and, recently, IBM Project Big Green is investing \$1 billion to increase the energy efficiency of IBM products.

Within its own operations, IBM employs design-to-disposal practices. We created a product stewardship program in 1991, covering design for recycling, use of recycled plastics, product energy efficiency and use of environmentally friendly materials and processes. We have offered take-back programs for some products since 1989, and we process more than 49,000 metric tons of products and product waste annually.

We are committed to the proposition that a green brand means good business and better profits for retailers. For information about how we can help your business blend into green, please visit:

<http://www.ibm.com/retail/green>

### **IBM Environmental Awards and Recognition**

- **Frost & Sullivan: Green Excellence Award for POS Systems (2008)** – For IBM's outstanding efforts in energy conservation and the company's commitment to safeguarding natural resources while developing the SurePOS 700 series of point-of-sale (POS) systems.
- **Computerworld (Feb 2008)** – “IBM, recognized as the leading Green IT company in our first Top Green-IT Computing issue, has taken a serious look at how they impact the environment and how they can address those challenges with good business sense, through their Project Big Green initiative and a company-wide focus on energy-efficient technology and services.”
- **IBM's Green Power Purchasing** recognized for second time in 2006 – The U.S. Environmental Protection Agency and the U.S. Department of Energy awarded IBM a 2006 Green Power Purchasing Award for its use of renewable energy purchases in the U.S., including wind, solar and biomass-generated electricity.
- **Top 20 Best Workplaces for Commuters** – IBM ranked fifteenth on the U.S. Environmental Protection Agency's Top 20 Best Workplaces for Commuters from the FORTUNE 500 Companies in 2006 and was also named in the first two Top 20 lists in 2004 and 2005.
- IBM Brazil recognized for **solid waste management** (2006) – IBM Brazil received a 2006 Brazil Environmental Award from the American Chamber of Commerce of Brazil in the solid waste management category. The award recognized IBM's high rate of recycling and reuse of materials during the replacement of IBM Brazil's Tutóia in Sao Paulo.
- IBM Ireland recognized for **best environment** (2006) – IBM Ireland received an award for “Best Environment Initiative by a Multinational” at the Chambers of Commerce of Ireland's (CCI's) second annual President's Awards for Corporate Social Responsibility (CSR).



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