

2011 Corporate Responsibility Report

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About this report

IBM's Corporate Responsibility Report is published annually during the second quarter of the subsequent calendar year. This report covers our performance in 2011 and some notable activities during the first half of 2012.

To select the content for inclusion in the 2011 Corporate Responsibility Report, we have used the Global Reporting Initiative (GRI) Reporting Principles of materiality, sustainability context, stakeholder inclusiveness and completeness. IBM also provides on its corporate responsibility [website](#) a comprehensive GRI Report utilizing the GRI G3 Sustainability Guidelines at a self-declared GRI Applicant Level A.

Unless otherwise noted, the data in the Report covers our global operations. More details about IBM's corporate responsibility activities and performance are available [here](#). Information about our business and financial performance is provided in our 2011 Annual Report. IBM did not employ an external agency or organization to audit the 2011 Corporate Responsibility Report.

The measure of any enterprise or institution is not what it says about itself, but what others say about it, and whether they choose to affiliate with it—as employees, as clients, as investors, as neighbors, as fellow global citizens.

Over the past several months, I have met with thousands of IBMers and hundreds of leaders from government, communities and businesses around the world. As I began my tenure as IBM's CEO, I wanted to hear their concerns and perspectives. Most importantly, I wanted to hear their aspirations—for themselves, for our world, and for IBM.

What have struck me most powerfully in these conversations are two related beliefs—about this moment in history, and about IBM itself.

First was the belief that despite the present troubles of the world's economy, the potential for a bright future, characterized by sustained prosperity and societal progress, is within our grasp. Second, I found a widespread belief that as IBM enters its second century, it possesses unique capabilities—in technology, in business expertise and most importantly, in a deep and systemic understanding of global citizenship—to lead the world in making that potential real.

It is inspiring to hear that so many inside and outside the company believe IBM performs this distinctive role, and are eager to work together to see it succeed. Along with my colleagues, I believe we have not just an opportunity, but a responsibility to do so.

This shared belief in a higher purpose reaffirms aspirations and values that have been at the core of this enterprise since its inception, more than a century ago. These never change. But they are being reanimated and redirected today thanks to a radically new era in technology—the emergence of new tools and ways of working that can make our world more sustainable, efficient, equitable and intelligent.

Capturing this historic opportunity will, without question, be a challenge. Most crucially, it will be necessary for all sectors of civil society to break free from old definitions, and to assume new kinds of responsibility.

Business, in particular, must seize the initiative. We must not wait for government mandates. We must be active in convening all sectors of society to solve problems that none can solve on their own. We must energize our own resources—not just financial, but

also human. Most crucially, we must create corporate citizenship and business strategies that are not merely “linked,” but one.

In this report, you will find rich evidence of all these dimensions of IBMers' progress in assuming this role. You will see it in our work in communities around the world, on the environment, on our global supply chain, on corporate governance and on our workforce policies and practices.

- You will read about IBMers helping to build the smarter cities of our rapidly urbanizing planet, through such efforts as the Smarter Cities Challenge, which has provided \$50 million in competitive grants to send teams of our talented IBMers to help transform 100 cities around the world.
- You will read about IBMers helping to re-imagine education, as with the innovative P-TECH high school in Brooklyn, NY. This breakthrough six-year model is already spreading to other cities and influencing the national debate.
- You will read about the more than 300,000 IBMers who took part in 2011's Centennial Celebration of Service, resulting in 3.2 million hours of community-based service in 120 countries.

And you will read about Corporate Service Corps, deploying teams of high-potential IBMers in developing markets in Africa, Asia, Latin America and Eastern Europe to make communities smarter and more sustainable, while deepening the global skills of IBM's future leaders.

Building a Smarter Planet, it turns out, requires building a new kind of corporation. And that will not happen overnight. But the game-changing progress described in this report gives me confidence that it is achievable. As we have for 100 years—and counting—IBMers, our partners and the communities we serve are still, together, dedicated to making our world literally work better.



VIRGINIA M. ROMETTY
Chairman, President and Chief Executive Officer

Our Approach to Corporate Responsibility

IBM pursues the highest standards of social responsibility, from how we support and empower our employees, to how we work with our clients, to how we govern the corporation. We aim to regularly exceed those standards. In this section, you will find more detail about our approach to corporate responsibility and corporate citizenship.

IBM is a company of more than 430,000 employees, doing business in nearly 170 countries. We manage a supply chain of more than 20,000 suppliers.

We engage a vast network of stakeholders, from clients, to employees, to business partners, to investors. And the work we do impacts not only individual companies' business success, but the efficiency and innovation of countries, cities, governments, communities and our planet's critical infrastructure.

We strive to operate our business consistent with the highest standards of corporate responsibility, from how we support and empower our employees, to how we work with our clients, to how we govern the corporation. And we do so because we believe this is how a great company is built and sustained. This document is a brief summary of our efforts in these areas during the 2011 calendar year.

Throughout its history, IBM has taken a thoughtful, comprehensive approach to corporate responsibility that we believe aligns with IBM's values and maximizes the impact we can make as a global enterprise. We focus on specific societal issues, exploring ways to improve and protect the environment, spurring community economic development, and improving education and healthcare. In each of these areas, we engage by following four guiding principles:

- We identify and act upon new opportunities to make a difference by applying our technology and expertise to societal problems ([P-TECH](#))

- We scale our existing programs and initiatives to achieve maximum benefit by measuring our results and adjusting our approaches ([Smarter Cities Challenge](#))
- We empower our employees and others by building their skills to better serve their communities ([Celebration of Service](#))
- We integrate our commitment to corporate responsibility into every aspect of our company (Responsibility at IBM [website](#))

This approach favors direct action and collaboration over simple "checkbook philanthropy." And we believe it is a path to real and lasting change. In all of our community service efforts, as in our business pursuits, we aim to provide leadership, and we insist on excellence and accountability. Whether it's solving the complex problems of the world's cities or developing schools that prepare students for careers, we expect to effect widespread, measurable change. And we work closely with highly qualified organizations that are deeply committed to the same outcomes. This is a vital part of our approach to stakeholder engagement: to collaborate with leading organizations to evolve meaningful and sustainable solutions.

This commitment is fostered throughout the company and led by senior management, which is ultimately responsible for our economic, environmental and societal performance, as well as compliance with laws, regulations and our various codes of conduct. The IBM Board of Directors and its committees regularly review performance and compliance.

On a day-to-day basis, our corporate responsibility activities are coordinated by a steering committee made up of executives from all relevant functions across IBM. Its chair is IBM's vice president of Corporate Citizenship & Corporate Affairs, who also serves as president of the IBM International Foundation.

Awards and Recognition 2011

Corporate Responsibility

- 100 Best Corporate Citizens
IBM was ranked #3 on the CR Magazine "100 Best Corporate Citizens" list in March 2011. In April of 2012 IBM moved up to the #2 ranking. The list is based on the Russell 1000 listing of large public corporations.
- 100 Most Reputable Companies
IBM was ranked #27 on the Forbes list of the world's 100 most reputable companies, according to a survey of 48,000 consumers in 15 markets.
- World's Most Admired Companies
IBM was ranked #12 in the Fortune 2011 World's Most Admired Companies list. In 2012, IBM moved up to #5.

Environment

- 2012 Gold Medal, World Environment Center
IBM received the World Environment Center's 28th Annual Gold Medal for International Corporate Achievement in Sustainable Development, becoming the first and only company to earn the award twice.
- Inaugural Climate Leadership Award, Organizational Leadership
IBM received an inaugural Climate Leadership Award in the Organizational Leadership category in 2012 from the US Environmental Protection Agency, the Center for Climate and Energy Solutions (formerly the Pew Center on Global Climate Change), The Climate Registry and the Association of Climate Change Officers. The award recognized IBM for its climate and energy program leadership, initiatives and sustained results.
- #1 Ranking of World's Greenest Companies, Newsweek
IBM was rated the #1 US (and #2 global) company in Newsweek's annual "World's Greenest Companies" ranking. The methodology compares a company's environmental footprint, management (policies, initiatives, controversies) and transparency, and is then weighed by a panel of corporate sustainability consultants.
- #1 Ranking, Supercomputing Green500 List
IBM ranked #1 in the November 2011 Supercomputing Green500 List announced by Green500.org. The Green500 ranks the top 500 supercomputers in the world by energy efficiency. IBM's Blue Gene/Q supercomputer holds the top five spots on the list. The list shows that five of the top 10 most energy efficient supercomputers in the world are built on IBM high-performance computing technology.
- Top 12 Green IT Vendors, Computerworld
IBM ranked #6 in Computerworld's Top 12 Green IT Vendors. This analysis rates technology vendors, data center suppliers and their end user organizations on their efforts to reduce energy consumption in their IT equipment, and to use technology to conserve energy and lower carbon emissions.

- **Corporate Energy Management International Award, AEE**
IBM was recognized by the Association of Energy Engineers (AEE) with its 2011 Corporate Energy Management International Award. AEE recognizes organizations and individuals that have achieved national and international prominence in promoting the practices and principles of energy engineering and energy management.
- **ISM Award for Excellence in Supply Management, Institute for Supply Management**
IBM received the ISM Award for Excellence in Supply Management (the "R. Gene Richter Award") from the Institute for Supply Management in the Sustainability category for 2011. The award recognized IBM for three initiatives including its Center of Excellence for Environmental Compliance/Social and Environmental Management System, Supply Chain Social Responsibility Initiative and Green ISC Initiative.
- **PM100 Awards**
Three of the eight 2011 Progressive Manufacturing 100 (PM100) Awards IBM received were related to its environmental leadership. The awards recognized IBM for its Supply Chain Environmental and Corporate Responsibility Management System requirement, its Center of Excellence (CoE) for Product Environmental Compliance and its Environmental Reporting Tool (ERT). The PM100 Awards recognize companies from around the world that have achieved significant breakthroughs in innovation, the use of advanced technologies and the effective management of their businesses.
- **Business & The Environment Award, DECISION Magazine, UK**
IBM received a 2011 Business & The Environment Award from DECISION magazine in the UK. The award recognized IBM for its best practices in the management of environmental and social requirements in its supply chain.
- **China Sustainability Award**
IBM received a China Sustainability Award in recognition of excellence in sustainable development (environmental protection, society and economy) for both strategic planning and long term practices. This award was established in 2010 by Sohu.com, a Chinese portal website, and A.T. Kearney, a global consulting firm.
- **CIPEC Leadership Award, Canada**
IBM Canada's Bromont site received a Canadian Industry Program for Energy Conservation (CIPEC) Leadership Award in the category "Integrated Energy Efficiency Strategy" at the Energy 2011 conference held in Toronto. IBM received the award in recognition of its significant and innovative contributions to energy efficiency.
- **Distinction Award for Energy Efficiency, Canada**
IBM Canada's Bromont site received the 2011 Distinction Award in the category of Energy Efficiency. The award was presented to IBM by the Agency for Energy Efficiency of Quebec and the Federation of Quebec Chambers of Commerce.
- **Vermont Governor's Awards, US**
IBM Burlington, Vermont, received two 2011 Vermont Governor's Awards for Environmental Excellence and Pollution Prevention for its nitrate reduction in waste water effluent and U-Tube scrubber design and installation. IBM also received a 2012 Vermont Governor's Award for Environmental Excellence for its work on perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) elimination in semiconductor manufacturing. IBM became the first in its industry to eliminate all known uses of PFOS and PFOA from its semiconductor manufacturing processes. The latest award marked 19 consecutive years that IBM has been recognized with at least one of these awards—which is every year the competition has been held.

- Best Overall Energy Project in New England Award, US
IBM Burlington, Vermont, received the “2011 Best Overall Energy Project in New England Award” from the New England Chapter of the Association of Energy Engineers for its “Free Cooling” project.
- Excellence in Environmental Engineering Award, US
IBM East Fishkill, New York, received a 2011 Excellence in Environmental Engineering Award in the small projects category from the American Academy of Environmental Engineers (AAEE) for the catalytic reduction of hydrogen peroxide in ammonia wastewater.
- Smith Seal of North Carolina Sustainable Business Award—Lifetime Achievement, US
IBM Research Triangle Park, North Carolina, was recognized by the Greater Raleigh Chamber of Commerce with the 2011 Smith Seal of North Carolina Sustainable Business Award—Lifetime Achievement for Large Organization. The award recognizes businesses, not-for-profits, colleges/universities and municipalities that have embraced the spirit of sustainability by incorporating environmentally conscious practices into the everyday operations of the company, and making strides to improve the lives of their employees or community.

Diversity

- Women’s Business Enterprise National Council
IBM was recognized as the Top Corporation by the Women’s Business Enterprise National Council.
- Mentor Award
IBM received the US Department of Energy Mentor Award.
- Champion of Veterans Enterprise Award
IBM received the Champion of Veterans Enterprise Award from the National Veterans Small Business Coalition.
- USHCC Million Dollar Club
IBM was recognized by the US Hispanic Chamber of Commerce (USHCC) as a member of its Million Dollar Club.
- WBE Hall of Fame
IBM was inducted into the Women Business Enterprise (WBE) Hall of Fame.
- Supplier Diversity Corporation of the Year
IBM was named Supplier Diversity Corporation of the Year by the US Business Leadership Network (USBLN) for accomplishments with the Disability Supplier Diversity Program.

Disaster Relief & Recovery

- USA Corporate Partner Award
IBM, along with eBay, PayPal, and Neiman Marcus, received the USA Corporate Partner Award from Shelterbox, which provides humanitarian relief to families after disasters.

2011 Performance Data Summary

Over the course of a year, IBM uses a series of metrics to measure our corporate responsibility efforts. Below is a summary of the data in several important areas. Our Key Performance Indicators (KPIs) for various parts of the business are also noted, along with some explanation of each..

KPI denotes key performance indicator

Employees

At IBM, we focus on enabling IBMers to flourish by providing guidance and opportunities for career and expertise growth, allowing IBM and IBMers to succeed in this rapidly changing world. IBM blends traditional, virtual and work-enabled learning and development activities to accomplish this. As realized in 2011, this strategy enables us to provide timely, comprehensive and targeted learning while achieving more efficient, effective learning delivery.

	2007	2008	2009	2010	2011
Learning investments worldwide (\$M) KPI	622	648	490	547	466
Learning hours worldwide (M)	22.3	23.2	25.5	28.6	27.4
Learning hours per employee KPI	58	61	64	67	63

IBM has demonstrated 100 years of commitment to addressing the specific needs of women in our workforce, and to creating work-life and career development programs that address their needs. We continue to monitor the progress and leadership development of women in our workforce and provide opportunities across the more than 170 countries where we do business.

Women in the workforce % KPI	2007	2008	2009	2010	2011
Global Workforce	28.8	28.9	28.7	28.1	28.5
Global Executives	20.3	21.2	21.2	21.4	21.5
Managers	24.8	24.5	24.6	24.8	24.6

Global illness/injury rate

	2007	2008	2009	2010	2011
Total number (per 100 employees)	0.32	0.30	0.27	0.27	0.36

Employee and Retiree Volunteering via On Demand Community

Hours in thousands	2007	2008	2009	2010	2011
Asia Pacific	163	143	118	111	663
Europe, Middle East, Africa	210	175	155	198	430
Latin America	42	41	43	44	152
North America	1,303	1,170	954	1,110	1,956

Total participation in 2011 was 300,000 volunteers in 120 countries..

Giving

IBM tracks global corporate contributions by issue, geography and type of grant. Giving by issue is important as our goal is to maintain education as our primary focus. Giving by geography is important to understand the alignment of our resources to our global operations. The type of giving—services, technology (including software) and cash—is important as we focus on providing the best of our company's technical services and technology to address key social issues.

