



The ICT Industry and Its “Green” Responsibility

**Keynote Address at the
“ICT Remarketing & Recycling – Renewed Products for a Sustainable Economy”
Conference**

Deloitte Consulting GmbH

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Agenda

Drivers and Scope of „Green“ Responsibility

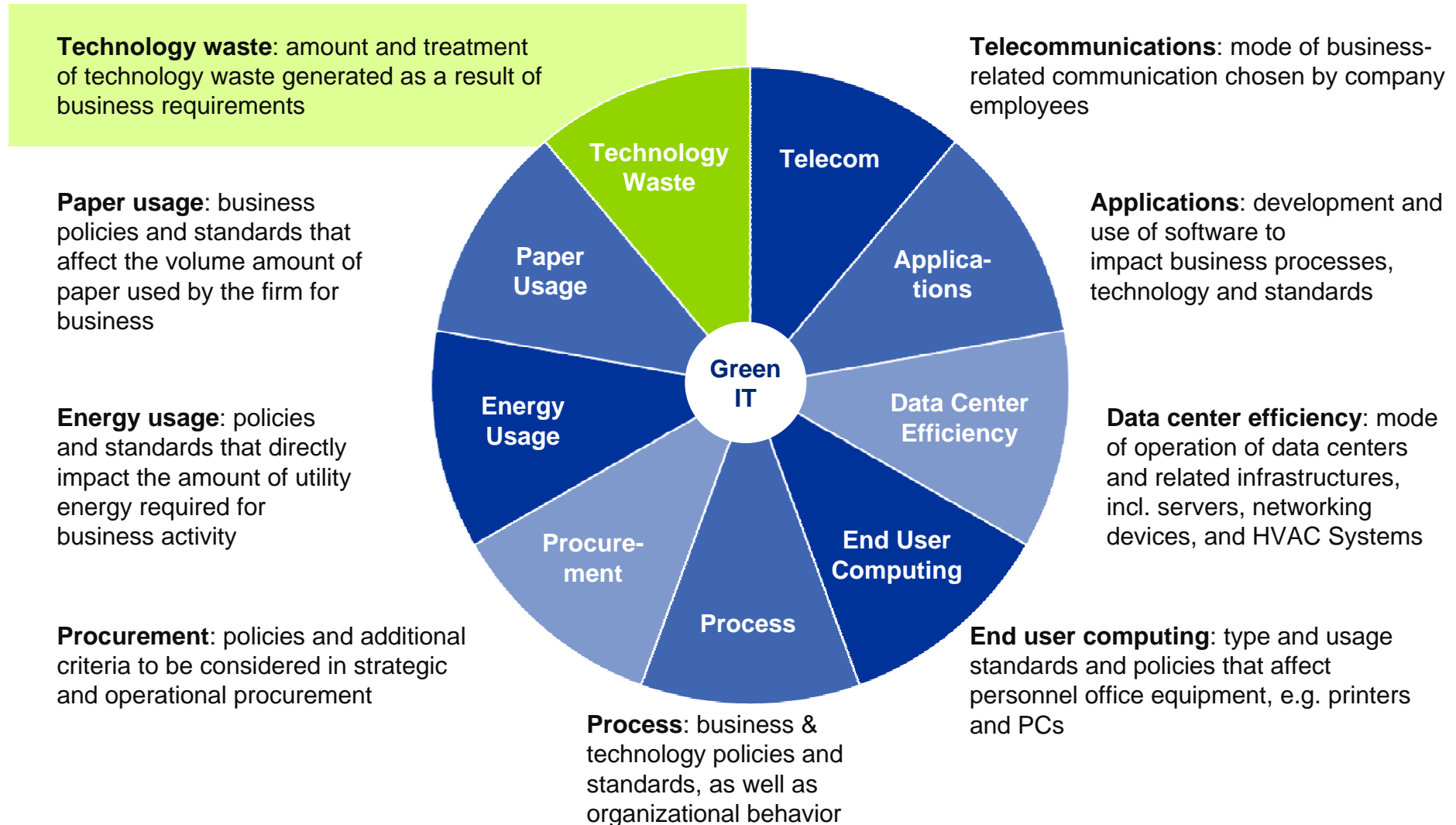
Accountability

Lessons and Challenges in Another Industry

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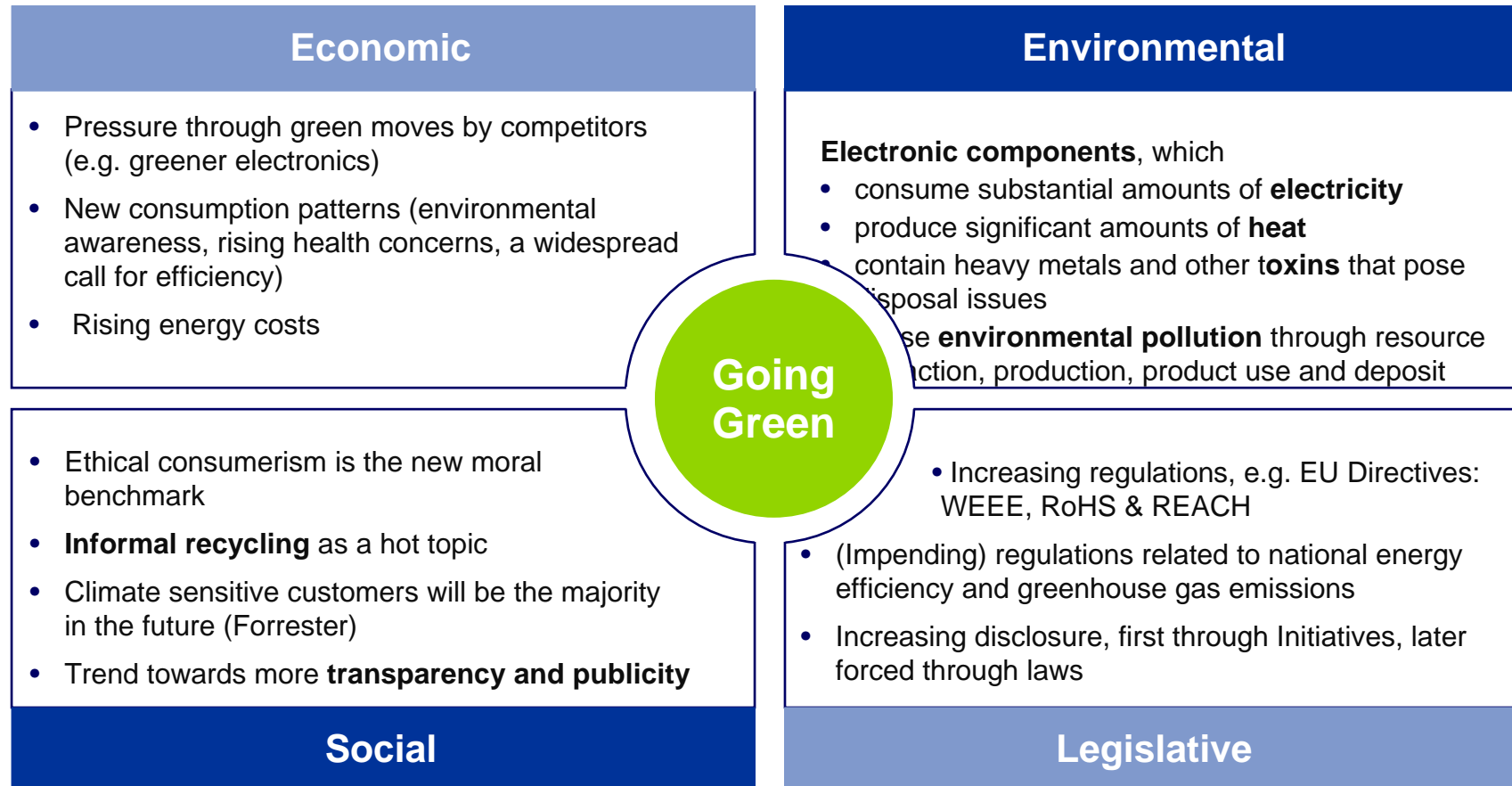
There is a variety of levers to make IT “green”, with today’s presentation focusing on the one most relevant to remarketing and recycling - “technology waste”

Levers to Make IT “Green”

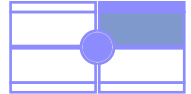


Different drivers foster the need for “Green IT” and will increase ICT industry responsibility

“Green IT” Drivers



Environmental drivers include climate change, environmental pollution and degradation, and resource depletion



