The European Financial Review

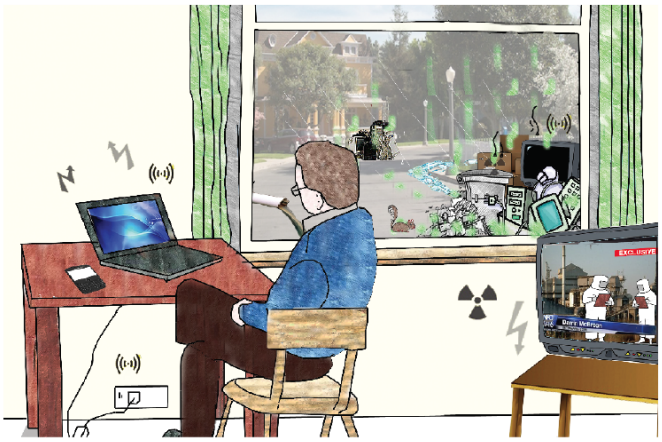
Just another WordPress weblog

Search

- Home
- Opinion
- White Paper
- About
- Subscribe
- Archive
- Author Guidelines
- Sponsors
- Contact Us
- Advertising

The Great Illusion of Media and Communications

By editor1 • Jun 19th, 2012 • Category: Ethics, Management, Operation, Recent Articles, Regulation, Sustainability, Technology



By Richard Maxwell and Toby Miller

There is growing evidence that unbridled consumption of media and communication technologies is adversely affecting workers and ecosystems around the world. It's time to challenge the myth that consumer electronics (CE) and information and communication technologies (ICT) are environmentally benign engines of economic growth.

You may not be surprised to discover that media and communications technologies contain toxic substances, or that the workers who assemble mobile phones and computers do so under hazardous conditions. But you may be startled by the scale and pervasiveness of these environmental risks. They are present in and around every site where electronic and electric devices are manufactured, used, and thrown away, poisoning humans, animals, vegetation, soil, air, and water.

Our book *Greening the Media*[1] examines the myriad ways that ICT/CE consume, despoil, and waste natural resources. We introduce ideas, stories, and facts that have been marginal or absent from popular, academic, and professional histories of these technologies. *Greening the Media* covers this history from the advent of printing to the era of the smart phone. We offer some possible solutions to the problem – and acknowledge that we, too, enjoy and rely on many of these devices, both personally and professionally.

> **"The world's media and communications are built upon a misperception of the value of innovation at the cost of our greatest heritage and responsibility – the Earth."**

The overweening reality we confronted in writing the book is that planned obsolescence, changing fashion, short lifespans, and an overstated sense of quality and immediacy attach themselves to these gadgets in a cult of the present. Cyberenthusiasts fetishize novelty as

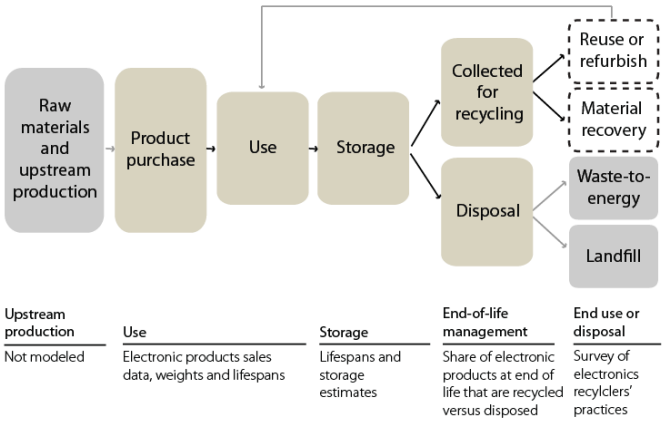
if each upgrade could magically reboot their hipster identity into perpetual newness. Such techno-wonders are misleadingly presented as having little or no material ecological impact. They are just "innovative."