While education is our highest priority, we currently intend to maintain some investment in human services, culture, health and the environment. Additionally, we want to keep flexibility for new initiatives and to meet extraordinary external conditions. Our balance of contributions in 2011 met these goals. Our overall contributions rose by 3.6 percent, in line with the five-year trend. IBM is a globally integrated enterprise operating in nearly 170 countries. In 2011, the percentage of contributions in mature markets generally fell, while contributions in developing markets rose. Some of our contributions are given on a globally competitive basis, so geographical distribution may vary due to the number and quality of applications. By type of contribution, services as a percentage of total contributions increased most significantly in 2011, consistent with our focus in grants of providing solutions.

We do not set goals for percentage change in contributions year over year, nor for giving by geography or by type of contribution. We focus instead on increasing the quality of our work with organizations on projects that successfully use IBM solutions and that have significant impact on key social issues. Current trends in contributions will not necessarily continue, but rather will be determined within the framework of increasing the effectiveness of our contributions.

Global corporate contributions by issue (\$M) KPI					
	2007	2008	2009	2010	2011
K-12 Education	41.7	45.4	44.0	34.7	28.8
Higher/Other Education	49.2	82.6	92.4	116.8	113.0
Culture	11.9	10.5	5.7	3.2	3.8
Human Services	16.7	15.3	15.0	7.7	17.9
Health	4.6	4.0	4.2	4.3	4.5
Other	40.7	19.3	19.9	16.1	22.7
Environment	1.8	2.2	4.7	6.4	5.4
Total	166.6	179.3	185.9	189.2	196.1

Global corporate contributions by type (\$M) KPI					
	2007	2008	2009	2010	2011
Cash	43.8	42.9	40.3	39.3	46.9
Technology	55.8	93.8	102.2	105.3	91.3
Services	67.0	42.6	43.4	44.6	57.9
Total	166.6	179.3	185.9	189.2	196.1

Global corporate contributions by geography (\$M) KPI					
	2007	2008	2009	2010	2011
United States	91.8	94.6	77.1	75.8	70.8
Asia Pacific	22.3	24.4	45.4	34.8	36.3
Canada	3.6	3.4	8.4	6.8	6.8
Europe, Middle East, Africa	40.8	44.4	35.2	54.3	60.2
Latin America	8.1	12.5	19.8	17.5	22.0
Total	166.6	179.3	185.9	189.2	196.1

Employee Charitable Contribution Campaign (U.S.)					
	2007	2008	2009	2010	2011
Amount Donated (\$M)	35.1	36.1	36.1	36.2	36.5
Employee Participation Rate (%)	58	57	59	59	58.3
Recipient Agencies*	8,366	8,776	9,486	9,706	9,613

*Data for 2007-2010 has been revised.

Employee Charitable Fund (Canada)					
	2007	2008	2009	2010	2011
Amount Donated (\$M)	3.3	3.0	3.0	3.0	3.1
Employee Participation Rate (%)	49	49	43	42	44
Recipient Agencies*	1,323	1,150	1,373	1,480	1,446

*Data for 2007-2010 has been revised.

Environment

IBM maintains goals covering the range of its environmental programs, including climate protection, energy and water conservation, pollution prevention, waste management and product stewardship. These goals and our performance against them are discussed in the Environment section of this report. The goals identified here as KPIs are based on stakeholder interest and materiality. IBM considers all of its goals to be important metrics of the company's performance against its commitment to environmental protection.

IBM's goal is to achieve annual energy conservation savings equal to 3.5 percent of IBM's total energy use. IBM again achieved this goal in 2011, attaining a 7.4 percent savings from energy conservation projects.

Energy Conservation KPI	2007	2008	2009	2010	2011
as % of total electricity use	3.8	6.1	5.4	5.7	7.4
Renewable Energy Procured	2007	2008	2009	2010	2011
as % of total electricity use	8.5	8.6	11.3	11.2	10.2

Between 1990 and 2005, IBM's energy conservation actions reduced or avoided CO2 emissions by an amount equal to 40 percent of its 1990 emissions. To further extend this achievement, IBM set an aggressive "2nd generation" goal: to reduce the CO2 emissions associated with IBM's energy use by 12 percent between 2005 and 2012 through energy conservation and the procurement of renewable energy.

As of year-end 2011, IBM's energy conservation results and procurement of renewable energy yielded a 16 percent reduction in its energy-related CO2 emissions since 2005.

CO2 Emissions Reduction KPI	2007	2008	2009	2010	2011
% reduction against the 2005 base year	+2.0	-1.6	-5.7	-16.7	-16.0

Product Energy Efficiency **KPI**

Please visit our Product Energy Efficiency section

Recycled Plastics	2007	2008	2009	2010	2011
% of total plastics procured through IBM contracts for use in its products that is recycled—against annual goal of 5%	10.6	10.3	13.2	11.5	12.4

IBM's goal is to reuse or recycle end-of-life IT products such that the amount of product waste sent by IBM's Product End-of-Life Management (PELM) operations to landfills or incineration for treatment does not exceed a combined 3 percent of the total amount processed.

In 2011, IBM's PELM operations sent only 0.4 percent of the total processed to landfill or incineration facilities for treatment.

Product end-of-life management KPI	2007	2008	2009	2010	2011
% of total processed sent by these operations to landfill or incineration for treatment	0.8	0.6	0.5	0.6	0.4

IBM's goal is to achieve year-to-year reduction in hazardous waste generated from IBM's manufacturing processes indexed to output. IBM's hazardous waste generation indexed to output decreased by 3.5 percent in 2011.

Hazardous waste reduction (%) KPI	2007	2008	2009	2010	2011
	-8.4	-10.9	+8.4	-21.6	-3.5

Nonhazardous Waste Recycling	2007	2008	2009	2010	2011
% recycled of total generated against an annual goal of 75%	78	76	76	79	78

IBM's goal is to achieve annual water savings equal to 2 percent of total annual water usage in microelectronics manufacturing operations, based on the water usage of the previous year and measured as an average over a rolling five-year period. In 2011, new water conservation and ongoing reuse and recycling initiatives in IBM's microelectronics operations achieved an annual 1.2 percent savings in water use, resulting in a rolling five-year average of a 2.6 percent savings versus the 2 percent goal.

Water Conservation (%)	2007	2008	2009	2010	2011
	6.0	4.6	3.1	2.8	2.6

For more information on IBM's other environmental performance metrics and recognition for 2011, please see the [IBM and the Environment Report](#).

Supply chain

Supplier spending by category	2007	2008	2009	2010	2011
Services and General Procurement (%)	67	68	69	64	64
Production Procurement (%)	31	29	28	33	33
Logistics Procurement (%)	2	3	3	3	3
Services and General Procurement (\$B)	25.0	26.1	22.6	22.1	23.4
Production Procurement (\$B)	11.4	11.4	9.3	11.6	12.0
Logistics Procurement (\$B)	0.9	1.0	0.9	1.0	1.1

Supplier spending by location	2007	2008	2009	2010	2011
North America (%)	43	39	39	35	34
Asia Pacific (%)	26	30	29	35	34
Europe, Middle East, Africa (%)	27	25	25	22	23
Latin America (%)	4	6	7	8	9
North America (\$B)	16.0	14.9	12.8	12.3	12.5
Asia Pacific (\$B)	9.8	11.4	9.4	12.2	12.5
Europe, Middle East, Africa (\$B)	9.9	9.8	8.1	7.5	8.3
Latin America (\$B)	1.6	2.4	2.5	2.7	3.2

Supplier diversity provides IBM a competitive advantage through gains in market share and client satisfaction by giving global opportunities to diverse owned businesses. IBM's Global Supply strategic goals and objectives are supported by diverse suppliers around the world that deliver value in areas such as flexibility, innovation and sustainability, thereby helping to contribute to a Smarter Value Chain.

First-tier spending KPI	2007	2008	2009	2010	2011
Total US (\$B)	12.6	12.5	10.9	10.7	10.6
Diverse US (\$B)	1.4	1.5	1.4*	1.5	1.7
Diverse Non-US (\$M)	709	745	806	742	881

**Data for 2009-2010 has been revised.*

IBM's supplier social responsibility assessment protocol requires that all audited suppliers create and submit a Supplier Improvement Plan (SIP) for all noncompliance—with priority given to major noncompliances. The SIP forms a conduit, linking initial audit findings to supplier-generated improvements geared toward resolution of root causes with verification taking place through a reaudit scheduled following the completion of all improvement actions.

Supplier improvement plans completed and accepted KPI	2007	2008	2009	2010	2011
	—	169	84	316	473

Communities

We believe that the direct application of our technology, services, and expertise is one of the best ways to have a meaningful, lasting impact on the communities in which we live and work. In this section, you will find examples of the ways we practiced this philosophy over the course of the last year.

Education in Communities

IBM understands that educating children is a top priority in every community. And so, as part of our commitment to innovation and leadership, we help build strong foundations for success through educational programs designed to inspire, prepare and support children and young adults as they develop the skills they need to lead the next generation.

Our portfolio of educational programs continues to evolve and grow to help strengthen teacher instruction and better meet the learning needs of children. In 2011, IBM launched new educational programs, and also expanded on other initiatives well underway.

Pathways in Technology Early College High School (P-TECH)

Connecting the dots among secondary education, higher learning and professional careers is an important component to economic and individual success. Students require the foundation of solid learning to thrive, but also need guidance and support in order to help them apply what they've learned in real-world settings. They require a personalized pathway toward mastery of the skills and knowledge needed to make the transition from education to industry.

In September 2011, the New York City Department of Education, The City University of New York (CUNY), New York City College of Technology ("City Tech") and IBM opened Pathways in Technology Early College High School (P-TECH), an innovative public school spanning grades 9–14. Based in Brooklyn, New York, P-TECH launched with 103 ninth-grade students from all boroughs of the city, but predominantly from the surrounding neighborhoods. Students were not screened for admission, and no tests were required, but interest had to be demonstrated by attending a school fair or a parent meeting.

The goal for P-TECH's student population is completion of a no-cost associate degree within six years. With this degree graduates will be positioned to seek entry-level positions in the highly competitive fields of information technology or to complete their studies in a four-year higher education institution.

“To put America back to work, parents, teachers, students, civic leaders and private sector employers must collaborate on new and innovative approaches to public education. This model will help close the skills gap not only in the City of Chicago, but in any city that chooses to implement the playbook and open a grades 9-14 school.”

— STANLEY S. LITOW
Vice President of Corporate Citizenship and Corporate Affairs

As part of school learning, students participate in an ongoing, sequenced Workplace Learning curriculum informed by current and future industry standards that includes career goals, mentoring, guest speakers, workplace visits and internships. Minimum requirements for entry-level IT jobs, as provided by IBM and other industry partners, have been mapped to the curriculum and are serving as academic benchmarks and targets. A coalition of industry advisors is assuring that the program aligns with industry needs as the IT field evolves. To serve as an added incentive to students, IBM also is making graduates first in line for entry-level jobs—thereby strengthening the continuum from school to college and career.

The broader goal of the program is to apply the knowledge and experiences developed in this pilot school to serve as a model for both new and traditional high schools in New York City and nationally. And we are already showing progress toward that goal. In February 2012, IBM released a new playbook designed to outline how to develop an innovative grades 9–14 school like P-TECH. The playbook is the result of a Smarter Cities Challenge grant to the City of Chicago, which now plans to open five grades 9–14 schools in September 2012 modeled after P-TECH. One of the schools will open as a collaboration with IBM, Chicago Public Schools, and City Colleges of Chicago.

Teachers TryScience

IBM understands that preparing the next generation of innovators requires great science teachers with the skills and knowledge to educate, inspire and motivate students. But the demand for science teachers continues to outstrip the supply; in the United States, about one-third of all middle school science teachers are not certified to teach science. The challenge is providing teachers with the resources they need to strengthen their instruction and better prepare students for the jobs of the 21st century, many of which will increasingly be in STEM (science, technology, engineering and math) fields. According to a 2011 report from the United States Department of Commerce, STEM jobs are expected to grow at a faster rate than other jobs in the coming decade, and workers in STEM fields are less likely to experience unemployment.

And so, in the spirit of IBM's TryScience online program for students, [Teachers TryScience](#) was launched in 2011. The program is a collaborative effort with the New York Hall of Science and TeachEngineering.org and is designed for teachers—primarily at the middle school level—to improve their instruction in project-based learning. This site provides free and engaging standards-based lessons, integrated with teaching strategies and resources, which are designed to spark students' interest in STEM. The site also provides social networking tools that enable educators to comment on and rate the lessons and resources, submit their own teaching materials and form public and private groups to engage in focused discussions with colleagues in the same district or around the globe.

“Teachers TryScience is an excellent new resource for science teachers that want to strengthen their instruction in project-based learning. Not only does it offer free, high quality lessons, but it links them with strategies and resources that will give teachers the skills and knowledge to make the most of them in their classrooms.”

— MARGARET HONEY
President of the New York Hall of Science

10 million

students have been served by IBM's KidSmart Early Learning Program since 1998.

Reading Companion

It is well-known that literacy is a key contributor to the competitiveness and economic growth of any region. Launched more than a decade ago, Reading Companion® is IBM's Web-based literacy initiative that uses voice recognition technology to help children and adults learn to read in English. The software listens as students read words and phrases that appear on the screen, correcting pronunciation as needed and offering encouragement along the way.

Reading Companion provides a private, unintimidating setting in which to learn, and is currently being used in more than 2,700 schools and not-for-profit organizations in 41 countries. Approximately 121,000 users are participating in this grant program.

Reading Companion has proved an excellent resource to IBM employees, teachers from existing grant sites and others who were interested in contributing to the growing virtual library of e-books. E-books are practice reading books that can be created using a tool built into Reading Companion. In 2011 alone, 89 new titles were added to the Reading Companion virtual library of e-books from authors in the United Kingdom, Egypt, Poland, Turkey and the United States. This brings the total number of books available from the virtual library to 356, half of which are for young learners.

In 2011, Reading Companion books were used in Bogota, Colombia, where 37 IBMers volunteered their time with 450 students in eight schools to promote literacy and bilingual education. As part of IBM's [Celebration of Service](#), students read books from the Reading Companion library and volunteers created an interactive word memory game based on those books to reinforce the words learned. Working with the not-for-profit organization Dividendo por Colombia, the Chamber of Commerce in Bogota and UNICA University, the project helped identify strengths and weaknesses in how bilingual education is taught in the schools.

KidSmart Early Learning Program

IBM's KidSmart Early Learning Program enriches pre-kindergarten curriculum with interactive teaching and learning activities using the latest technology. IBM's KidSmart program features Young Explorer, a computer housed in brightly colored, child-friendly Little Tikes furniture and equipped with award-winning educational software to help children learn and explore concepts in math, science and language. Since the inception of the KidSmart Early Learning Program in 1998, IBM has donated more than 60,000 Young Explorers to schools and not-for-profit organizations in 60 countries, reaching more than 105,000 teachers and serving more than 10 million students.

In 2011, thousands of IBMers around the world helped to build and install Young Explorers in primary schools and not-for-profit organizations. For example, 800 IBM volunteers worked with 370 preschools in 13 EMEA countries as part of IBM's Celebration of Service. Volunteers delivered educational modules using video podcasts that prepared teachers for implementing the KidSmart program in these schools, and a team from IBM is monitoring the benefits of these donations. The KidSmart program is also supporting quality daycare programs that care for the children of parents enrolled in New York City colleges, in collaboration with the City University of New York (CUNY). IBM provided 45 Young Explorers to CUNY Child Care Centers at 14 campuses, serving 1,400 children who attend these centers while their parents go to class or engage in academic related internships and fieldwork. The collaboration between CUNY and IBM is delivering a host of social and economic benefits:

- Young children get an early start developing the skills they'll need for future success.
- Struggling parents are encouraged to finish their education and participate more fully in the economy, knowing their children are receiving enriched care while they attend school.
- Teachers get access to a leading-edge educational tool to help build and sharpen their skills.