Environmental Drivers

Climate Change

- Climate change has become a major business issue
- According to Gartner (2007), the ICT industry emits some 2% of global CO₂ emissions, about the same amount as the aviation industry, which Gartner believes is unsustainable*



Environmental Pollution

- IT hardware contains a wide spectrum of toxic compounds
- “Informal recycling” used to dispose of electronic waste, causing soil and groundwater contamination
- Environmental pollution in high-end production processes



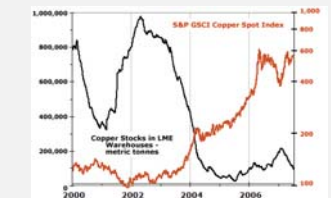
Environmental Degradation

- Destruction of biotopes and degeneration of biodiversity through resource extraction and production processes

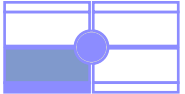


Resource Depletion

- Exploitation of copper and coltan stocks, especially in less-developed regions



* Includes in-use phase of PCs, servers, cooling, telephony, LANs, office telecommunications, and printers; embodied energy in large-volume devices (PCs and cell phones); all global commercial and governmental IT and telecommunications infrastructure; but not consumer electronics other than cell phones and PCs



Social drivers include “informal recycling”, resource conflicts, child labor, and the risks of a “transfer” of responsibility

Social Drivers

“Informal Recycling”

- Electronic waste exported for „recycling“ to developing countries (contrary to the letter and spirit of the Basel Convention and Basel Ban Amendment)
- Hazardous and toxic materials contained in e-waste harm people and the environment



Resource Conflicts

- Exploitation of coltan and copper lead to political conflicts
- Upcoming peak-oil situation might increase resource conflicts



Child Labor

- Manufacturing and disposal of IT hardware occasionally employ child labor



Responsibility “Transfer”

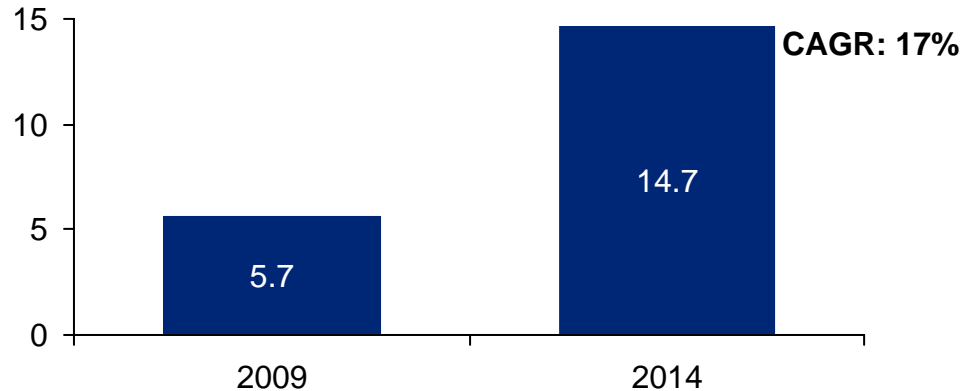
- Outsourcing of waste treatment as a reputational risk to the industry
- “Greenwashing”* to conceal overall environmental and social impact



* The practice of disingenuously spinning products and policies as environmentally friendly, such as by presenting cost cuts as reductions in use of resources; more generally, the deceptive use of green PR or green marketing

The market for e-waste recovery is expected to grow significantly within the next 4 years, with skyrocketing e-waste growth rates expected in emerging economies

Market for e-Waste Recovery (\$b)