This is the "great illusion" of our title. It borrows from Nobel Peace Prize winner Norman Angell's epic 1910 study, *The Great Illusion*, which became the inspiration for Jean Renoir's classic anti-war film, *La Grande Illusion* (1937). Angell's paean to peaceful globalization argued that war would disappear because it was problematic for trade and hence inimical to business interests. The Great Illusion to which he referred was the belief that nations benefited from war. The reality was that such conflicts only derailed credit and commerce.[2]

Our contention is that a similarly powerful great illusion blinds us to fundamental problems with the world's media and communications: that they are built upon a misperception of the value of innovation at the cost of our greatest heritage and responsibility – stewardship of the Earth.

The manifold processes involved in producing, consuming, and discarding media and communication technologies are represented in Figure 1, a life-cycle flow chart. It comes from a 2011 report on electronic waste (e-waste) management compiled by the US Environmental Protection Agency (EPA).

Figure 1. Life-cycle flow chart for electronic products.[3]



In what follows we focus on three key environmental problems with ICT/CE: consumption, energy, and e-waste. They represent just a few of the ways that these technologies have contributed to climate change, pollution growth, biodiversity decline, and habitat decimation: constituents of our global ecological crisis, born of today's great illusion.

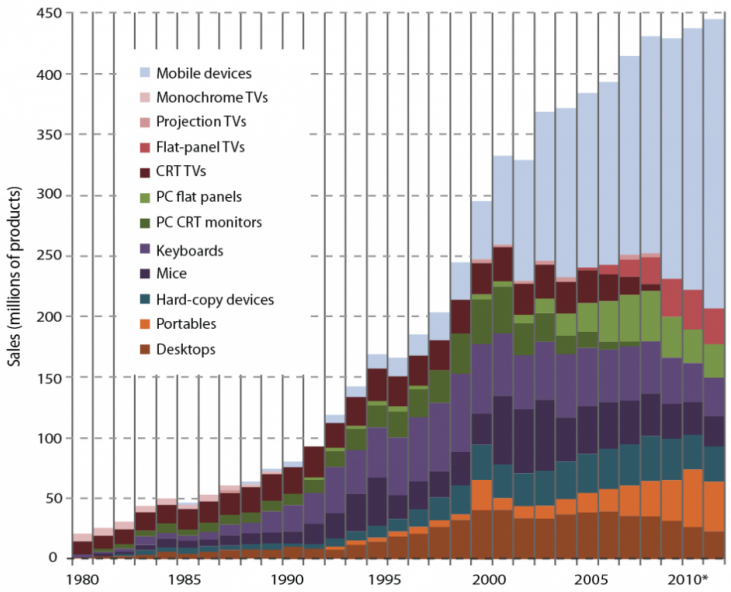
The Consumption Problem

The Consumer Electronics Association (CEA), which represents the US industry's major companies, and GfK Boutique Research, a private research consultant for the "technology-device industry," report that "global spending on consumer technology devices will surpass $1 trillion in 2012 for the first time, increasing by 5% over 2011's figure of $993 billion."[4] The EPA estimates that in 2009, 438 million new electronic gadgets were sold in the US.[5] Even in the midst of a recession, that year saw $165 billion in sales. Three quarters of the US population owned a computer, nearly half of all US adults had an MP3 player, and 85 percent used a mobile phone. Overall electronics ownership varied with age – adults under forty-five typically boasted four gadgets; those over sixty-five made do with one. Most of the global uptick in CE is attributable to smart phones, laptops, and tablets. US consumers spent $233 billion on electronic products in 2010.

No wonder the CEA refers joyously to a "consumer love affair with technology continuing at a healthy clip." One of their top analysts claims that "consumers from every corner of the globe crave the latest tech innovations."[6] By all measures, the amount of media technology on the planet is staggering. The investigative science journalist Elizabeth Grossman summarizes the situation this way: "No industry pushes products into the global market on the scale that high-tech electronics does. And no other industry employs a comparably complex global supply chain, both for manufacturing and for end-of-life materials recovery."