Smarter approaches to education will help build smarter cities.

\$100 million

in contributions to higher education around the world in 2011.

Transition to Teaching

Transition to Teaching is an extension of IBM's work in education and community service. Since 2006, IBM has supported those employees who want to begin second careers as fully accredited teachers in STEM subjects in their local communities. Transition to Teaching provides employees with guidance and funding to help them transition into teaching as their next career move, while still working at IBM. IBM was the first company to provide its employees with this kind of opportunity to pursue a second career as a K–12 math or science teacher.

By 2011, the number of IBM employees participating in the Transition to Teaching program reached 105, and 30 graduates had begun teaching in classrooms or teaching online courses in the United States.

Acknowledging that a shift in vocation takes time and training, the Transition to Teaching initiative helps underwrite the costs while employees pursue the education and training experiences required for teacher certification—combining traditional coursework, online courses and practice teaching. Employees are able to choose the certification program that meets their needs so they can get the necessary education courses as well as assistance during the student teaching period.

IBM has begun sharing what it has learned about the critical path to a second career in teaching with other companies, as well as with the education community. We hope to help develop a thriving talent pipeline for K–12 science, technology, engineering and math teachers.

University Relations

Collaborating with the academic community has been critical to IBM throughout the company's history. We believe that higher learning is central to the advancement of our company, and civilization in general.

That's why IBM works with more than 6,000 universities around the world on a number of levels; we conduct collaborative research and development, we provide grants and donations, and we inform curriculum to help develop the next generation of science and technology innovators.

In 2011, IBM embarked on an initiative called Students for a Smarter Planet, designed to involve students in creating projects that benefit communities. This coalition of local, student-led organizations and individuals collaborates with other student groups, professionals and policy makers to develop and implement innovative solutions with a positive impact. Students for a Smarter Planet participants have the opportunity to work with professionals on projects, find a mentor, enhance resumes, shadow executives, possibly even land a co-op or internship. IBM plays the role of facilitator in this program, while students take center stage in activities that use technology to make the world a better place to live. Examples include sponsoring a national science fair in partnership with the University of Texas at El Paso and the National Academy of Engineering, as well as working with the University of Vermont to create a sculpture that responds to commands from mobile phones.

Other Shared University Research Awards and Open Collaboration Research Awards projects include IBM's initiatives with universities in China to improve supply chains. Global supply chains have become the norm today, and many of them run through China at some point. In order to help drive efficiency—which is not only critical for business, but also for the environment—IBM is working to develop ways to better measure and manage supply chains. One project, in conjunction with Tsinghua University, aims to track carbon emissions for large manufacturing companies and help them optimize processes; in another, IBM is working with Beijing Jiaotong University to develop resource planning for railroad transportation in order to help optimize the service levels and productivity of railroad terminals.

Technology in Communities

IBM actively looks for ways to directly apply its greatest strengths as a corporation to the challenges we face as a society. In many cases, that means using technology in creative and innovative ways that benefit our communities.

World Community Grid

Since 2004, IBM's World Community Grid has pooled processing power from idle computers around the world to help solve humanitarian problems that require intensive computer analysis. We do this by using grid computing to join together many individual computers, creating a large, virtual system with massive computational power that far surpasses the power of all but a handful of supercomputers. Because the nature of the work is split into small pieces that can be processed simultaneously, research time is reduced from years to months and even to weeks.

World Community Grid is another example of how IBM tightly integrates its expertise as a technology and services company with its community service efforts. Since its launch, approximately 600,000 users have registered 2 million devices and have contributed more than 570,000 years of computing to help researchers understand childhood cancer, HIV/AIDS, muscular dystrophy, environmental issues, tropical diseases and more.

Research scientists who have utilized World Community Grid have published 30 research papers that discuss their findings. The Help Fight Childhood Cancer research project team at Chiba University in Japan has stated: "After screening 3 million candidate chemicals by molecular imaging and cellular toxicity, our project team has finally identified seven small chemical compounds which kill several neuroblastoma cells at very low concentration."

In the absence of World Community Grid, Help Fight Childhood Cancer researchers would have had to undertake their investigation through individual docking simulations, which would have taken approximately 100 years to complete. With World Community Grid, analysis is being carried out for thousands of drug candidates in parallel, allowing high throughput screening to be conducted. Researchers estimate this will reduce the time required to about two years.

In 2010, IBM launched research projects to improve water quality; in 2011, we added projects focused on tropical diseases. Millions of people die each year from tropical diseases, many of which do not receive major research funding. World Community Grid links millions of personal computers to help researchers discover new compounds that accelerate the discovery of new drugs to combat tropical disease. To date, three tropical disease research projects have been launched on World Community Grid:

- GO Fight Against Malaria
- Drug Search for Leishmaniasis
- Say No to Schistosoma

The 11 active World Community Grid research projects are:

- Say No to Schistosoma
Infórium Bioinformatics, Brazil (launched February 2012)
- GO Fight Against Malaria
The Scripps Research Institute, USA (launched November 2011)
- Drug Search for Leishmaniasis
PECET, University of Antioquia, Colombia (launched August 2011)
- Computing for Clean Water
Tsinghua University, China (launched August 2010)
- The Clean Energy Project
Harvard University, USA (launched June 2010)
- Discover Dengue Drugs — Together
University of Texas Medical Branch, USA (launched February 2010)
- Help Cure Muscular Dystrophy
Université Pierre et Marie Curie, France (launched May 2009)
- Help Fight Childhood Cancer
Chiba University, Japan (launched March 2009)
- Help Conquer Cancer
University of Toronto, Canada (launched November 2007)
- Human Proteome Folding
New York University, USA (launched July 2006)
- FightAIDS@Home
The Scripps Research Institute, USA (launched November 2005)

2 million

computers have been registered to help accelerate critical humanitarian research on 11 current research projects.

The key to World Community Grid is scaling capacity. That's why every year IBM actively promotes the project and encourages new members to sign up. In 2011, we continued our social media strategy, and added LinkedIn and [Citizen IBM](#) to our Facebook and Twitter outreach. During the year, the grid added more than 255,000 new devices, contributed over 126,000 years of computer run time and returned more than 255 million discrete results to the research projects.

In early 2011, several World Community Grid projects were the recipients of winnings realized from the game show, *Jeopardy!* Watson, an artificially intelligent computing system developed by IBM, was a contestant on *Jeopardy!* and placed first, winning \$1 million. Half of those winnings were donated as grants to a number of World Community Grid research projects with the goal of accelerating results.

The projects that received grants include:

- Help Fight Childhood Cancer
- Discovering Dengue Drugs—Together
- FightAIDS@Home
- Computing for Clean Water
- Help Defeat Cancer (completed work on World Community Grid in 2007, but continues to analyze results)
- Help Conquer Cancer
- BOINC (Berkley, University of California for work on the BOINC software on which World Community Grid runs)
- GO Fight Against Malaria

Services Grants

IBM strives to make its donations to the not-for-profit community sustainable, impactful and scalable. We closely tie many of our contribution offerings to our business expertise and product offerings. In this way, IBM eschews “checkbook philanthropy,” and instead engages not-for-profit organizations on a deeper, more collaborative level. This approach helps us better understand the true needs of these organizations to deliver greater value, and it helps the organizations better understand IBM.

IBM Services Grants are designed to offer not-for-profit organizations and schools a chance to enhance their operational performance and assist them in delivering better services to the community. These offerings were developed in collaboration with our partners in the not-for-profit community, and designed to help recipients improve process and infrastructure, as well as provide them with one-on-one access to IBM consultants with significant expertise in business areas such as strategic planning, project management and leadership training. By refining these core competencies, grantees are often able to solve current operational problems and make strategic decisions to build a strong organization for future growth. The grants often involve in-depth workshops or technology services such as analytics and cloud collaboration software.

In 2011, IBM expanded the Services Grant program, both within the United States and abroad. The company made 150 worldwide grants during the year, with a combined market value of \$3.3 million. In addition, eight new offerings were developed and added to the portfolio to address common issues.

The packaged services and technology offerings of the Services Grants program will continue to evolve as the needs of the not-for-profit community change and IBM's business offerings grow.

Currently, there are 13 grant offerings:

- Brand Analysis in the Social Web
- Leadership and Collaboration Workshop
- Leadership Styles, Coaching and Climate Workshop
- Marketing Strategy Roadmap
- Project Management Workshop
- Project Review & Consultation
- SmartCloud for Social Business
- SPSS Predictive Analytics
- Strategic Assessment
- Strategic Planning
- Strategies for Social Media Workshop
- Technology Roadmap
- Web User Experience Analysis

Grant Profiles

- **SPSS Predictive Analytics: Families First (Atlanta, GA)**
Families First, a social service agency based in Atlanta, GA, was awarded a grant from IBM to use SPSS (Statistical Package for the Social Sciences) software, which examines an organization's existing operational and market data to uncover unexpected patterns and associations, thereby helping to anticipate change and devise strategies to improve outcomes. The agency was able to vastly improve its analysis of client data and deploy SPSS functionality in service of risk management and compliance.

"This [SPSS] donation is critical to our success in this project because we will be looking at lots of different data sources and now we know how to merge them ... [and] really analyze and interpret the data we are collecting," said Christy Winter, Director of CQI and Practice Based Research at Families First. "We have improved our data analysis and are able to get deeper and more sophisticated information about our clients and the impact we have on them."

150 grants

IBM continues to expand its Services Grants program. In 2011, IBM issued 150 grants, up from 135 in 2010.

- **Strategies for Social Media: Bilim Kahramanlari Derneği (Turkey)**

The Bilim Kahramanlari Derneği (BKD) organization received consultation from IBM experts in social media. The organization aids disadvantaged youths interested in careers in the applied sciences, and the social media workshop provided volunteers in their Science Heroes Association and BKD's public relations consultants with an increased level of social media awareness. It gave them a common language for discussing and developing social media strategies, and outlined a set of clear milestones to measure progress.

With these new skills, BKD will develop and apply social media strategies that will help enable closer ties with the communities it serves by sharing stories, gathering feedback and raising public awareness through the media. All of which will aid efforts to find volunteers, jury members and donors.

- **Project Management Workshop: Rede Cidadã (Brazil)**
Rede Cidadã is a not-for-profit organization whose mission is to promote citizenship and the collaboration of volunteers, businesses, civil society and government leading to greater social value. The organization has projects and initiatives in seven Brazilian states, offering opportunities for low-income segments of society.

"The partnership with IBM and the Project Management Workshop Services Grant gave us the possibility to develop a project management competency," said Fernando Alves, executive director, Rede Cidadã. "After the training, the concepts changed to execution, and we implemented our Project Management Office, which currently has a team of three people. Since then we didn't start any social project without using our new methodology."

- Strategic Planning: Raleigh Business & Technology Center (Raleigh, NC)

The Raleigh Business & Technology Center (RBTC) is a not-for-profit corporation serving the City of Raleigh as a small business incubator focused on economic and community development. The RBTC provides programming to strengthen core business practices as well as connectivity to community stakeholders and workforce opportunities. RBTC received the Strategic Planning grant to assist with their 2012 and Beyond expansion. Two of their most critical considerations were to establish corporate relationships that take advantage of the small business network and newly established IT capabilities sponsored by the City of Raleigh.

“The consultative services provided by IBM for our strategic plan were used as a catalyst for our programming model. The facilitators were excellent and the leadership model positioned our agency to learn and become a greater asset to the communities that we serve.”

– BOB ROBINSON
North Carolina Workforce Development Commission
Small Business Development Programming

Disaster Relief

Being an essential company in the world requires daily engagement to improve living conditions and opportunities, as well as the ability to respond to emergencies. IBM is ready to respond when disaster strikes, applying our expertise and resources in a systematic way to maximize our impact. We have learned over the last decade how our combination of technology, expertise and volunteers yields the greatest value to relief and recovery efforts. IBM's mobilizations in the immediate aftermath of a disaster focus on the provision of information technology to government and relief organizations, enhancing their capacity to gather, manage and analyze critical information. We have taken this approach to 36 disasters in 20 countries since 2001.

On March 11, 2011, an earthquake with magnitude 9.0 hit the eastern part of Japan. The quake itself inflicted significant damage, but also triggered a massive tsunami that devastated coastal areas. The Fukushima Dai-ichi nuclear plant was seriously damaged, resulting in the release of radioactive material that caused local contamination. Like other companies around the world, IBM rushed to offer its resources to help.

In response to immediate needs, a coalition of technologists inside and outside IBM formed with the common purpose of deploying Sahana, an open source disaster management system, on IBM's public cloud through a free hosting service. IBMers from across the region who had previously participated in Sahana deployments after other disasters helped to translate, debug, document, tune and customize the software. In time, Sahana contributed to the effective management of evacuees in Yamagata Prefecture, as well as cataloging conditions and supply needs of shelters in Iwate Prefecture.

For persons displaced by the nuclear accident, IBM helped establish an industry-government-academia disaster recovery support team to deploy a customized health promotion program with text messaging and alerts to facilitate “e-wellness.” IBM also applied data analytics technology to social media sources, and reported to the government's Consumer Affairs Agency the resulting insights into individual experiences, resource and supply shortages, and migration patterns. Finally, reacting to the devastation of fishing cooperatives in Iwate Prefecture's coastal area, IBM helped the fishing industry and related organizations with technology solutions.

IBM also assisted with longer term projects in Japan. We made [Smarter Cities Challenge](#) grants to the cities of Sendai and Ishinomaki, providing them with free access to some of our top experts who spent weeks onsite surveying homeowners, business owners, civic groups, social service organizations and local government officials about the kind of city they envision, and to identify the safest places for new roads, buildings and utilities. In total, 360 IBMers volunteered their time and expertise following the disaster in Japan, and IBMers across the world donated \$1.5 million to relief efforts. Separately, the market value of IBM's contributions of technology and services totaled \$1.3 million.

While the situation in Japan demanded much of our focus in 2011, IBM also continued to assist other parts of the world that suffered natural disasters during prior years, and saw continued results from previous initiatives. For instance, our 2010 deployment of Sahana and LotusLive (now called SmartCloud for Social Business) at the Chilean Red Cross following the earthquake was activated to support response to wildfires in Quillon and to record snowfall in Lonquimay. The Red Cross Smarter Command Center used this deployment to generate maps of active volunteers in the sector, establish humanitarian aid necessary for emergency operations, mobilize resources and help identify storage facilities to stockpile staples. In the Lonquimay incident, the enhanced information flow and decision-making capabilities resulted in the Red Cross arriving on the scene three days ahead of other relief teams.

In Pakistan, where extensive flash flooding caused widespread damage and population displacement in August 2010, IBM sponsored intensive workshops in 2011 for front-line health workers and aid providers offering psychological support. In Antofagasta, Chile, which was rocked by damaging earthquakes in 2010, a group of IBM experts on a Corporate Service Corps team recommended ways for the city to rebuild its transportation, healthcare, recreation, energy and water management services even more efficiently and sustainably than before the disaster. And in Chegndu, China, which was devastated by earthquakes in 2008, an Executive Service Corps team of IBMers mapped out a plan to make the region more progressive, pro-business, technologically advanced, educationally sophisticated and environmentally sustainable.