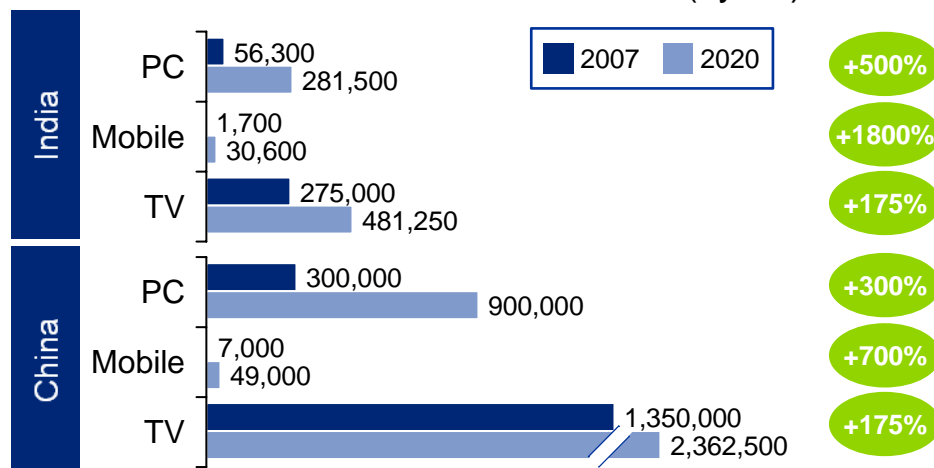


Note: These figures represent money generated through reclamation of valuable materials from e-scrap
Source: ABI Research, 01/2010

Facts and Figures on e-Waste

- In **2009**, the International Association of Electronics Recyclers expected **400 million** consumer electronic **products** to be **scrapped**
- From the **9 million tons of European e-scrap** generated each year, experts say the following **yields** would be possible:
 - 2.3 million tons of **ferrous metal**
 - 1.2 million tons of **non-ferrous metals**, incl. 652,000 tons of copper, 336,000 tons of aluminum, 162,000 tons of heavy metals, 12,000-27,000 tons of lead, 6-8 tons of mercury
 - 1.2 million tons of **plastics**
 - 156,000 tons of **flame retardants**
 - 336,000 tons of **glass**

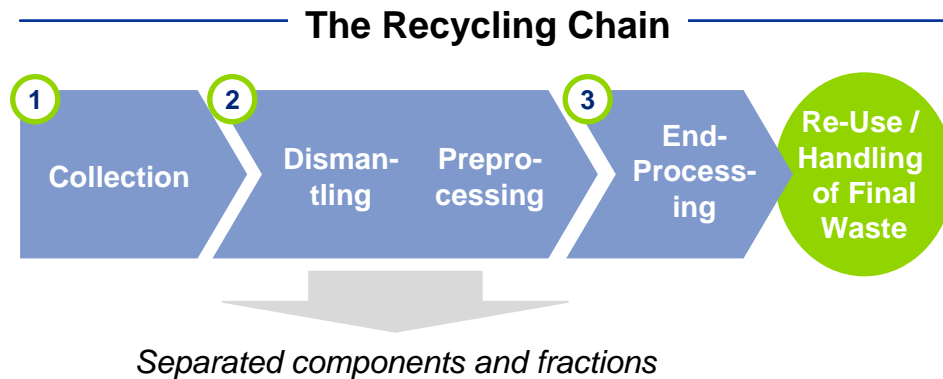
e-Waste Growth 2007 - 2020 (t/year)



- **e-waste surge** expected in **emerging markets** such as China, India, Brazil, and Mexico
- **China** already producing over 2 million tons of e-waste per year (second only to the U.S. with approx. 3 million tons per year)
- **India** currently producing some 500,000 tons of e-waste per year and expected to become a major polluter due to extremely high e-waste growth rates

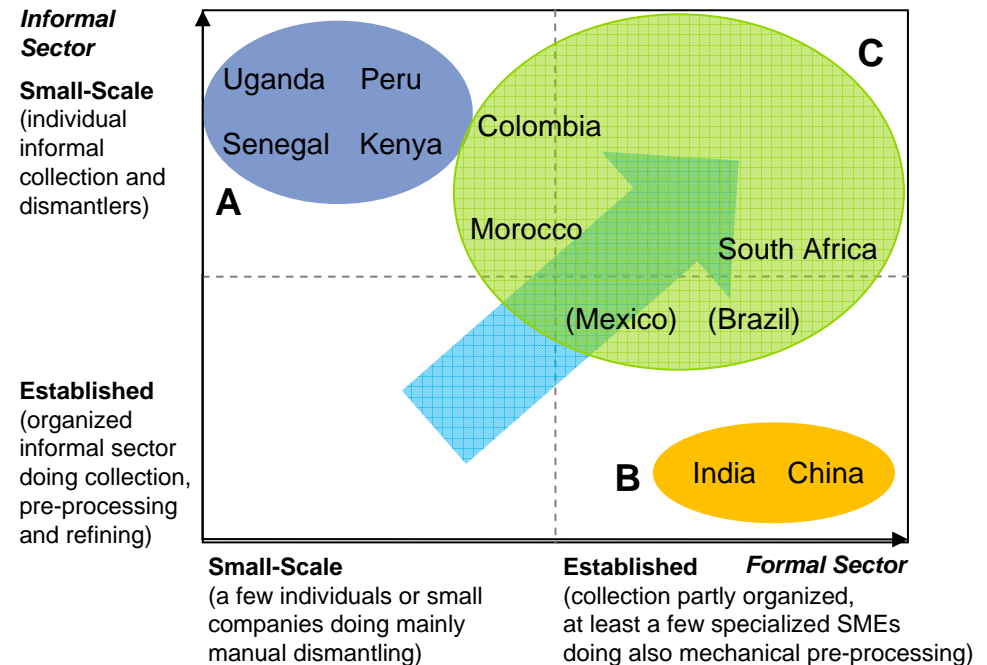
Sources: UNEP, "Recycling – From E-Waste to Resources"; AEA Technology energy and climate consultancy