Figure 2 illustrates the doubling of media technology sold since 1995.

Figure 2. Sales of electronic products by model year, in number of units sold.[7]



This may look like a welcome sign of abundance that supports the idea that technological turnover is necessary and efficient. But while growth has enlarged the world economy by five times since the mid-twentieth century, it has degraded 60 percent of the globe's ecosystems. If that rate is maintained, the economy will be eighty times its current size by 2100; and the Earth's ecosystems? Even the Organisation for Economic Co-Operation and Development acknowledges that prevailing "patterns of growth will compromise and irreversibly damage the natural environment." ICT/CE play a huge part in the costs as well as the benefits of such expansion.

The Energy Problem

By 2007, between 2 and 3 percent of the world's greenhouse-gas emissions resulted from electricity generated to produce and power ICT/CE. That level of emissions was virtually the same as aviation's.

In 2011, upwards of ten billion devices around the world needed external power supplies. That number comprised two billion TV sets, a billion personal computers, and five billion mobile phones. Nearly three-quarters of the world's population owned a mobile phone, three-quarters of whom lived in emergent economies.

According to the International Energy Agency (IEA), residential electricity use to power media technology is growing at unprecedented rates. It accounted for about 15 percent of global residential electricity consumption by 2009. That same year, about 40 percent of US homes had video-game consoles. They consumed electricity at the same annual rate as San Diego, the ninth-largest city in the country. If ICT/CE usage continues to grow at this rate, the IEA estimates that electricity consumption by electronic equipment will rise to 30 percent of global demand by 2022, and 45 percent by 2030.

Worldwide, electricity consumption at data centers doubled between 2000 and 2005, and grew about 56 percent between 2005 and 2010. Data centers are essentially warehouse-sized computer systems – from 5,000 to 500,000 square feet – requiring huge amounts of energy to power and to cool. In 2006, they used 1.5% of the US electrical supply, at a cost of $4.5 billion.

Google's data center in Oregon needed the same amount of power as a city of 200,000 people. By 2008, Google had perhaps half a million servers, Microsoft was adding 20,000 servers a month, and eBay and Amazon maintained thousands of such facilities. The US federal government had 432 data centers in 1998 but over a thousand in 2009, with an estimated consumption of twelve billion kilowatt hours in 2011. By 2010, US data centers consumed between 1.7 and 2.2 percent of power nationally.

In the 1980s, a data center consumed around 400-800 watts per square meter. During the heyday of the dot coms, it was 750-1000 watts per square meter; and 1000-1200 watts per square meter between 2004 and 2006. A few years later, 1500-2000 watts per square meter became the norm. It is no surprise that the number of power stations being built around the world is increasing 150 percent a year. Although data center power consumption grew at slower rates when the financial crisis set in, the industry continued to expand its overall energy demands. Assuming that data centers return to pre-crisis trends, their electricity consumption in the US and the EU could double every five years. With few exceptions shifting to renewable sources, the major operators of data centers are doing little to wean themselves from coal, gas, nuclear, and other dirty and dangerous sources of electricity.

A data center's physical existence and impact might as well result from invisible magic for all we notice of them in the cluster of services known today as cloud computing. Conversely, customers were able to visit or at least visualize telegraph and telephone exchanges, post offices, and so on. These communications facilities were as readily identifiable as the labor that constructed, maintained, and used them. The metaphor of cloud computing suggests a natural, ephemeral, light, and benign quality that belies long-term ecological implications. But Greenpeace estimates that if the cloud were a country it would be the fifth largest energy consumer in the world.

The Waste Problem

In addition to the impact of powering contemporary ICT/CE, planned cycles of innovation and obsolescence accelerate the production of electronic hardware and waste. Today's digital devices are made to break or become uncool in twelve months and counting down (check your warranty). This is a longstanding tendency. According to Grossman, built-in or planned obsolescence entered the lexicon as a new "ethics" for electrical engineering in the 1920s and '30s. Marketers were eager to "habituate people to buying new products," so they called for designs to become obsolete "in efficiency, economy, style, or taste" as quickly as possible.