Service in Communities

For 100 years, service and volunteerism have been essential elements of what it means to be an IBMer. Creating a culture of service has always been a central part of our corporate citizenship efforts.

Celebration of Service

We believe a culture of service benefits IBM, IBMers and their communities on multiple levels: it helps us express IBM's brand and values to the world; it allows IBMers to give back to their communities, apply their skills in meaningful ways and gain new skills; and it improves our employee satisfaction, attraction and retention rates.

And so throughout 2011, in recognition of our 100th anniversary as a company, hundreds of thousands of IBMers around the world committed at least eight hours of their time to the cause of their choice. We called this effort a "Celebration of Service," and it ultimately yielded more than 3.2 million hours of service in everything from education and healthcare to disaster relief and conservation.

This effort was designed to give back to the world in the best way we know how: by volunteering our skills, expertise and technology. But it was also an experiment, a way to test our belief that skills-based service can be massively scaled. We approached this day by carefully constructing an integrated System of Service, comprising tools, volunteer opportunities, NGO involvement and incentives that together inspired and enabled community outreach on a wide scale.

This didn't all happen at once, however. And we didn't do it alone. The Celebration of Service was actually the result of nearly a decade of planning and engagement. Since 2003, IBM has been building a system that could significantly scale skills-based service both inside and outside our company.

These efforts began with the creation of the On Demand Community®, a portfolio of unique internal tools that helps IBMers to find volunteer activities and identify skills and expertise they can contribute to a cause. It equips volunteers to empower community organizations with a variety of skills, such as financial planning, leadership development, IT deployment or project

management. By tracking their volunteer hours in the On Demand Community portal, IBM employees and retirees can help the schools and not-for-profit organizations they support to qualify for IBM Community Grants. Since its launch, more than 220,000 IBM employees and retirees have registered at the site and logged well over 13 million hours of volunteer service.

In preparation for the Celebration of Service we also brought together some of the most respected volunteer and service organizations in the world and conducted an online brainstorming event in October 2010. Service Jam included thousands of experts from not-for-profit organizations, corporations, academic institutions and government agencies across ideology and geography. The intent of the Jam was to begin a global conversation about how we can collectively improve the delivery of volunteerism and community service in the 21st century. In many ways, this Service Jam confirmed and expanded IBM's strategies for service and corporate citizenship. And it also cultivated new and important relationships that would prove valuable during the Celebration of Service. View the complete results in the [Service Jam White Paper](#) (pdf).

Another essential part of IBM's integrated System of Service was the creation of a powerful incentive program to support the Celebration of Service. In 2011, IBM provided \$11.9 million in grants to the schools and not-for-profit organizations where IBMers volunteered. These Celebration of Service Grants expanded IBM's existing Community Grants program, as well as added two new grant classes (Catalyst and Centennial) that covered the full breadth of service projects, from simple, low-cost volunteer efforts to complex challenges with high community impact. All of the grants honor IBMers' dedication to community service, with the two new grant classes particularly focusing on projects that apply innovation and professional skills to improving the communities where we live and work. For more on the winners of the grants, [visit this link](#).

Also key to encouraging widespread participation was providing simple, scalable ways to engage more people in service. Activity Kits are new resources, designed especially for the Centennial Celebration of Service, that provide volunteers with "grab-and-go" service ideas to help them get engaged quickly and easily. As of June 2012, there are 37 Activity Kits, each of which is publicly

3,201,216

hours of service in everything from education and healthcare to disaster relief and conservation.

available at www.ibm.com/volunteer to IBMers and non-IBMers alike. The topics range from Clean Water Difference, a kit that helps students understand the dynamics of watershed areas, to Disaster Volunteering, which teaches disaster preparation and disaster relief best practices. Most of the Activity Kits are available in English, Chinese, French, Spanish, Japanese, German and Portuguese. And we plan to actively grow this portfolio as we identify new needs.

The integrated system of service developed for IBM's Celebration of Service ultimately yielded more than 1,000 years' worth of service in less than one year. It engaged more than 300,000 volunteers, from 120 countries, working on 5,000 different projects. On June 15, Sam Palmisano, IBM's chairman, spent the day in his hometown of Baltimore, teaching middle school students about the many uses of digital technology. IBM CEO Ginni Rometty led hundreds of volunteers in "speed mentoring," building entrepreneurial skills among low-income, high-potential members of Westchester County's Women's Enterprise Development Center. And Jon Iwata, senior vice president of Marketing and Communications, led a Harvard University workshop for not-for-profits on the use of social media.

Ultimately, we hope that the Celebration of Service made a difference in the many communities it reached. But we also hope that it inspires other companies to take the same, integrated approach to scaling skills-based service. Because we believe that the best way for private companies to make a positive impact on communities around the world is by directly applying their specific skills and expertise to societal problems. And we believe the Celebration of Service proves it can be done on a large scale. For our part, IBM will continue to build on the successes of the Celebration of Service, and engage with organizations looking to learn from our experiences.

\$11.9 million

in grants during 2011 to over 3,000 schools and not-for-profit organizations where IBMers volunteered.

2011 Celebration of Service Grant Winners

Below are just a few examples of the over 3,000 Celebration of Service grant recipients.

- **Irish Cancer Society (Ireland)**
This grant will help develop a smart cloud-based system to support the expansion of the Irish Cancer Society's "Care to Drive" program, which provides free patient transportation to and from treatment appointments—including scheduling, route planning, volunteer reimbursement and data management.
- **El Agora (Argentina)**
In Argentina, citizenship observatories publish quality-of-life indicators for cities (housing, transportation, health, etc.) used to propose public policies for local mayors. This grant is designed to help promote the exchange of information across several cities and to promote specific improvements.
- **Wiener Tafel (Austria)**
Austria has nearly 1 million people on the edge of poverty, yet tons of surplus food are thrown away daily. This grant will help create a smarter logistics solution to assist the distribution of surplus food from Vienna supermarkets to those in need, aiming to increase distributions by 20 percent.
- **Drishtee Foundation (India)**
Rural India lacks access to critical information and technology. This grant will fund a Smart Rural Aggregation Platform to help transform Drishtee's model villages into sustainable Smarter Villages, by aggregating services and products related to livelihood, agriculture and information.

Employee Donations and Programs

IBM teams with employees to support organizations and causes in the communities where they live and work. Community-level grant making and extensive volunteer programs help our employees become personally involved in community projects.

Employee Charitable Contributions Campaign

The annual Employee Charitable Contributions Campaign (ECCC) in the United States provides employees with an opportunity to contribute to over 10,000 community organizations. These organizations offer a wide array of services, including environmental, cultural, health and human services, literacy and disaster relief. The 2011 ECCC generated almost \$36.5 million in support to communities in the United States. The Employee Charitable Fund program in Canada provided about \$3 million in contributions to Canadian organizations. IBM salutes the generosity of its employees and is proud to provide these programs to assist them in support of their communities.

Matching Grants

The IBM Matching Grants program enables employees and retirees to increase the value of their donations to educational institutions, hospitals, hospices, nursing homes and cultural and environmental organizations with a matching gift from IBM. The recipient organization can choose to receive its gift in the form of either cash or IBM equipment. Hundreds of educational institutions and thousands of not-for-profit organizations have benefited from contributions by IBM and our employees through this program. Recipients of IBM Matching Grants are a varied group that includes the Nature Conservancy, Memorial Sloan-Kettering Cancer Center, the Educational Broadcasting Corporation, the Metropolitan Opera, the University of North Carolina and Yale University. In 2011, 6,120 organizations received grants with a value of \$11.9 million.

Development in Communities

The communities in which IBMers live and work span the globe, and are the building blocks of a Smarter Planet. The following programs represent a few of the ways in which we work together with local and national organizations to improve the quality of life in communities around the world.

Smarter Cities Challenge

Perhaps no program exemplifies IBM's integrated approach to corporate citizenship better than the [Smarter Cities Challenge](#). Announced in November 2010, this \$50 million competitive grant program is providing teams of IBM experts to 100 cities around the world over a three-year period. And last year—the first full year of the program—115 IBMers were deployed to 24 cities to advise city leaders on strategies to help improve efficiency, spur economic growth, engage citizens and more.

Though this is a purely philanthropic endeavor, it draws on expertise and knowledge gained in IBM's business. For the last three years, IBM has been building a substantial business in helping cities in both developed and developing countries to collect and analyze critical data, gaining a clearer understanding of how these complex systems of systems really work, and how they can work better.

Smarter Cities Challenge grants are valued at approximately \$400,000 on average. Teams are composed of top IBM talent, who bring their unique expertise to the program. The engagements are conducted in a collaborative, constructive and transparent manner, with IBM team members working alongside leaders from the public, private and voluntary sectors. IBM experts immerse themselves in issues critical to each city, such as the administration of healthcare, education, public safety, social services, transportation, communications, sustainability, budget management and energy and utilities.

\$50 million

of IBM grants to 100 cities around the world.

"I am greatly satisfied," said Lic. Jorge Aristóteles Sandoval Díaz, Mayor of Guadalajara, Mexico, which used the Smarter Cities Challenge grant to develop strategies for delivering better and more efficient services to businesses and citizens. "It is a professional team, senior executives with extensive experience, who attended and understood immediately what we, as a governing body, want to translate into benefits for the people. And through their ability and experience—not just technologically speaking but through their knowledge—they helped to lead us to find a light along the way, clarity on what we want to do and how we're going to achieve it."

Over the course of each Smarter Cities Challenge project, a carefully selected team of IBM executives and senior subject matter experts from across the business helps the municipality analyze and prioritize its needs, review strengths and weaknesses, and learn from the successful strategies used by other cities. The team also studies the role that intelligent technology might play in uniting and advancing different aspects of city life. The team ultimately delivers to the city a roadmap that identifies ideas and opportunities designed to help make regions healthier, safer, smarter, more prosperous and attractive to current and prospective residents and businesses. Last year several cities used ideas and opportunities in the roadmap and began implementing changes accordingly:

- The city of Edmonton, Alberta, has created and published an action plan for amending its [edmonton.ca](#) website with details on how it will apply recommendations around improving traffic safety. The action plan, which is expected to be updated regularly, describes how the city is piloting a model of analytics and data leadership in the Office of Traffic Safety, partnering with external organizations on research and monitoring, and aligning its performance measures to improve transportation efficiency and safety for citizens.

\$400,000

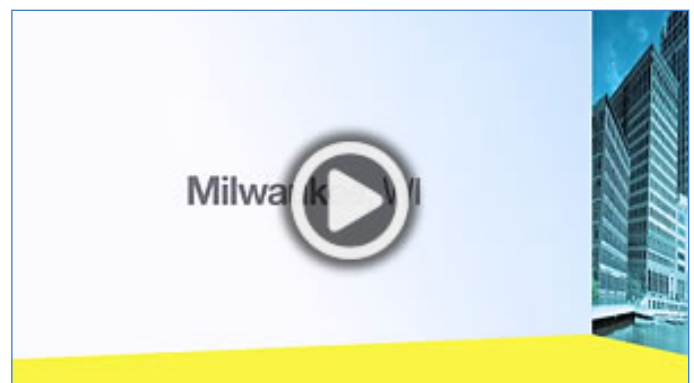
worth of IBM expertise on average to cities that receive a Smarter Cities Challenge grant.

- The goal of Chengdu, China, is to develop a plan to integrate the needs of both the urban and rural communities to achieve Garden City status through a phased in approach over the next 50 years. It wants to develop a competitive, welcoming business environment while sustaining the natural environment and quality of life for its citizens. By focusing on three areas of interest: food safety, education and telecommunications, the IBM executive team provided a roadmap to facilitate the use of the cloud for these areas, as well as advise how to build versatile cloud delivery services that can be used by any industry.
- The primary request of the Municipality of Antofagasta, Chile, focused on developing Smarter Water solutions, given the city's arid environment. The IBM executive team developed a set of recommendations on the broader quality of life and energy areas related to the city's water issues. A roadmap was also provided to the city that focused on preparing for a Smarter Antofagasta by integrating data sources to enable collaboration and increase innovation capacity; leveraging integrated data and new instrumentation to fill information gaps, spot new patterns, and further increase innovation and collaboration capacity; and optimizing a Smarter City through mass application of community insights and predictive analytics to enable intelligent decision support.
- City leaders, the private sector and urban agriculture organizations in Milwaukee, Wisconsin, are committed to working together to establish an Urban Agriculture and Aquaponics Council to tackle a plan to promote and share knowledge to establish Milwaukee as a leader in this new industry.

- In St. Louis, Missouri, city officials have undertaken significant leadership and day-to-day operational changes to improve public safety, collaborate among and between the courts, police department, mayor's office and corrections; and simplify the tracking of top-priority offenders.

The Smarter Cities Challenge is also tightly integrated with other community-oriented programs at IBM. For example, Smarter Cities Challenge takes advantage of City Forward, IBM's free, Web-based platform, to view and interact with city data while engaging in a public dialogue. City Forward's straightforward exploration tools allow users to identify patterns, trends and correlations in data that may reveal new insights and point to new areas of interest for further investigation. These explorations can then be shared and discussed within the City Forward Community and beyond—wherever people gather to exchange ideas about cities.

Also, in 2010 IBM deployed a new component of Corporate Service Corps for executives. The Executive Service Corps (ESC) deploys teams of five or six members for three-week engagements. These assignments are mostly focused on municipalities, because city projects have the scope and maturity to truly benefit from executive-level skills. When we launched the Smarter Cities Challenge in late 2010, we used the ESC to deliver some of the 100 city grants made through the program, especially to growth markets. These smarter cities services are delivered through the ESC in growth markets, but all share the same goals of high-quality services and exciting outcomes.



[See how Milwaukee is building a smarter city.](#)

How Cities are Selected

Municipalities are selected competitively based on the strength of the application submitted to IBM, and the potential for a challenge grant to make a positive impact in the community. Successful applications clearly articulate strategic, cross-system issues that are closely connected to the top priorities of city and community leadership, and which have significant impact on the lives of city residents. Also considered are the city's track record of innovative problem solving, commitment to the use of technology and open data, and demonstrated willingness to provide public engagement along with access to and time with city leaders.

The most successful proposals offer clear, compelling evidence that a particular city is poised to best utilize the resources offered in the Smarter Cities Challenge, that the grant has the potential to substantially enhance a city's capacity to act on key issues, and that the city is ready to match IBM's investment with its own commitment of time and talent. Municipalities of all sizes are eligible, but cities with populations between 100,000 and 700,000 are usually best positioned to gain the most from the experience.

Cities interested in researching, and potentially applying for, a grant should visit the [Smarter Cities Challenge site](#).

The Smarter Cities Challenge is sponsored by the international philanthropic foundation at IBM, which has been a leader in corporate social responsibility and corporate citizenship for nearly 100 years. IBM implements a range of initiatives to address specific vital issues such as the environment, community economic development, education, health, literacy, language and culture. IBM employs its most valuable resources—technology and talent—to bring these programs to fruition.

Corporate Service Corps

As companies of all sizes become increasingly global, corporate leaders are presented with new opportunities. IBM's [Corporate Service Corps](#) (CSC) produces rich dividends for communities in which IBM does business, as well as for IBM employees and IBM itself. It's a triple benefit. Communities have their problems addressed—free of charge. IBMers receive leadership development and have life-changing experiences. And IBM cultivates a new generation of global leaders. This blending of social responsibility and business expertise is an example of what it means to be an essential company in the 21st century.