Turning an e-waste challenge into an opportunity in emerging economies depends on corporate initiatives, technology & knowledge transfer and government support



- Promoting recycling in emerging economies can create **sustainable and safe** jobs and reduce greenhouse gas emissions. Sustainable technologies exist as a result of individual or corporate initiatives, and a sustainable recycling system could include an organized informal collection system and the first steps of informal pre-processing
- Numerous countries have the option of turning an e-challenge into an e-opportunity, with Brazil, Colombia, Mexico, Morocco, and South Africa showing the greatest potential to establish **state-of-the-art technologies** in recycling
- Low volumes of e-waste in **group A countries** implies little recycling. Higher volumes could induce more informal activities if appropriate measures are not taken. Group A is promising for the introduction of **pre-processing technologies with a strong support in capacity building**

Emerging Economies' Recycling Sectors



- Large volumes of e-waste in **group B** have led to a well-organized informal sector and a formal sector as a downstream partner. If Group B better controls its informal sector, it would have the technological & economic capacity to adapt sustainable technologies by introducing pre- and end-processing technologies with strong support for informal sector capacity building
- With a developing or established formal sector and medium-scale informal activities at most, **group C** has significant potential to adapt pre- and some end-processing technologies following a technology and knowledge exchange

Source: UNEP, "Recycling – From E-Waste to Resources"

Agenda

Drivers and Scope of „Green“ Responsibility


Accountability

Lessons and Challenges in Another Industry

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„Green responsibility“ is no longer a theoretical issue: It is being tracked by organizations such as Greenpeace, with accountability bound to increase

ICT Manufacturer Ranking Based on Guide to Greener Electronics

Evaluation	Score	Company
	7.3	Nokia
	6.9	Sony Ericsson
	5.3	Toshiba
	3.1	Philips
	5.1	Apple
	5.1	LG Electronics
	5.1	Sony
	5.1	Motorola
	5.1	Samsung
	4.9	Panasonic
	4.7	HP
	4.5	Acer
	4.5	Sharp
	3.9	Dell
	3.5	Fujitsu
	2.5	Lenovo
	2.4	Microsoft
	1.4	Nintendo

- Published by Greenpeace, the guide **rank**s the 18 top **manufacturers** of personal computers, mobile phones, TVs and games consoles according to their policies on
 - **Toxic chemicals**
 - **e-Waste/recycling**
 - **Energy efficiency/climate change**
- The 3 categories with 5 criteria each account for a total of 15 criteria individually evaluated on a scale from 0 to 3 points and added up
- Range of final score from **one (worst) to ten (best)**
- Based on **publicly accessible and available information** from the companies' websites
- Last updated January 7, 2010
- On February 12, 2010, environmentalists and consumer groups applauded **Hewlett Packard (HP)** for its announcement of a **policy that prohibits the export of toxic electronic waste** as defined by the Basel Convention from developed countries, like the U.S., to any developing country. The policy goes beyond U.S. laws, which do not make it illegal to dump e-waste on developing countries

Each manufacturer's score is based on detailed criteria in the three categories of chemicals, e-waste and energy efficiency