> **"By 2007, between 20-50 million tons of electronic and electric waste (e-waste) was being generated annually, much of it via discarded mobile phones, televisions, and computers."**

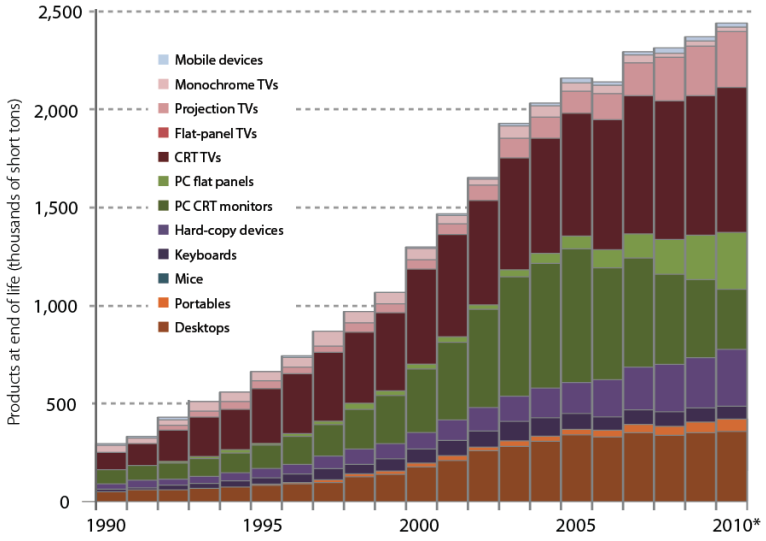
By 2007, between twenty and fifty million tons of electronic and electric waste (e-waste) was being generated annually, much of it via discarded mobile phones, televisions, and computers. E-waste has mostly been produced in wealthy nations (Australasia, Western Europe, Japan, and the United States) and dumped in emerging economies (Latin America, Africa, Eastern Europe, Asia, and China) though this situation is changing as India and China generate their own deadly media detritus.

E-waste takes the form of a thousand different, often lethal materials for each electrical and electronic gadget. Its extent is truly astonishing. Twenty million computers fell obsolete across the US in 1998; the rate was 130,000 a day by 2005. It has been estimated that the five hundred million personal computers discarded there between 1997 and 2007 contained 6.32 billion pounds of plastics, 1.58 billion pounds of lead, three million pounds of cadmium, 1.9 million pounds of chromium, and 632,000 pounds of mercury. In 2007, the EPA reported that "of the 2.25 million tons of TVs, cell phones and computer products ready for end-of-life management, 18 percent (414,000 tons) was collected for recycling and 82 percent (1.84 million tons) was disposed of, primarily in landfill." In 2009, the US put "5 million short tons of electronic products in storage" while "2.37 short tons were …ready for end-of-life management."[8] The EPA estimates that the "share of electronic products collected for recycling, as a percentage of total electronic products at end-of-life in each year, has increased steadily from 22 percent in 2006 to 25 percent in 2009." This is a small proportion of the overall waste generated by the ICT/CE sectors, and the EPA even acknowledges "considerable uncertainty" about the percentages.[9]

The EU is expected to generate upward of twelve million tons of e-waste annually by 2020. Although refrigerators and refrigerants account for the bulk of e-waste from the EU, about 44 percent of its most dangerous e-waste in 2005 came from computer monitors, TVs, printers, ink cartridges, telecommunications equipment, toys, tools, and anything with a circuit board.

Figure 3 illustrates the increasing number of electronic devices deemed obsolete, dead, or dying in the US.

Figure 3. Quantity of electronic products ready for end-of-life management in the United States.[10]



What is being done?