By the end of 2012, IBM will have sent nearly 2,000 IBMers to 30 different countries since CSC's inception. Some recent host countries include Cambodia, Thailand, Kazakhstan, the United Arab Emirates, Senegal, Argentina, Colombia, Chile, Peru and Mexico. IBMers are concentrated into teams of eight to fifteen members and spend approximately six months on a CSC engagement—three months in preparation, one month at the locale, and two months in post-service work. On location, these teams work with government agencies, educational institutions and not-for-profit organizations in areas where business, technology and society intersect.

In 2010, IBM deployed a new executive component of the Corporate Service Corps called the Executive Service Corps (ESC). For growth markets, the services for the Smarter Cities Challenge (see above) are delivered through the ESC. Both programs share the same goals: high-quality services and actionable outcomes.

In 2011, IBM significantly scaled the CSC program by helping a select group of its business clients, including John Deere and FedEx, build their own service learning programs. This inclusion of clients gives employees of different companies an opportunity to benefit from the experience:

- In October, John Deere sent four employees on an engagement to Chennai, India, where IBM also deployed a team. A United-States-based non-governmental organization, CDC Development Solutions (CDS), provided assistance organizing the project work and logistics. "We were extremely impressed with IBM's pre-work materials and expertise preparing our participants for the program, as well as CDS's coordination of the

project and their support during the program,” said Chelsey Allaman, of Business Direct Services at John Deere. “The project identified for John Deere was very well aligned to our company’s objectives for the program to assist with rural development, free trade and helping to feed the world.” This program is one way John Deere intends to take a more active role supporting global citizenship efforts and increasing brand awareness, as well as helping employees understand local practices and economic models.

- In May, FedEx sent four employees with 10 IBMers on an engagement in northeastern Brazil. The FedEx employees participated in the CSC pre-work and stayed in the same accommodations as the IBMers, but worked on their own project independently. “We wanted to do a pilot alongside IBM’s program so we could see what modifications we’d want to do,” said Tess Smith, manager of corporate human resources at FedEx, who was one of the four participants. She hopes that once FedEx launches what it calls its Global Leadership Corps, the program will send out 10 teams per year.

The CSC program was also furthered in 2011 through IBM’s alliance with the United States Agency for International Development (USAID) to encourage corporate volunteerism, with a goal of improving global relations. One result of that alliance is a Center of Excellence for International Corporate Volunteerism, funded by USAID, which provides resources and an information forum for companies that are interested in pursuing strategies based on IBM’s model.

“IBM is practicing citizen diplomacy and advancing United States national interests, but the money isn’t coming from the taxpayer. That’s wholly admirable,” said John Campbell, a former United States ambassador to Nigeria who is now a fellow at the Council on Foreign Relations in New York.

Going forward, IBM is highlighting parts of the globe where need is greatest and plans to increase its engagements in these areas. For example, IBM has pledged to double its CSC activities in Africa with plans to send 600 people there over the next three years. Below are some highlights from a few of the CSC and ESC teams in 2011:

- **Kenya**
In Nyeri, located in Kenya’s Central Highlands, a CSC team worked with the Postal Corporation of Kenya to provide strategic directions for competitive postal financial services. It also collaborated with the Directorate of e-Government Cabinet Office of the President on developing legal and regulatory frameworks for e-government, and worked with the Kenya Information and Communications Technology Board on cultivating industry talent for high-end information technology, communications and enterprise solutions.
- **Philippines**
In Manila, two CSC teams worked with the National Institute of Geological Sciences, the Manila Observatory, the Environmental Science for Social Change, the Philippines Red Cross and the Department of Agrarian Reform to enhance early warning systems and coordinate an effective disaster response using information technology.
- **South Africa**
In Limpopo, a province of South Africa’s East London river port, a CSC team worked with the Limpopo Provincial Education Ministry to develop an IT strategy for professional development of primary education teachers. This included a monitoring evaluation and reporting system for the 25 donated KidSmart computers.
- **Turkey**
In Turkey’s Hatay province near the eastern edge of the Mediterranean bordering Syria, a CSC team provided strategic recommendations for the improvement of e-government services of the Antakya Municipality. Like similar-sized cities in emerging markets currently experiencing rapid population growth, Antakya faces challenges with efficiently providing services to its citizens and creating enough jobs to grow the economy proportionately. CSC’s engagement focused on developing recommendations for promotion of tourism through use of technology and strategies for e-government to decrease costs and increase revenues associated with utilities and services provided by the municipality.

\$5 million+

dedicated to the SME Toolkit

SME Toolkit

IBM and the International Finance Corporation (IFC) have worked together to create a small and medium enterprise toolkit, or [SME Toolkit](#), which provides entrepreneurs and small businesses with free information critical to burgeoning businesses in areas such as finance, accounting, international business, marketing and human resources.

The Toolkit is available in 34 countries and 18 languages. It is available in emerging markets such as the Philippines and Bangladesh. In the United States, it focuses on businesses owned within under-served communities such as women, African-American, Hispanic, Native American and Asian, along with veterans and people with disabilities. The Toolkit delivers interactive tools, online collaboration and educational content for small businesses. It provides information that could help small businesses learn and implement sustainable business management practices. These tools are often only available to Fortune 1000 companies.

“The business planning tool of the SME Toolkit is especially helpful,” said La-Tasha Best-Gaddy of the North Carolina Institute of Minority Economic Development. “We get a lot of people who want to know what all the aspects of a business plan are. It’s also significant that the assets of the toolkit are available 24/7. This means small business owners can get the information they need even when our offices are not available.”

Partnerships established by the IFC in each of the countries hosting the site are responsible for localizing, customizing and translating content so that it speaks to the local markets. These partners, such as EDC Pan-African University in Nigeria, can also help nurture local businesses and improve their chances of survival.

IBM has dedicated more than \$5 million to improve the usability and performance of the SME Toolkit, providing enhanced functionality and creating a resource hub, learning location and meeting place for small and medium-sized businesses. The Toolkit uses an open-source platform and features Web 2.0 technology. The intent of IBM’s support of the SME Toolkit is to accelerate economic development and job growth in geographies and communities not yet engaged in the market economy, as well as to help spur development of women- and minority-owned businesses in the United States. The Toolkit is a leading example of IBM’s commitment to collaborating with significant outside organizations and contributing IBM’s technical expertise and solutions to help address pressing social issues.

Supplier Connection

Small businesses are crucial to the vitality of the United States economy, as they accounted for two-thirds of net-new jobs created in the United States between 1993 and 2008, according to the Small Business Administration. However, it can be challenging for small businesses to sign up new, large accounts, especially global companies. And without this source of sustained and sufficient demand, small businesses have little incentive to expand their operations or hire new employees.

With the goal of fueling economic growth and job creation in the United States, IBM and a consortium of large corporations are collaborating to make it easier for small businesses to potentially become suppliers to large companies. The consortium, called Supplier Connection, collectively purchases more than \$300 billion in goods and services annually through its global supply chains. The participating companies include IBM, AMD, Amylin Pharmaceuticals, AT&T, Bank of America, Caterpillar, Citigroup, Dell, John Deere, JP Morgan Chase, Facebook, Kellogg, Office Depot, Pfizer, UPS and Wells Fargo.

\$10 million+

IBM grant that supported the creation of the Supplier Connection's Web-based portal.

The Center for an Urban Future, a not-for-profit research group, recently conducted a study to explore and document the potential benefits and impact of supply chain collaboration by large and small companies. It performed in-depth interviews with supply chain professionals at both large and small firms and examined a range of economic data. In the resulting report, [Breaking into the Corporate Supply Chain](#) (pdf), the research group found that, "... becoming a corporate supplier provides small firms with a measure of financial stability and valuable new revenues that often enable them to hire new employees, undertake a marketing campaign, add new equipment or pay down debt ... Indeed, as we show in this report, breaking into the supply chain of a large corporation can be transformative for small businesses."

In response, Supplier Connection offers a free Web-based portal that tries to make it easier for small businesses to become potential suppliers to large companies and for large companies to identify small companies with which they would do business. The site was created by IBM through a grant of more than \$10 million from the IBM International Foundation.

Supplier Connection provides small companies with a standardized and streamlined way to register basic information, share business practices and potentially connect with both large and small businesses to enhance their opportunity for growth. In turn, large companies are able to quickly find registered suppliers and communicate and forge stronger relationships with new and existing suppliers. As of June 2012, there were more than 2,300 small businesses registered in Supplier Connection, visible to a combined procurement community of more than 300 buyers from the participating member corporations. Moving forward, Supplier Connection is expected to continue to support economic growth by encouraging businesses, both large and small, to participate in this exciting and important initiative.

Small Business Owners on Supplier Connection:

- **Havens & Company**
Havens & Company, Inc. ranks among the nation's top employee benefits insurance brokers/consultants for Fortune 1000 employers. In March 2011, Havens and Company registered with Supplier Connection in an effort to increase business opportunities. Within four months Havens & Company secured a meeting with Citigroup to discuss their expertise in non-medical benefits. The organization credits Supplier Connection with easing its access into procurement offices of large corporations, a task that the organization has attempted to achieve for more than five years.

"Supplier Connection provided us with a connection point at Citi that we wouldn't have been able to gain without the portal," said Lynne Noel, vice president of Underwriting and Technical Services at Havens & Company. "If we win business through Supplier Connection, we will need to add employees to our company to manage the work."

- **Bottini Fuel**
Bottini Fuel has been providing heating oil, propane, heating and air conditioning services from its home base in New York's Hudson Valley since 1951. Seeking to further expand commercial sales, Bottini's commercial sales manager heard about a new program that made it easier for small businesses to become suppliers to large businesses, called Supplier Connection. After reviewing numerous bids, IBM selected Bottini and engaged them to become a supplier for the IBM site in Poughkeepsie, NY.

"Becoming a supplier to a global business like IBM is something most small businesses envision as a daunting task," said Rick Bottini, owner of Bottini Fuel. "Using Supplier Connection we were able to establish a relationship with IBM and respond to their request for competitive bids in a timely manner. Having access to a powerful tool like Supplier Connection levels the playing field for a small business while helping save us valuable time and resources."

The IBMer

At IBM, we believe that in order to be a great company, we must continually hire, support, and retain great employees. In this section, you will find examples of the ways we supported both the personal and professional development of our employees over the course of the last year.

Supporting IBMers

At IBM we believe that in order to build a great brand, we must first be a great company. And the key to being a great company is hiring, supporting and retaining great employees.

Across the world there are more than 430,000 IBMers. These employees represent our brand, they embody our values and they drive our success. They are IBM. And that is why the work of developing their full potential is never complete. Within the human resources function at IBM, we are constantly crafting new strategies to meet our employees' needs. In 2010, we launched a virtual dialogue, called HR ThinkFuture, to envision the future of work and how HR, as a profession, can help IBM move towards that future. One of the first steps in creating this future was to reflect the evolving trends and organizational needs for people at IBM in the HR strategy. IBM HR ThinkFuture brought together IBM's HR professionals through workshops, Jams and brainstorming sessions, and resulted in a series of commitments that address the strategic goals of the HR function:

- deep, thoughtful leadership and collaboration
- doing what is best for the company when there are no guidelines or policies to follow
- thinking strategically and in ways that will help take the company to the next level
- reflecting on how the world of work is developing and how people practices need to evolve
- embracing technology and social media

A premise in meeting these commitments is that the HR strategy is well understood and the HR community embeds behaviors reflective of the HR strategy in how they work. To do so, we launched several programs in 2011. The first is our HR Ambassadors program—champions within HR—who engage local teams in ongoing dialogue to build a working environment where employees feel engaged and committed to IBM. HR Ambassadors represent between five and ten percent of IBM's worldwide HR organization. They attend regional workshops to help them understand the strategy, interpret what it means to them and communicate it locally.

The program is further supported by the HR Hub, an HR-wide online Connections community where HR Ambassadors leverage social tools to engage others in strategy discussions.

The HR professionals are embracing the technology and social media through the HR Hub as well—it gives the entire IBM HR organization a forum to intersect with IBM leadership and to learn about future strategic priorities in a way that emphasizes dialogue over simply disseminating information.

In 2011, we also began changing our approach to understanding employee issues and concerns through a more contemporary approach leveraging technology and data analytics. Our traditional company-wide employee survey has been useful for gaining a high-level view of employee satisfaction. But it did not allow for a tailored view on specific local issues to address the needs of the business. Starting in 2011, we've deployed a mix of methods and flexible ways of understanding employee's sentiment such as:

- Surveys tailored to local needs or focus areas, to enable the business to move more nimbly and to act more incisively (targeted surveys focused on specific business issues and outcomes)
- Employee Advisory Panels that allow a number of IBMers to review and provide feedback on certain programs and policies
- Predictive models to anticipate and better respond to workforce trends and to move from a reactive to a proactive mode of addressing workforce issues
- Web-based surveys to gather data on current or "hot" issues enabling quick turnaround and specific data relevant to the business issue

These types of targeted data analysis pinpoint pockets of problems, enabling us to intervene more quickly and effectively and timely address the needs of IBM's workforce and business.

Employee Well-Being

Employee well-being is integrated into every aspect of IBM's global business. It underpins our total health management system, and demonstrates a commitment to employee health and safety that values the whole person, while at work, home or as a member of a larger community.

It is a total health management system that transcends traditional employee well-being programs by recognizing the importance of promoting physical and psychological health. This framework, known as IBM's Well-Being Management System, provides for a coordinated and consistent approach across all geographies and time zones. And it facilitates proactive planning, execution excellence, measurement and continuous improvement in areas of employee health and well-being. It also supports IBM's business goals by improving productivity, managing costs and eliminating unnecessary expenses.

Well-Being Management System

First implemented in 1999, IBM's Well-Being Management System (WBMS) is framed around IBM's corporate policy: Responsibility for Employee Well-Being and Product Safety. This cornerstone of IBM's WBMS follows the "plan-do-check-act" principles that are common in International Organization for Standardization (ISO) consensus standards. System components include proactive planning, execution excellence, measurement and continuous improvement in areas of employee health and well-being.

Each year we engage in a strategic planning process to consider new WBMS global objectives that align with evolving business priorities. These objectives are translated into relevant initiatives with the flexibility to accommodate unique well-being and safety requirements at a local level. WBMS outcomes that support IBM's business goals are improved productivity, managed costs and elimination of unnecessary expenses.

System efficacy, efficiency and consistency are regularly reviewed with input from management, employees and other external reviewers. A systemic approach that monitors and audits well-being requirements and improvement objectives as well as provides a process for corrective or preventive health and safety actions is truly a smarter way to optimize a company's most important asset—its employees. This system considers all aspects of employee well-being, at the workplace, in their community and at home.

The Employee

Success in Health Promotion

IBM's diverse workforce spans 170 countries, each with unique employee characteristics, languages, cultures and health needs. To meet this challenge, IBM established a Global Wellness and

Health Promotion Framework that pairs a centralized strategy with flexible program prioritization and implementation at the regional and local levels.

The framework focuses on four areas:

- Monitoring population health status and risk through strategic data collection and analytics
- Creating healthy workplaces that drive healthy behaviors through smoke-free policies, healthy food selections at the worksite and options for physical activity
- Designing comprehensive healthcare plan support
- Implementing strategic behavior change programs based on local health priorities, ranging from weight management to HIV prevention

The framework outlines key program elements for all geographies, although these elements are prioritized and implemented based on local needs. The following are some examples of country leadership in each area:

- **Monitoring population health status and risk through strategic data collection and analytics:**
Data from the World Health Organization and the Indian Medical Association revealed alarming cardiac and diabetes rates across the general population in India, which provided the catalyst for IBM's Cardio-vascular and Diabetes screening camps. The camps were organized at all major IBM locations in March 2011 and provided clinical and laboratory screening, as well as individual counseling by physicians and dieticians followed up by a team-based fitness competition. To address the needs of IBM India's female workforce, free health guidance and cervical cancer vaccinations were offered to employees at a discounted rate.
- **Creating healthy workplaces that drive healthy behaviors through smoke-free policies, healthy food selections at the worksite and options for physical activity:**
Initiatives aimed at improving employee nutrition have been supported by collaboration with the company's on-site food vendors, Sodexo and Eurest. IBM's primary cafeteria supplier, Eurest, monitors healthy food selections and criteria, appropriate labeling and marketing, and associated education and training for employees on a monthly basis.