Detailed Guide to Greener Electronics Manufacturer Scores

Category	Criteria	Nokia	Sony Ericsson	Toshiba	Philips	Apple	...	Dell	Fujitsu	Lenovo	Microsoft	Nintendo
Chemicals	Precautionary principle and support for revision of RoHS	2	3	1	1	2		1	0	1	1	0
	Chemicals management	3	3	3	3	1		3	3	3	3	1
	Timeline for PVC & BFR phaseout	3	3	3	3	3		2	0	2	3	0
	Timeline for additional substances phaseout	2	3	3	3	0		0	1	2	1	1
	PVC-free and/or BFR-free models	2	3	1	0	3		1	1	0	0	1
e-Waste	Individual producer responsibility	2	1	0	2	0		0	1	1	1	0
	Voluntary take-back	3	1	1	0	2		2	1	2	0	0
	Information to individual customers	3	2	2	1	2		2	1	2	0	0
	Amounts recycled	1	1	2	0	2		1	1	1	0	0
	Use of recycled plastic content	0	0	1	0	0		1	0	1	0	0
Energy efficiency	Global GHG emissions reduction support	0	1	2	3	0		1	2	0	0	1
	Carbon Footprint disclosure	2	1	2	2	2		1	2	1	1	1
	Own GHG emissions reduction commitment	3	2	1	3	1		3	0	0	0	0
	Amounts of renewable energy used	2	2	0	2	1		2	0	0	2	0
	Energy efficiency of new models	3	3	2	2	2		2	2	1	0	1
Total		32	29	24	25	21		22	15	17	12	5

Nokia's superior overall score is partially due to voluntary take-back in countries without EPR laws and to providing detailed take-back information to customers

Guide to Greener Electronics e-Waste Evaluations for Top and Poorest Scorer

e-Waste Categories

Support for Individual Producer Responsibility (IPR)	Provides voluntary take-back where no Extended Producer Responsibility (EPR) laws exist	Provides info for individual customers on take-back in all countries where products are sold	Reports on amount of e-waste collected and recycled	Use of recycled plastic content in products – and timelines for increasing content
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Nokia

Partially Good (2+)	Good (3+)	Good (3+)	Partially Bad (1+)	Bad (0)
Nokia supports IPR. To regain top marks, Nokia will continue to lobby for IPR, inter alia to ensure the revised WEEE legislation sets clearer requirements for the implementation of IPR.	Take-back is offered in 85 countries, including Africa and Latin America, with almost 5000 Nokia collection points globally. Nokia will soon roll out a take-back program in Argentina.	The information provided is very good, with all details needed and updates about the development of new take-back programs, most recently those launched in 10 Middle Eastern countries and 11 African countries.	Nokia states that it gets back just 3 percent of redundant phones. But it is unclear if this is as a percentage of all Nokia sales, or all brands of mobiles returned – and over which period and geography.	Nokia is still actively researching the use of recycled plastics, which are currently used only in packaging. It's about time Nokia started using recycled plastics in its mobile phones, as its competitors are doing.

Nintendo

Bad (0)	Bad (0)	Bad (0)	Bad (0)	Bad (0)
Nintendo considers the promotion of recycling to be one of its most important responsibilities and complies with the laws of each region. However, there is no reference to Individual producer responsibility.	Nintendo of America (NOA) now links to the Environment Canada recycling information website in addition to USEPA's eCycling hardware and battery recycling programs.	NOA gives links to Environment Canada recycling information and the US EPA disposal and recycling pages. Information on product take-back systems in Europe is available on the packaging.	Nintendo of America claims a near 100% recycling rate for product returns and repairs in the US, however, information on its take-back program for obsolete consumer products is not given.	No information available.

The issue is no longer whether ICT businesses need to care – it is more about the risk associated with doing nothing

Green Responsibility – The Analyst's View

Green Responsibility Action Imperatives

- Increasing **financial, environmental, legislative and risk-related pressures** will force IT organizations to get 'greener', i.e., more environmentally sustainable
- The ICT industry needs to gain a **better understanding of the full life cycle** of ICT products and services, and **innovate** to reduce environmental impact. This does not currently happen because of the **lack of a commercial or legislative need** to do so, but **buyer pressure** will increasingly push in this direction
- Areas for **innovation** to reduce CO₂ emissions are in the **reduction of the materiality, energy consumption and use of hazardous substances** throughout the life cycle, in addition to **increasing** the efficiency and effectiveness of **recycling** and the **use of recycled materials**
- IT organizations need to start by familiarizing themselves with **existing enterprise environmental objectives** and corporate social responsibility (**CSR**) policies