Numerous non-government organizations such as the Silicon Valley Toxics Coalition, Greenpeace, and Basel Action Network work tirelessly to draw attention to these risks to our planet. Due in part to their energy and research, the EU has taken some action to counter this waste. A decade ago, it adopted a Directive on Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) and a Directive on Waste Electrical and Electronic Equipment (WEEE). RoHS limits the use of carcinogenic metals (lead, mercury, cadmium, and hexavalent chromium) and fire retardants that endanger humans and wildlife. WEEE involves national and local authorities, producers, distributors, consumers, treatment operators, recyclers, collectors, transport, and "producer responsibility organizations" that police corporations. It is meant to eliminate e-waste, or at least ensure that whatever cannot be eliminated is recycled to minimize environmental harm. WEEE creates incentives to design and make ICT/CE with an eye to post-consumer waste. The European Parliament is currently considering increased recycling requirements.

Some e-waste costs are paid by local governments, but WEEE is largely financed by equipment producers, including EU-based manufacturers and resellers of imported and own-brand equipment. This exemplifies the doctrine of "extended producer responsibility" (EPR). It mandates that producers take responsibility for the end-of-life management of their products. This internalizes the environmental costs of inefficient and wasteful design that were once treated as "negative externalities" in the electronics sector. Although costs paid by producers are initially transferred to consumers in the price of electronic equipment, EPR encourages new designs that cost less to collect, treat, and recycle. Similar schemes exist across other parts of Europe such as Switzerland, Norway, and the Baltic States as well as South Korea, Taiwan, and Japan. It perhaps goes without saying that the US has no national legislation of this kind, though it is spreading across the nation on a piecemeal, state-by-state basis that is all too typical of reactionary Federalism.

The WEEE and RoHS directives promise to reshape e-waste management within the EU and in countries where manufacturers produce electronic equipment for the European market. They envisage implementation benefiting the Union as well as non-residents affected by e-waste that flows illegally from it. One difficulty has been measuring waste that disappeared because it was either tossed into bins as garbage, or resold illegally in the global salvage market.

The EU acknowledges that: "only one third of electrical and electronic waste in the European Union is reported as separately collected and appropriately treated. A part of the other two thirds is potentially still going to landfills and to sub-standard treatment sites in or outside the European Union" and the "Illegal trade of electrical and electronic waste to non-EU countries continues to be identified at EU borders."[11]

Raising consumer awareness might improve e-waste recycling at home. But to confront the rising pollution levels caused by the global e-waste business, major changes in the political-economic system are needed to make illegal trade also unprofitable, starting with the biggest source of revenue.

Other problems have occurred as unanticipated side effects of RoHS. Bans on the use of cadmium in battery production and the transportation of cadmium outside the EU stimulated other battery types and provoked a shift of most nickel-cadmium battery production to China. In 2007, twenty battery workers in Jiangsu province were diagnosed with cadmium poisoning in a factory contracted by a US company to make nickel-cadmium batteries for the Japanese multinational, Panasonic. As this example demonstrates, important advances in environmental protection can be hindered by failures to address labor inequities in the global supply chain.

Conclusion

Many of Norman Angell's predictions in *The Great Illusion* seemed unrealizable when World War II broke out. But the internationalization of work and finance has shown that his blend of hope and pragmatism resonates today. International organizations have endeavored for a very long time, both quietly and noisily, to manage particular environmental issues. Their business is sometimes conducted at a national state level, sometimes through civil society, and sometimes through both. In almost every case, they encounter or create legal and political instruments that make them accountable to the popular will of sovereign states, at least in name.

But green governance necessitates a difficult balancing act. Despite scientific consensus that "warming of the climate system is unequivocal," the twenty leading economic powers treat climate change and other ecological hazards as one-more variable of international relations, ignoring decades-old warnings about the fast-closing circle of remedies for environmental ills. This is one of the most volatile contradictions of our time: whereas the interpretation of economic, social, and cultural needs is fraught with political conflict and requires negotiations at multiple scales of global governance, the scientific preconditions for ecological sustainability are not a matter of political agreement. Even Thomas Schauer of the Club of Rome recognizes that "nature does not conduct consensus talks."