Over the years IBM has made a significant investment in supporting its employees in becoming or staying smoke-free through various programs. Globally, all IBM work locations are smoke-free.

- **Designing comprehensive healthcare plan support:**

IBM has long recognized the need to support employees in addressing more than just physical risks. For example, rising rates of chronic diseases are associated with unhealthy lifestyle behaviors like smoking, inactivity and poor diet. IBM China collaborated with its insurance provider to fund health promotion and health incentives with a focus on mental health, stress and resilience, inactivity, smoking, unhealthy diet, cancer and common infectious diseases such as hepatitis B and HIV/AIDS. From 2011, IBM in China partners with its insurance provider to include hepatitis B in supplemental insurance and to extend the coverage to spouses and children to strengthen the immunization and supplement the national planned immunization.

Likewise, the economic and social costs of mental health issues are significant all over the world. For example, in the United States alone, mental health is estimated to cost around 2.5 percent of the gross national product. To address this very important health issue, IBM China added medical insurance coverage for all mental disorders in 2008.

- **Implementing strategic behavior change programs based on local health priorities, ranging from weight management to HIV prevention:**

In several geographies, IBM has been among the first employers to offer health screening services for employees to understand their health risks and identify potential health issues early. IBM Egypt began with general employee awareness and education, and is now implementing a health screening called "Know Your Numbers" in collaboration with a local hospital. A similar approach was taken in Russia to build awareness among employees and offer access to health screenings at the worksite.

In 2011, a Manager Education module on stress called "Stress Resilient Workforce: Just a Click Away" and an employee awareness module called "Discover a Stress-free Life" were released and received positive feedback.

Healthcare System Delivery Reform

IBM Integrated Health Services (IHS) continues to take a leadership position by driving the advancement of health promotion and prevention within healthcare systems around the world. Whether expanding coverage for key preventive services in developing healthcare systems or pressing for the promotion of medical homes in more established systems, IBM strives to take a leadership role for the benefit of the company and its employees, their families and the communities in which they live.

Primary Care

IBM has understood the benefits for driving patient-centric primary care for some time. In 2010, IBM took an extraordinary step by providing 100 percent coverage for primary healthcare for IBMers in the United States who are enrolled in IBM's self-insured health plans. There is no longer a co-pay or deductible for in-network primary care with an internist, family practitioner, pediatrician, general practitioner or primary care osteopath.

Health Information Technology and Analytics

IBM continues to actively promote its vision of smarter healthcare, in which information technology is used to help increase efficiency, reduce costs and improve outcomes. We believe modernization of this kind is a critical step toward better healthcare. IBM leverages sophisticated healthcare analytics to inform its investments and health-benefits design, and promotes the use of technology in employee health management, such as offering online Personal Health Records (PHRs). IHS also supports a variety of special projects to advance health information technology (HIT) and health analytics.

In the United States, IBM employees are provided access to the Employee Health Management Center, which is a single locus of technology for focusing on personal health management and providing comprehensive healthcare information. This innovative tool allows individuals on a voluntary basis to:

- Securely store and access medical information in their Personal Health Record;
- Assess and understand their personal health risks;
- Understand their medical conditions and treatment options through clinical advisor tools; and
- Receive targeted health information and news tailored to their needs and interests.

100%

of primary healthcare is covered for United States employees enrolled in IBM's self-insured health plans.

Medical Homes

IBM has led the private sector in the United States, shifting toward a coordinated and comprehensive primary care model for Medical Homes by founding the Patient-Centered Primary Care Collaborative (PCPCC). Centered on strong patient-physician relationships and comprehensive primary care, the goal of PCPCC is the establishment of a Medical Home for every patient. IBM's initiative has brought together more than seven hundred major stakeholders to develop and advance primary care transformation and to test the Patient-Centered Medical Home (PCMH) model of delivery. It is our belief that, where implemented, the Medical Home will improve health as well as healthcare delivery and result in lower overall expenditures.

United States Rebate Programs

IBM continues to find value in offering rebates for targeted health promotions. The following chart outlines the evolution of this approach to stimulate participation in healthy living choices.

Hepatitis B Intervention and Treatment

Hepatitis B is a viral infection of the liver and is the leading cause of liver cancer. About two billion people worldwide have been infected with the virus and about 350 million live with chronic infection. An estimated 600,000 persons die each year due to the acute or chronic consequences of hepatitis B such as chronic hepatitis, cirrhosis, hepatic cancer, etc. In 1999, IBM introduced a hepatitis B vaccination program for its employees in China that, by 2009, resulted in a 50% reduction of unprotected employees. IBM was the first company in China to provide a company-paid hepatitis B immunization program for primary prevention to all employees. In 2011, IBM China partnered with its insurance provider to include hepatitis B in supplemental insurance. We went a step further to extend the coverage to spouses and children to strengthen the immunization program and supplement the national immunization plan.

● Changes made to the programs

2003	2004/2005	2006
Non-Smokers Discount: <ul style="list-style-type: none"> • \$11/mo. premium discount • Not smoking or smoking cessation program 	Physical Activity Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • 20 min. 3 days/wk for 10 out of 12 weeks • Log activity on Virtual Fitness Center Smoke-Free Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Not smoking or smoking cessation program 	Preventive Care Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Complete online HRA • Set action dates for preventive screenings • Review hospital quality using Web-based resources Physical Activity Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • 30 min. 4 days/wk for 10 out of 12 weeks • Or, 30 min. 2 days/wk for 10 out of 12 weeks, plus Web-based coaching • Log activity on Virtual Fitness Center New Hire Smoke-Free Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Not smoking or smoking cessation program
2007	2008/2009	2010-2011
Preventive Care Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Complete online HRA • Confirm completion of overdue screenings • Begin or update online Personal Health Record Physical Activity-Nutrition Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • 12-wk online nutrition or weight management on Virtual Food Pro • Or, logging-free physical activity program with self tests and online interaction with fitness pro • Or, same physical activity logging options from 2006 on Virtual Fitness Center New Hire Smoke-Free Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Not smoking or smoking cessation program 	Children's Health Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Complete family inventory of healthy weight behaviors • Set family action goals • Repeat family inventory at 12 weeks to identify successes Preventive Care Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Complete online HRA • Confirm completion of overdue screenings • Use online Health Optimizers for individualized support Physical Activity-Nutrition Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • 12-wk online nutrition or weight management on Virtual Food Pro • Or, logging-free physical activity program with self-tests and online interaction with fitness pro • Or, 30 min. 3 days/wk for 10 out of 12 weeks logged on Virtual Fitness Center New Hire Healthy Living Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Complete online HRA • Begin use of online Personal Health Record • Register on Wellness for Life Web site 	Personal Vitality Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Personal Vitality & Energy Assessment • Complete 3 vitality-building practices over 12 weeks • Re-assess Personal Vitality & Energy Children's Health Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Complete Family Meal Analysis, create plan & choose action tools • Check-in mid-way to adjust plan • Evaluate successes after 12 weeks Physical Activity-Nutrition Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Complete Personal Outcomes • 12-wk online nutrition or weight management on Virtual Food Pro • Or, logging-free physical activity program with self-tests and online interaction with fitness pro • Or, 30 min. 3 days/wk for 10 out of 12 weeks logged on Virtual Fitness Center New Hire Healthy Living Rebate: <ul style="list-style-type: none"> • \$150 cash rebate • Complete online HRA • Begin use of online Personal Health Record • Register on Wellness for Life Web site

At Work

Nanotechnology and Engineered Nanomaterials

IBM has been a pioneer in nanotechnology and our innovations have contributed to unparalleled advances in miniaturization, performance and functionality in the field of information technology. IBM is one of the first companies to create safe work practices and health and safety training for its employees who work with engineered nanomaterials. IBM has also partnered with governmental agencies and other organizations to engage in and support the development of the necessary environmental, health and safety information for greater human health and environmental protection, and responsible, sustainable nanomaterials development. A representative of IHS is on the executive board of the nanotechnology working group for the American Industrial Hygiene Association.

Recognition of Excellence: OHSAS 18001 Certification

External certification of IBM's WBMS has been beneficial in improving the quality and consistency of global implementation. It has also enabled IBM to fulfill marketplace demands and foster business opportunity, because the company is more readily able to demonstrate its standardized approach to managing employee well-being to clients and potential clients.

Bureau Veritas Certification North America, Inc. (BVC) audited IBM's Well-Being Management System (WBMS) in 2007 and certified in 2008 that it conforms with the requirements of the Occupational Health and Safety Assessment Series (OHSAS)—Standard 18001:2007. This international standard defines requirements for health and safety management systems. IBM is one of the largest organizations to have obtained OHSAS 18001 certification. In 2010, BVC conducted an extensive recertification audit of the IBM WBMS, resulting in continued global certification to the OHSAS 18001:2007 standard. In 2011, a successful surveillance audit was conducted.

The Community

Community Health Leadership

- HIV/AIDS

In the 1980s, HIV/AIDS first emerged as a world health threat. Early in the epidemic, IBM demonstrated leadership as it often has over the past one hundred years in employee well-being by providing clinical services and education for South African employees. As the disease took hold, IBM deployed new

strategies. In the space of a year, missed work due to HIV dropped from 25 days a year to just three. After a successful pilot program that began in 1999, management approved IBM South Africa's first HIV/AIDS policy in October 2001.

IBM expanded global leadership programs in countries such as South Africa, Russia, Brazil, India and the United States. For example, in 2005, IBM engaged in a dialogue on HIV/AIDS in the workforce with the Interfaith Center on Corporate Responsibility (ICCR), a coalition of nearly 300 faith-based institutional investors that seek a global community built on justice and sustainability through transformation of the corporate world. Over the years, IBM has maintained a diligent focus on HIV/AIDS, highlighted by the following achievements:

- Founding member of the first corporate leadership coalition on AIDS
- 1997 United States Dept. of Health and Human Services National Business and Labor Award for Leadership on HIV/AIDS
- 2008 National AIDS Fund Edward N. Brandt Award for Business Leadership (for support of key initiatives since the 1990s)
- IBM China introduced HIV/AIDS coverage in corporate medical insurance in 2007, a time when HIV/AIDS coverage was excluded by all commercial medical insurance products in the country.

IBM China went a step further by providing equal rights and opportunities of employment to all people living with HIV/AIDS, and promoting information and awareness campaigns to reduce ignorance about the disease and tackle fear and prejudice. Influenced by IBM's leading initiative, dozens of companies have since included HIV/AIDS coverage in their corporate medical insurance plans, and many more companies are considering covering HIV/AIDS. In the future, HIV/AIDS coverage could be a component of a commercial medical insurance product in China.

• Hepatitis B

IBM is among the first multinational companies in China to have a nondiscriminatory employment policy for persons with hepatitis B and we do not require a hepatitis B test for employment. We are making available professionally delivered education programs on the prevention and management of hepatitis B to employees, and offering voluntary hepatitis B testing through annual health checkups. We also support an employee's healthcare costs through the health benefits insurance program. Supportive psychological counseling is available throughout China.

Due to its contributions to hepatitis B prevention and anti-discrimination, IBM China was recognized by the Chinese Foundation for Hepatitis B Prevention and Control and was featured on its website as a model for a company that eliminated hepatitis discrimination and constructed an effective workplace-based hepatitis B prevention program in 2008.

Global Healthcare Transformation

IBM remains actively involved as a founding member of the Global Business Group on Health, an organization comprising more than 35 global corporations and dedicated to advancing the health of the workforce and transforming the healthcare systems of growth countries. This organization's mission is to provide affordable business solutions that improve the health and productivity of employees outside the United States.

Its key objectives and strategies include:

- Creating health value (i.e., effectiveness and efficiency) and improving productivity by promoting innovative, practical and evidence-based health benefit solutions
- Demonstrating that technology-enabled health improvement programs enhance a company's competitive advantage as an employer of choice in the recruitment and retention of talent
- Developing a business case for corporate leadership to invest in health and productivity programs
- Providing a unique source of information on demographics, health and disability trends and benefits, and comparative information on top-tier providers and vendors

- Providing a forum where members share best practices and insights, benchmark programs, and create tool kits to develop practical solutions to global health issues
- Establishing vendor expectations for excellence, including innovation, transparency, efficiency and continuous improvement, which support high-performing healthcare systems

Child Health Initiative (Rebate)

Today's children constitute the work force of tomorrow. Diagnoses of illnesses attributable to obesity (e.g., hypertension, diabetes and depression) are no longer confined to adults. And these illnesses are taking a heavy toll on healthcare services.

In 2010, *Pediatrics*, the official journal of the American Academy of Pediatrics, published an article entitled "An Observational Study of an Employer Intervention for Children's Healthy Weight Behaviors," co-authored by Dr. Martin Sepúlveda, IBM Fellow & former vice president, Integrated Health Services and colleagues. The article evaluated IBM's leadership in improved healthy lifestyles through our IBM Children's Health Rebate program.

The Children's Health Rebate is one of four cash-incentive Healthy Living Rebates in the United States. It was designed to reward good nutrition and physical activity for the entire family, which is key to helping children develop healthy habits for a lifetime. The Children's Health Rebate aims to help parents and families aid children in the maintenance of healthy weight. IBM created this unique, action-oriented program by combining recommendations from leading experts with simple activities in which the whole family can participate.

Employee Inclusion

For more than a century, IBM has viewed the diversity of cultures, people, thoughts and ideas as critical to our success in the marketplace.

Because our diversity is reflective of the global marketplace, it is integral to our corporate character. And our enduring commitment to diversity is one of the key reasons we can credibly say that IBM is one of the world's leading globally integrated enterprises.

Today we also understand that diversity goes beyond fair hiring practices and protection for all employee constituents. It also

includes a focus on how those disparate pieces fit together to create an innovative, integrated whole. And we call this approach "inclusion."

What inclusion means to us as a company is that while our differences shape who we are as individual IBMers, our shared corporate culture and company values remain central to our mutual success. IBMers around the world work in an environment where diversity—including diversity of thought—is the norm, which yields a commitment to creating client innovation in every part of our business.

Simply put, it's what we do together that sets us apart.

"Diversity is the mix. Inclusion is making the mix work."

— ANDRES T. TAPIA
President, Diversity Best Practices

Global Diversity and Inclusion Summit 2011

As we refine our employment and leadership practices to enable IBM to continue to attract and develop global thought leaders, it is imperative that IBM's diversity strategy enables the organization to meet its business objectives and talent requirements. To that end, late last year we held one of our recurring summits on Global Diversity and Inclusion. More than 100 IBM leaders from around the world gathered to help develop a global diversity strategy that would align with our human resources strategy and support execution of IBM's 2015 business roadmap.

During the summit, the team committed to address the implications for the next generation of diversity by broadening the inclusion strategy to make it truly global. That work includes embracing multicultural identities and ensuring that there are demonstrative business benefits in the areas of recruiting, talent and leadership development.