Source: Gartner

Benefits of the ICT industry's living up to its "green responsibility" center on cost, compliance, innovation, income, employee relations, and access to capital

Benefits of Living Up to "Green Responsibility"

<p>Cost Reduction</p>	<ul style="list-style-type: none"> • Reduced operating costs (anticipating increasing energy costs) • Reduced resource costs • Enhanced resource efficiency 	
<p>Compliance</p>	<ul style="list-style-type: none"> • "Early warner" for future laws & regulations • Increasing regulation, e.g. EU directives: RoHS, REACH, WEEE 	
<p>Driver for Innovation</p>	<ul style="list-style-type: none"> • Stimulator for innovation • Operational efficiency improvements • New products/services 	
<p>Income and Profitability</p>	<ul style="list-style-type: none"> • Green IT as purchase criterion • Reduced carbon footprint as purchase criterion • If too inactive, risk of "greenwashing" reputation 	
<p>Employee Relations</p>	<ul style="list-style-type: none"> • Improved staff retention • Attractiveness as employer • Reduced costs due to staff retention and absenteeism 	
<p>Access to Capital</p>	<ul style="list-style-type: none"> • Access to new capital sources (sustainability as investment criterion for some investors) • Reduced costs of capital due to lower risk premium 	

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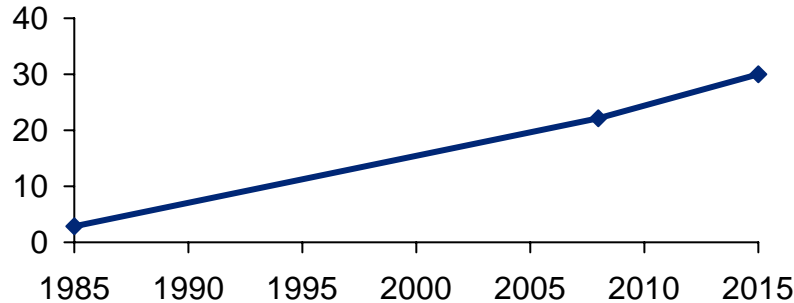
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The ICT industry's "green responsibility" also extends to other industries it serves as a supplier, which adds complexity to recycling and remanufacturing challenges

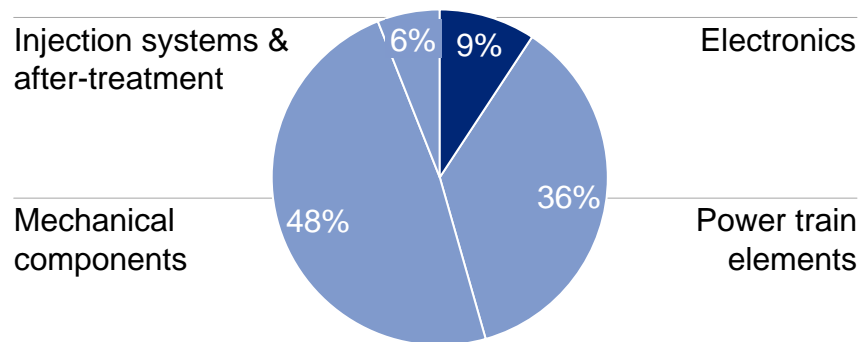
Value Share of Electronic Systems in Automobiles over Time

Electronic systems' share of a passenger car's total production costs in %



Source: Zentralverband Elektrotechnik- und Elektronikindustrie e.V.

Potential Value Share of Remanufactured Parts Category at OEM



Source: Deloitte Consulting Analysis, 2008 OEM project

Key Lessons from Deloitte Automotive Project

- The value share of electronic systems as a percentage of a car's production costs is expected to rise from 3.5% in 1985 to 30% in 2015
- The increase implies a growing responsibility for automotive manufacturers and their suppliers to recycle or remanufacture
- At a Deloitte OEM client, remanufactured electronics stand to account for 9% of the total remanufactured parts value
- However, a mere estimated 4% of that potential is realized today as opposed to some 18% for aggregates