Public and corporate policy alike must acknowledge the urgency of the ecological crisis and embrace environmental justice on a global scale. Ecologically sound policies should aim to transform the structural conditions of ICT/CE supply chains, to ensure international adoption of EPR, and to promote research and education to dispel the great illusion that hides the dirty truth about media and communications technologies. Consumers, citizens, and workers must join together in this effort. It's quite a task, but with transparent governance, smart regulation, scientific acuity, and employee participation, we can get there.

About the authors

Richard Maxwell is professor and chair of Media Studies at Queens College, City University of New York.

Toby Miller is Distinguished Professor of Media & Cultural Studies at the University of California Riverside. His work can be found at http://tobymiller.org/.

References

1.Richard Maxwell and Toby Miller. *Greening the Media*. New York: Oxford University Press, 2012. This article is an adapted excerpt from our book.
2.J. D. B. Miller. *Norman Angell and the Futility of War*. Basingstoke: Macmillan, 1986.
3.U.S. Environmental Protection Agency Office of Resource Conservation and Recovery. "Electronics Waste Management in the United States Through 2009." May 2011. EPA 530-R-11-002, p. 6.
4."Global Consumer Tech Device Spending to Surpass $1 Trillion in 2012." *Business Wire*. www.businesswire.com/news/home/20120108005073/en/Global-Consumer-Tech-Device-Spending-Surpass-1.
5.U.S. Environmental Protection Agency, p. 3.
6."Global Consumer Tech."
7.U.S. Environmental Protection Agency, p. 9. Results for 2010 are projected from previous years' data.
8.U.S. Environmental Protection Agency, p. 5.

9. U.S. Environmental Protection Agency, p. 28.
10. U.S. Environmental Protection Agency, p. 23. Results for 2010 are projected from previous years' data.
11. European Commission, "Recast of the WEEE Directive." http://ec.europa.eu/environment/waste/weee/index_en.htm.

Leave a Reply

Name (required)

Mail (will not be published) (required)

Website

Submit Comment

- # More from this category

  - The Normality of Organizational Wrongdoing
  - It's not over 'til the fat tail zings'
  - The Great Illusion of Media and Communications
  - Corporate Social Responsibility Does Not Avert the Tragedy of the Commons – Case Study: Coca-Cola India
  - The Economics of Wiser Water Use: Making the most from the quintessential resource
  - 99 to 1: How Wealth Inequality Is Wrecking the World and What We Can Do About It
  - The Problem with Solutions: Sustainability in a Connected World
  - Social Banking and Social Finance: Building Stones Towards A Sustainable Post-Crisis Financial System?
  - Anti-Incentives: The Power of Resisted Temptation*
  - Having your cake and eating it too? – An unconventional perspective on Impact Investing
  - **Archive for 'Ethics' »**

- # More from this category

  - In Praise of Ecological Rationality: The Return of Practical Wisdom to Management
  - The Normality of Organizational Wrongdoing
  - A Europe of Innovations: Only more competition in payment traffic will secure wealth and prosperity
  - It's not over 'til the fat tail zings'
  - Beyond Business-as-Usual: Achieving a Paradigm Shift towards Low-Carbon Transport
  - For fleet management anywhere in the world – it's absolutely ARI.
  - The Great Illusion of Media and Communications
  - Lessons Learned from the Adoption of Open Source Software
  - Re-engineering of Products and Processes: How to Achieve Global Success in the Changing Marketplace