Here are several of the Diversity Summit recommendations and insights:

- Work with IBM business units and geographies to develop integrated diversity and inclusion goals and programs to ensure IBM's workforce is globally and culturally diverse and inclusive

- Engage the existing Diversity Networking Groups to expand their mission and recharter them to become Business Resource Groups that also support local talent/business objectives
- Engage each constituency group and council to review defined current structures, practices and priorities for alignment with new diversity and inclusion strategic objectives.
- Establish a Global Inclusion Council

Helping our Constituents Thrive

Since its beginning more than a hundred years ago, IBM has understood that diversity is the bridge between the workplace and the marketplace. And, success with our clients begins with success in the workplace. Below are some examples of how IBM supported constituent groups throughout the company in 2011:

LGBT (Lesbian, Gay, Bisexual, Transgender) Workplace Equality

IBM has a long history when it comes to LGBT workplace equality. As early as 1984, IBM included sexual orientation in our nondiscrimination policy. In 1995, a LGBT executive task force was established. Today, that task force is known as the Global LGBT Council, and is focused on making IBM a safe and desirable workplace for all people. In 2011, Watson, a super-computing server, stunned the world on the game show Jeopardy!, using deep analytics and an understanding of natural language to answer complex questions. The project was conceived by Charles Lickel, one of the first IBM “out” executives.

IBM is also a sponsor of Out & Equal Work-place Advocates. Out & Equal works to protect and empower employees to be productive and successful so they can support themselves and their families, and contribute to achieving a world free of discrimination. IBM leverages Out & Equal’s annual global summit as a development opportunity for our high-potential LGBT employees. There, along with 2,500 employees from other major corporations from 20 countries, they have the opportunity to network, develop leadership skills and team with other LGBT employees and executives to share workplace best practices.

IBM recently won Out & Equal’s Workplace Excellence Award, and in 2011 Claudia Woody, Vice President and Managing Director of Intellectual Property Licensing, won Out & Equal’s Trailblazer award.

Advancement of Women

IBM has achieved many milestones in support of the advancement of women. In 1943, Ruth Leach, IBM’s first female executive, was promoted to vice president. In 1989, Fran Allen was named IBM’s first female technical Fellow. And in 2011, Ginni Rometty was named President and CEO. This year, in honor of International Women’s Day and Women’s History Month, we celebrated the economic, political and social achievements of women—past, present, and future—by hosting a series of events across the globe. These events included The Global Marathon, a full week of events designed to connect women in engineering and technology around the world to network, share ideas and initiate action that will change the world.

Persons with Disabilities

Last year, IBM’s Persons with Disabilities (PWD) council leaders sat down with eight IBMers with disabilities from around the globe for a “reverse mentoring” session. The small session was then opened up to IBM employees from Canada, China, Brazil, France, Germany, India and the United States to share their employment experiences with PWD council leaders—both the positive aspects and the areas for improvement.

The first-of-its-kind seminar addressed some of the actual and perceived barriers PWD face as they enter the workplace:

- Lack of education and training
- Extra costs of getting to work, including transportation and medical care
- Extra need for flexibility
- Loss of disability income and healthcare if a fulltime job is taken

The seminar also addressed tough questions: How do your colleagues respond to you? Is it difficult for you to travel on business? In your part of the world, how does your culture approach people with disabilities? What response do you get when you meet IBM clients?

This thoughtful discussion resulted in a powerful PWD initiative called In Their Shoes, which includes globally accessible video modules on accessibility and innovation, client attitudes toward people with disabilities, mentoring and career advancement and recruiting—all geared toward highlighting both existing and future ways IBM can help our PWD community thrive.

Leadership in Work Life Flexibility

The global business environment is increasingly competitive. If IBM is to maintain its leadership position as one of the world's top globally integrated enterprises, it's important to create an environment that offers employees not only financial security but also autonomy, meaningful work and the opportunity for development and advancement. Additionally, flexibility is a cornerstone of our employment value proposition; IBMers need time to cultivate personal interests and integrate the demands of the job with the demands of their personal lives.

To address both employee and business needs, IBM has developed six flexibility principles. These flexibility principles can be adapted by country as needed based on legislation, local custom and other factors.

“Like all accomplishments in the world, things happen because of persistence, dedication, focus on driving to an outcome. And in the time that I've been with IBM, when we do set our minds on doing something, we can accomplish it.”

— MIKE RHODIN
Senior Vice President, IBM Software Solutions Group and PWD
Executive Advisor

IBM's Six Flexibility Principles

1. The Enterprise does not stop: In a globally integrated enterprise, the enterprise never stops working. Somewhere in the world, IBMers are working on solutions for our clients.
2. Balancing of Needs: IBM is committed to providing its employees the greatest degree of flexibility while balancing the needs of our clients, our business, team effectiveness and the individual IBM employee.
3. Trust & Personal Responsibility: Consistent with our core value of “trust and personal responsibility in all relationships,” IBM expects managers and employees to make decisions, including those about flexibility options, consistent with this value and to demonstrate personal responsibility to ensure business commitments are met.
4. Range of Options: Flexible work options are a vehicle for IBM to meet the needs of our Global clients and can be employee or management initiated and approved based upon the needs of the business, clients or individuals.
5. Understanding Differences: IBMers must consider the needs of our global stakeholders—clients, customers, colleagues and the communities in which we operate. Each of us must take responsibility to explore, understand and reflect differences in culture, customs, time of day, holidays, language, business requirements, the personal needs of stakeholders and the impact of our decisions on business dealings.
6. Focus on Results: IBMers must focus on results, setting goals and measuring performance with an eye toward providing an outstanding experience for IBM customers, clients and employees.

Cultural Adaptability/Intelligence

Every IBMer is considered a Global IBMer. That means each employee must be able to seamlessly collaborate across borders and business units. Leading and working in multicultural teams to solve complex client problems has become the norm as IBMers do business around the world.

IBM sponsors an annual Cultural Intelligence Week to help increase the cultural intelligence of the entire organization—from the most senior executive to the most recently hired IBMer.

The focus of 2011 Cultural Intelligence week was to promote cultural understanding by building a sense of community and belonging that transcends geographic borders. IBM managers committed at least one hour of their time to participate in one or more of the cultural understanding activities, and rated their cultural understanding as “improved” after participating. In addition to an all-employee webcast, the seminar resulted in creation of a cultural intelligence toolkit for sellers, and an online tool which contains reference information on how to better conduct business in countries around the world.

Diversity Network Groups

Within IBM, we have more than 230 Diversity Network Groups (DNGs)—volunteer employee groups that come together with the goal of enhancing IBM's success through meeting, teaming, networking, mentoring and coaching, and enhancing recruitment

and welcoming. In 2011 as part of the Diversity & Inclusion Summit, participants concluded that we need to expand the role of DNGs in helping drive business and talent success. The DNG program is open to all IBM employees who wish to establish a group based on ethnicity, race, gender, sexual orientation or other constituency group—anywhere on the planet.

Leadership Development

IBM has a long history of developing its leadership to inspire both IBMers and our clients to make the world work better. IBM believes that developing strong leaders is good for employees, IBM and the world.

At IBM, we continue to invest in a wide variety of innovative leadership programs and experiences, providing IBMers with experiences and opportunities that will serve them at IBM or wherever their careers take them. Below are just a few of the leadership development opportunities we made available during the course of 2011.

THINK Forum, Leadership Development Day

In September, 2011, IBM hosted THINK: Forum on the Future of Leadership at Lincoln Center in New York. The Forum on the Future of Leadership event brought together leaders from government, business, academia and science, along with an audience of up-and-coming leaders from across the globe, to deepen their collective understanding of the keys to success on a smarter planet.

As part of the leadership experience, IBM identified 250 of its own promising leaders to participate in the event. As a prelude to meeting with other world leaders in New York, this team of IBMers gathered to reflect on taking their own leadership to the next level. Through a series of presentations and individual and group exercises, the group reflected on personal leadership approaches, articulated a leadership commitment and identified the action steps they will take to become stronger leaders. Participation in this event helped the members understand how to lead in both familiar and unknown situations and challenges. And it gave them the opportunity to think broadly about IBM's 100-year history, the impact the company has had on the world and the possibilities for the next 100 years.

The prelude event also gave IBM's leaders the opportunity to collaborate with colleagues and peers across the global breadth of the organization. They then joined world leaders in New York to share their insights and engage in cross-disciplinary discussions on making the world work better together.

I&VT 8: Success in Africa

The Integration and Values Team (I&VT) has played an integral role in the advancement of IBM's most promising leaders for the last six years. I&VT members are appointed with the expectation that they will work to integrate and transform IBM, lead by values and develop other IBM leaders.

Since 2006, there have been eight successful I&VT initiatives that helped to educate these leaders in important areas of focus for the company. The topics have included client value, enabling the globally integrated enterprise, the global IBMer, cloud computing, business analytics and most recently, success in Africa. Each of these initiatives has transformed the way IBM does business, added value to our clients and helped in the development of our senior executives.

The most recent initiative, I&VT 8, focused on Africa and was pivotal in enabling the success of enterprise-wide initiatives for growth in the region. Members of this team had the opportunity to learn about Africa through first-hand experience with the people and businesses throughout the continent. The team met with clients, government officials, NGOs and business partners in Morocco, Ghana, Angola, Kenya, Tanzania and Nigeria. They worked closely with the country teams to understand the national agendas, local issues, business opportunities and most importantly, establish long lasting relationships with locals.

Members of the team also had the opportunity to participate in councils such as Destination Africa, a global recruiting program designed to inspire IBMers to fill critical roles in fast-growing markets in Africa, while providing them the opportunity to grow their careers and capabilities. I&VT 8 team members have also participated in diversity councils, allowing them to transfer knowledge and skills around their experiences in Africa to the greater IBM community.

Environment

IBM has long maintained an unwavering commitment to environmental protection, which was first formalized by a corporate environmental policy in 1971. This policy calls for IBM to be an environmental leader across all of our business activities, from our research, development and sale of our products and services, to the solutions we provide our clients to help them be more protective of the environment. In this section of IBM's 2011 Corporate Responsibility Report, you will find information on our environmental programs and performance during 2011.

A Commitment to Environmental Leadership

IBM's longstanding commitment to environmental leadership arises from two key aspects of its business: the intersection of the company's operations and products with the environment, and the enabling aspects of IBM's innovation, technology and expertise.

IBM's operations can affect the environment in a number of ways. For example, the chemicals needed for research, development and manufacturing must be properly managed from selection and purchase through storage, use and disposal. Our data center operations are generally energy-intensive, and some of our manufacturing processes use a considerable amount of energy, water or both. We continually look for ways to reduce consumption of these and other resources.

We design our products to be energy-efficient, using environmentally preferable materials that are capable of being reused, recycled or disposed of safely at the end of their useful lives. And as we incorporate more purchased parts and components into our products, our requirements for suppliers' overall environmental responsibility and the environmental attributes of the goods those suppliers provide to IBM are important as well.

IBM also applies its expertise, research and technology to develop solutions that can help our company and our clients be more efficient and protective of the environment. We offer the resulting innovation to help the world discover leading-edge solutions to some of the world's most challenging scientific and environmental problems.

Global Governance and Management System

IBM's Corporate Policy on Environmental Affairs calls for environmental affairs leadership in all of the company's business activities.

Global Environmental Management System

Our [policy objectives](#) range from workplace safety, pollution prevention and energy conservation to product design for the environment, continual improvement and the application of IBM's expertise to help address some of the world's most pressing environmental problems.

The policy is supported by corporate directives that govern IBM's conduct and operations worldwide. These directives cover areas such as pollution prevention, chemical and waste management, energy management and climate protection, environmental evaluation of suppliers, product stewardship, and incident prevention and reporting.

IBM's commitment to environmental protection is implemented through our global Environmental Management System (EMS).

Employee and Management Responsibility

Every employee is expected to follow IBM's corporate environmental affairs policy and its directives and report any environmental, health or safety concern to IBM management. Managers are expected to take prompt action when faced with a potential violation of the policy or directives.

In addition, all of our employees are required by the company's [Business Conduct Guidelines](#) to comply with environmental laws and with IBM's own environmental requirements.

IBM executives are responsible for the environmental performance of their organizations. Site location executives are responsible for the environmental performance of their sites.

Our environmental programs and performance are reviewed annually by the Directors and Corporate Governance Committee of IBM's Board. Formed in 1993, the Charter for this committee established its responsibility for reviewing IBM's position and practices on significant issues of corporate public responsibility, including protection of the environment.

Environmental Goals

Environmental goals are an important part of IBM's EMS. We maintain environmental goals covering the range of our environmental programs, including climate protection, energy and water conservation, pollution prevention, waste management and product stewardship. These goals and our performance against them are discussed in their respective sections of this report, and are provided in the listing of IBM's environmental Key Performance Indicators.

ISO 14001 Standard on Environmental Management Systems

In 1997, IBM became the first major company in the world to earn a single global registration to ISO 14001. We achieved this credential within just one year of the finalization of the standard.

The initial registration covered IBM's manufacturing, product design and hardware development operations across its business units worldwide. We have since expanded our global [ISO 14001](#) registration to include our research locations that use chemicals, several country organizations with their non-manufacturing locations, our product development function and our Global Asset Recovery Services.

As our business model has evolved to include more services offerings, we have updated our [EMS](#) to appropriately address environmental opportunities and challenges in the services area.

ISO 50001 Standard on Energy Management Systems

Upon the issuance of the ISO 50001 standard on energy management systems by the International Organization for Standardization in June 2011, IBM set forth a strategy to achieve verification of conformity of its Global Environmental Management System (EMS) against this newly published standard.

Within one year of the issuance of this standard, we successfully achieved certification of IBM's energy management program at a corporate level and as an integral component of the company's Global EMS against the requirements of the ISO 50001 standard. Our approach recognizes and leverages the fact that IBM's existing global EMS addresses both environment and energy management.

IBM's energy management program dates back to 1974, when a formal corporate policy was issued calling for the conservation of energy and materials in all of IBM's activities. In the intervening years, IBM has sustained its energy management program and integrated it into the company's Global EMS, which became certified to the ISO 14001 standard in 1997.

Public Disclosure

IBM's Corporate Policy on Environmental Affairs also calls for the company to publicly disclose information on its environmental programs and performance. This report marks IBM's 22nd consecutive year of annual corporate [environmental reporting](#). We also participate in a number of other voluntary reporting programs, such as the Carbon Disclosure Project and the OneReport Sustainability Reporting Network.

Environmental Evaluations of Suppliers

IBM has long been committed to doing business with environmentally responsible suppliers and was an early leader in providing requirements addressing this topic in its global EMS. Below are a few milestones of our leadership in this capacity.

- 1972
Established a corporate directive requiring the environmental evaluation of suppliers of hazardous waste services
- 1980
Expanded our environmental evaluations of suppliers by establishing a second corporate directive that required the environmental evaluation of certain production-related suppliers
- 1991
Further expanded our environmental evaluations of suppliers, adding a requirement that product recycling and product disposal suppliers be evaluated
- 2002
Nongovernmental organizations raised a concern about electronic waste being exported to some non-OECD countries. Though we confirmed that IBM was not shipping electronic waste products to non-OECD countries, we added a requirement to assess our suppliers and certain subcontractors they may use to handle recycling and/or disposal operations in non-OECD countries

- 2010

IBM established a requirement that all first-tier suppliers establish a management system to address their social and environmental responsibilities. Our objective in establishing this requirement was to help our suppliers build their own capability to succeed in this area. These suppliers are required to:

- Define, deploy and sustain a management system that addresses their intersections with their employees, society and the environment;
- Measure performance and establish voluntary, quantifiable environmental goals;
- Publicly disclose results associated with these voluntary environmental goals and other environmental aspects of their management systems; and
- Cascade these requirements to their suppliers who perform work that is material to the products, parts and/or services being supplied to IBM.