- 1 Manufacturing of electronics components by suppliers complicates recycling and remanufacturing process
- 2 Lack of recycling know-how and high share of plastics in electronics causes current remanufacturing levels to fall short of those for other automotive parts
- 3 Different life cycles of automobiles and electronics raise issue of upward compatibility

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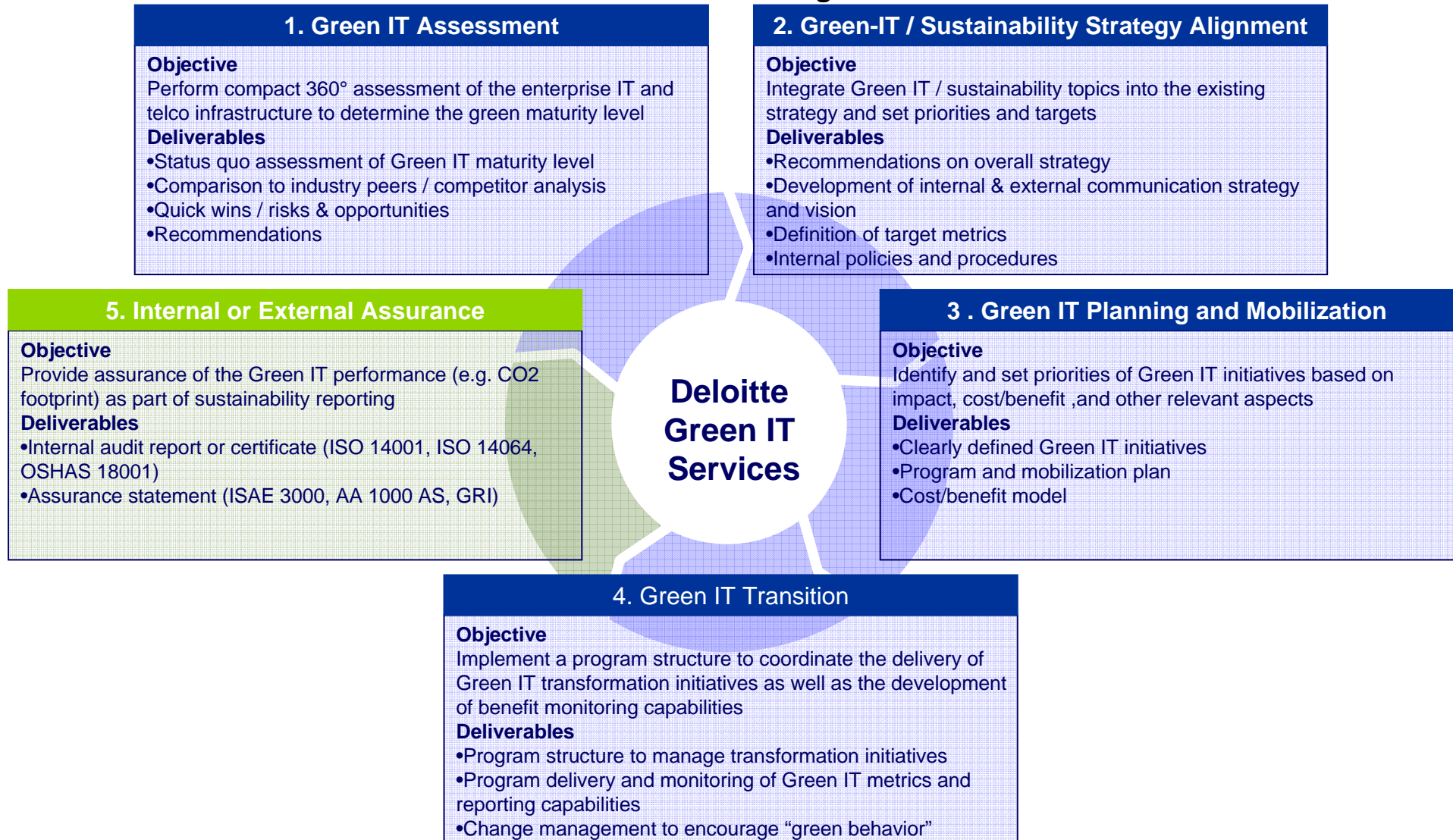
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Deloitte offers a stepwise and modular approach to helping its clients meet their “green” responsibility

Deloitte Offering



Deloitte professionals are the authors of numerous publications on Green IT and sustainability

Deloitte Thought Leadership



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