- Greece's Decisive Indecision
- **Archive for 'Management' »**

More from this category

- The Normality of Organizational Wrongdoing
- A Europe of Innovations: Only more competition in payment traffic will secure wealth and prosperity
- Beyond Business-as-Usual: Achieving a Paradigm Shift towards Low-Carbon Transport
- For fleet management anywhere in the world – it's absolutely ARI.
- The Great Illusion of Media and Communications
- Corporate Social Responsibility Does Not Avert the Tragedy of the Commons – Case Study: Coca-Cola India
- The Economics of Wiser Water Use: Making the most from the quintessential resource
- Lessons Learned from the Adoption of Open Source Software
- Re-engineering of Products and Processes: How to Achieve Global Success in the Changing Marketplace
- Achieve Market Success by Leveraging Customer Turnover
- **Archive for 'Operation' »**

More from this category

- In Praise of Ecological Rationality: The Return of Practical Wisdom to Management
- The Normality of Organizational Wrongdoing
- Europe's Nonpayment System
- A Europe of Innovations: Only more competition in payment traffic will secure wealth and prosperity
- It's not over 'til the fat tail zings'
- Beyond Business-as-Usual: Achieving a Paradigm Shift towards Low-Carbon Transport
- For fleet management anywhere in the world – it's absolutely ARI.
- Tomorrow's Energy: Hydrogen, Fuel Cells, and the Prospects for a Cleaner Planet
- The Great Illusion of Media and Communications
- Corporate Social Responsibility Does Not Avert the Tragedy of the Commons – Case Study: Coca-Cola India
- **Archive for 'Recent Articles' »**

More from this category

- The Normality of Organizational Wrongdoing
- Europe's Nonpayment System
- A Europe of Innovations: Only more competition in payment traffic will secure wealth and prosperity
- Beyond Business-as-Usual: Achieving a Paradigm Shift towards Low-Carbon Transport
- The Great Illusion of Media and Communications
- Corporate Social Responsibility Does Not Avert the Tragedy of the Commons – Case Study: Coca-Cola India
- The Challenges of Real-Time Diplomacy: The Middle East and Beyond
- Financing Aloof Risks: No Silver Bullet or Sacred Cow
- Greece's Decisive Indecision
- Immigration Policy and Executive Power at Loose Ends: The Case of the US*
- **Archive for 'Regulation' »**

More from this category

- In Praise of Ecological Rationality: The Return of Practical Wisdom to Management
- It's not over 'til the fat tail zings'
- Beyond Business-as-Usual: Achieving a Paradigm Shift towards Low-Carbon Transport
- For fleet management anywhere in the world – it's absolutely ARI.
- Tomorrow's Energy: Hydrogen, Fuel Cells, and the Prospects for a Cleaner Planet
- The Great Illusion of Media and Communications
- Corporate Social Responsibility Does Not Avert the Tragedy of the Commons – Case Study: Coca-Cola India
- The Economics of Wiser Water Use: Making the most from the quintessential resource
- Green Innovations – Green technologies must follow established rules of innovation and commercialization to succeed
- Energy Policy and Planning Needs to Value Water
- **Archive for 'Sustainability' »**

More from this category

- A Europe of Innovations: Only more competition in payment traffic will secure wealth and prosperity

- Beyond Business-as-Usual: Achieving a Paradigm Shift towards Low-Carbon Transport
- For fleet management anywhere in the world – it's absolutely ARI.
- Tomorrow's Energy: Hydrogen, Fuel Cells, and the Prospects for a Cleaner Planet
- The Great Illusion of Media and Communications
- The Challenges of Real-Time Diplomacy: The Middle East and Beyond
- The Rise of the Arab Second Society
- Lessons Learned from the Adoption of Open Source Software
- Re-engineering of Products and Processes: How to Achieve Global Success in the Changing Marketplace
- Green Innovations – Green technologies must follow established rules of innovation and commercialization to succeed
- **Archive for 'Technology' »**

Advertisement

- ### Back Issues

  June 2012

- ### Browse by Topic

  - Lead Stories
  - Recent Articles
  - Global Economy
  - World Politics
  - Finance
  - Insurance
  - Management
  - Operation
  - Technology
  - Sustainability
  - Regulation
  - Ethics

- ### Advertisement