More information on these new supplier requirements may be found in the Supply Chain section of this report and on IBM's [Supply Chain Environmental Responsibility website](#).

Stakeholder Engagement

IBM has a variety of outreach programs through which we engage with various groups and individuals on the subject of the environment. Our community environmental outreach programs range from open houses and emergency preparedness drills with local organizations to the support of and participation in local environmental projects and environmental education efforts.

We also have ongoing dialogues with many stakeholders, including socially responsible investors and other shareholders, environmental nongovernmental organizations (eNGOs), governments, employees and others on a range of environmental issues. These dialogues are valuable, as they allow us to share ideas and obtain feedback about our programs, activities and performance.

Another example of engagement is collaborative innovation. We believe that integrating different minds and different perspectives can accelerate new solutions to longstanding problems. One avenue by which we have embraced this ideal is through IBM's Jams, an online collaborative brainstorming platform that enables global conversations on strategic business and societal issues

across industries, disciplines, stakeholders and national borders. We have hosted more than 30 internal and external Jams, with results used to inform values, strategy and agendas for change and innovation.

In April 2011, IBM held the “Start Jam”, which brought together hundreds of leaders from the UK and Ireland to explore how businesses can put sustainability at the heart of their strategies. Start Jam built on the success of the IBM Summit at Start, a nine-day business summit held in September 2010 in association with Start—a national initiative inspired by HRH The Prince of Wales to promote and celebrate sustainable living. The objective was to move forward from examining the value and importance of sustainability in business to determining how to affect the strategic and cultural changes required to drive a genuine transformation in sustainability.

Another outcome of the Start summit was Energy Aid. In December 2011, IBM and the international development charity Practical Action announced the launch of Energy Aid, a new global charity with the goal of providing sustainable universal energy access for those who have limited or no access to energy for heating, lighting, cooking, communications and mechanical work. Energy Aid will provide investment and resources including data, technology, skill and research across the world’s poorest areas.

As a founding partner of Energy Aid, we provided early development support from IBM employees to help get the charity off the ground and technology input to the IT and data infrastructure to support the Open Knowledge Base. This resource is aimed at increasing public awareness; sharing best practices and matching resources; and facilitating and encouraging long-term investment, all in support of achieving the goals of Energy Aid. We will continue to develop Open Knowledge Base projects utilizing our analytical and technological capabilities alongside our Smarter Energy® expertise.

Voluntary Partnerships and Initiatives

IBM is strongly committed to participation in voluntary programs and we have founded or joined many voluntary initiatives and partnerships with governmental and nongovernmental organizations over the years.

Some current governmental examples include the United States Environmental Protection Agency’s (EPA) ENERGY STAR, SmartWay and WasteWise programs, and the European Union (EU) Code of Conduct for Energy Efficient Data Centers.

Examples of partnerships with eNGOs include our charter membership in the World Wildlife Fund’s Climate Savers program and membership in the Center for Climate and Energy Solutions (the successor to the Pew Center on Global Climate Change). We also work with and support organizations such as The Conservation Fund, the Environmental Law Institute, and the World Environment Center (WEC).

In addition, we partner with other companies and institutions to foster solutions for environmental sustainability. For example, IBM is a founding member of the GridWise Alliance, an organization representing a broad range of the energy supply chain—from utilities and technology companies to academia and venture capitalists. Its mission is to transform the electric grid to achieve a sustainable energy future.

In January 2012, IBM and the WEC announced the formation of the Innovation in Environmental Sustainability Council. Its purpose is to explore how innovation in business process and technology can enable strategic solutions to major challenges involving materials, energy, water, infrastructure and logistics. Charter members of the Council also include Boeing, CH2M HILL, The Coca-Cola Company, The Dow Chemical Company, F. Hoffmann-La Roche AG, General Motors, Johnson & Johnson Family of Consumer Companies and The Walt Disney Company.

A more complete listing of our voluntary partnerships and initiatives may be found on IBM’s [Voluntary Environmental Initiatives website](#).

We also encourage our employees to support environmental efforts. For example, through our Matching Grants program, IBM matches contributions made by its US employees to a wide variety of environmental organizations ranging from international

organizations such as The Nature Conservancy and the World Wildlife Fund to smaller groups dedicated to preserving lands and habitats in local communities.

In addition, our employees can support environmental organizations in their local communities through IBM's On Demand Community (ODC) program. ODC is a first-of-its-kind global initiative to encourage and sustain corporate philanthropy through volunteerism. It provides our employees and retirees with a rich set of IBM technology tools they can use to help schools and the nonprofit community organizations in which they volunteer, including environmental organizations. The program combines the expertise, interests and skills of our employees with the power of IBM's innovative technologies and solutions to help nonprofit organizations more effectively address community needs.

The Eco-Patent Commons

In July 2011, Hitachi Ltd. became the latest company to join the Eco-Patent Commons launched by IBM, Nokia, Pitney Bowes, Sony and the World Business Council for Sustainable Development in January 2008. Other members include Bosch, Dow, DuPont, Fuji Xerox, Hewlett-Packard, Ricoh, Tasei and Xerox.

The Commons provides a unique opportunity for global business to share innovation that can foster sustainable development. It was designed to facilitate the use of existing innovation that is protective of the environment, and encourage collaboration for new innovation through an online collection of environmentally beneficial patents pledged by the member companies for free use by anyone.

Examples of the environmental benefits of patents that may be pledged to the Eco-Patent Commons include:

- Energy conservation or improved energy or fuel efficiency
- Pollution prevention (source reduction, waste reduction)
- Use of environmentally preferable materials or substances
- Water or materials use reduction
- Increased recyclability

To date, the member companies have pledged more than 100 patents to the Eco-Patent Commons, 28 of which were pledged by IBM.

28

of the more than 100 patents pledged to the Eco-Patent Commons were pledged by IBM.

Environmental Investment and Return

Over the past five years, IBM has spent \$106.9 million in capital and \$508.5 million in operating expense to build, maintain and upgrade the infrastructure for environmental protection at its plants and labs, and to manage its worldwide environmental programs.

Environmental capital and expense worldwide

	2007	2008	2009	2010	2011
Capital	\$30.0	\$31.7	\$14.3	\$12.5	\$18.4
Expense	\$108.2	\$111.3	\$102.3	\$90.6	\$96.1*
Total	\$138.2	\$143.0	\$116.6	\$103.1	\$114.5

** IBM modified its methodology for estimation of operating expenses in 2011 to collect information on expenses associated with compliance with worldwide environmental legal requirements for products, including costs associated with compliance with worldwide product takeback and recycling requirements.*

IBM tracks environmental expenses related to the operation of our facilities worldwide, as well as environmental expenses associated with our corporate operations and site remediation efforts. In 2011, we expanded our tracking of environmental expenses to include expenses associated with compliance with environmental legal requirements related to products, including those costs incurred for compliance with product takeback and recycling requirements. Total environmental expenses associated with IBM's operations in 2011 were \$114.5 million.

We also estimate the savings that have resulted from IBM's policy commitment to environmental leadership including savings from energy, material and water conservation; recycling; packaging improvement initiatives; reductions in chemical use and waste; and process improvements from pollution prevention. Ongoing savings from the previous years' initiatives are not carried over in this comparison, yielding very conservative estimates.

\$139.1 million

estimated environmental savings and cost avoidance worldwide in 2011.

In addition, IBM realizes avoidance of costs that likely would occur in the absence of our Environmental Management System. These savings are not quantifiable in the same way that expenses are, but avoiding these environmental costs does result in savings for IBM, and a reasonable attempt has been made to estimate them. In 2011, IBM's estimated environmental savings and cost avoidance worldwide totaled \$139.1 million.

Our experience has shown that annual savings from IBM's focus on conservation, pollution prevention and design for the environment consistently exceed environmental expenses, demonstrating the value of proactive environmental programs and performance.

2011 Environmental Expenses Worldwide

(\$ in millions)

Personnel	\$38.0
Consultant fees	3.0
Laboratory fees	3.2
Permit fees	1.2
Waste treatment and disposal	7.0
Surface water and wastewater management operations	8.9
Air emission control operations	0.7
Groundwater protection operations	1.1
Product takeback / recycling costs	1.3
Waste and materials recycling	1.7
Superfund and former IBM site remediation	21.7
Other environmental operations	8.3
Total	\$96.1

2011 Estimated Environmental Savings and Cost Avoidance Worldwide

(\$ in millions)

Location pollution prevention operations*	\$38.0
Corporate operations*	5.9
Packaging improvements	4.3
Environmentally preferable materials usage	0.3
Energy conservation and cost avoidance	61.5
Superfund and site remediation efficiencies	0.9
Spill remediation cost avoidance**	4.9
Compliance cost efficiency***	19.2
Potential fines, penalty and litigation avoidance****	4.1
Total	\$139.1

* Savings or costs avoided by having internal professional staff and tools versus using external consultants and tools.

** These savings are estimates based upon certain assumptions. The figure for spill remediation cost avoidance is estimated considering IBM's actual experience with remediation costs.

*** Compliance cost efficiency considers costs avoided through proactive efforts to stay ahead of environmental regulations and requirements.

**** The estimation for the avoidance of potential fines, penalties and litigation does not include cost avoidance of potential business interruption or fines related to noncompliance with product environmental laws and regulations (e.g., E.U. REACH or RoHS requirements).

Process Stewardship

Among its objectives, IBM's Corporate Policy on Environmental Affairs calls for our use of development and manufacturing processes that are protective of the environment.

Environmentally Preferable Substances and Materials

As an integral part of the global Environmental Management System through which we support this policy objective, we routinely and consistently monitor and manage the substances we use in our manufacturing and development processes and in our products.

Our precautionary approach includes the careful scientific review and assessment of certain substances prior to their use in IBM processes and products. In specific instances, we have chosen to proactively prohibit, restrict or substitute substances used in our

processes and products when the weight of scientific evidence determines a potential adverse effect upon human health or the environment, even when law permits the use of the substance.

We also conduct scientific assessments of existing approved substances when new processes or major modifications to existing processes are being developed. The objective of these scientific assessments is to identify potential substitutes that may be environmentally preferable. We believe that the same scientific rigor is required when investigating the human health and environmental effects of potential substitutes as was applied to the investigation of the substance in use.

The following provides a sampling of IBM's early leadership in prohibiting or restricting many substances of concern from our processes and products before regulatory requirements were imposed:

- **Chlorofluorocarbons (CFCs)**

In 1989, we became the first major information technology (IT) manufacturer to announce a phase-out of CFCs, a Class I ozone-depleting substance, from both our products and our manufacturing and development processes.

- **Class I and II ozone-depleting substances**

We completed the phase-out of Class I ozone-depleting substances in 1993. Subsequently, we eliminated Class II ozone-depleting substances from our products and processes in 1995.

- **Trichloroethylene (TCE), ethylene-based glycol ethers and dichloromethane**

We voluntarily prohibited TCE from our manufacturing processes in the late 1980s, ethylene-based glycol ethers in the mid-1990s and dichloromethane in 2003.

- **Polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs)**

We prohibited PBBs and PBDEs from our product designs in the early 1990s and then extended the prohibition to purchased commodities through our procurement specifications in 1993.

- **Cadmium**

We prohibited the use of cadmium in inks, dyes, pigments and paints in 1993, in plastics and plating in 1994, and in CRT monitors along with nickel cadmium batteries in the mid-1990s.

- **Polyvinyl chloride (PVC) and tetrabromobisphenol A (TBBPA)**

We ceased the specification of PVC in our IT system enclosures in 2000 and prohibited the use of TBBPA as an additive flame retardant in IT system enclosures for newly released products in 2007.

- **Specific perfluorinated compounds (perfluorooctane sulfonate [PFOS] and perfluorooctanoic acid [PFOA])**

IBM prohibited the use of these compounds in the development of new materials in 2005, in new manufacturing applications in 2007, and eliminated the use of PFOS and PFOA in manufacturing, development and research processes as of January 31, 2010.

A table summarizing IBM's voluntary material prohibitions and restrictions from 1978 through 2011 may be found on the [Materials Use](#) page of our website.

The IBM restrictions on specific substances and other environmental requirements for our products are identified in our [Engineering Specification: Baseline Environmental Requirements for Supplier Deliverables to IBM](#).

Nanotechnology

Nanotechnology is the application of scientific and engineering principles to make and utilize very small things (dimensions of roughly 1 to 100 nanometers). An important aspect of nanotechnology is creating materials where their unique properties enable novel and useful application.

Nanotechnology is already part of a wide variety of products—from cosmetics and sunscreens to paints, clothing and golf equipment. It can make products lighter, stronger, cleaner, less expensive and more precise, and has been critical to advancements in the IT industry.

Our company has been a pioneer in nanotechnology. IBM scientists won a Nobel Prize for inventing the scanning tunneling microscope, enabling researchers to see atoms on a surface for the first time. We devised methods to manipulate individual atoms for the first time, developed logic circuits using carbon nanotubes and incorporated sub-nanometer material layers into commercially mass-produced hard disk drive recording heads and magnetic disk coatings.

We were also one of the first companies to create safe work practices and health and safety training for our employees working with nanoparticles. In addition, IBM, along with International SEMATECH Manufacturing Initiative (ISMI) and other semiconductor companies, is participating in a collaborative study with NIOSH (National Institute for Occupational Safety and Health) and the College of Nanoscale Science and Engineering (CNSE) of the University at Albany-SUNY to monitor potential workplace exposure to nanoparticles during chemical mechanical planarization (CMP) operation and maintenance.

IBM's current nanotechnology research aims to devise new atom- and molecular-scale structures and methods for enhancing information technologies, as well as discovering and understanding their scientific foundations. We believe these technologies can bring with them significant social and environmental benefits.

The following are highlights of research milestones during 2011:

- IBM scientists were able to measure for the first time how charge is distributed within a single molecule. This achievement will enable fundamental scientific insights into single-molecule switching and bond formation between atoms and molecules. Furthermore, it introduces the possibility of imaging the charge distribution within functional molecular structures, which holds great promise for future applications such as solar photoconversion, energy storage or molecular-scale computing devices.
- Our researchers announced the first integrated circuit fabricated from wafer-sized graphene, and demonstrated a broadband frequency mixer operating at frequencies up to 10 gigahertz (10 billion cycles/second). Designed for wireless communications, this graphene-based analog integrated circuit could improve today's wireless devices, reducing their cost, making them more energy efficient and enabling them to work where they cannot today. In addition, because of their ability to operate at higher frequencies, they hold the potential for other uses, such as conducting medical imaging without the same radiation dangers of X-rays.
- IBM scientists created the world's smallest magnetic memory bit using only 12 atoms. This is significantly less than today's disk drives, which use about one million atoms to store a single bit of information. The ability to manipulate matter by its most basic components—atom by atom—could lead to the vital understanding necessary to build smaller, faster and more energy-efficient devices.

Our nanotechnology and nanoscience research and development also involve interactions and collaborations with partners around the world. For example, in 2011, IBM and ETH Zurich, a premiere European science and engineering university, announced the opening of the Binnig and Rohrer Nanotechnology Center located on the campus of IBM Research in Zurich, Switzerland. The facility is the centerpiece of a 10-year strategic partnership in nanoscience between IBM and ETH Zurich where scientists will research novel nanoscale structures and devices to advance energy and information technologies.

This new Nanotechnology Center also has been granted the use of the MINERGIE quality label, a Swiss standard for sustainable and energy-efficient buildings. The Center improves its energy efficiency with the use of photovoltaics, geothermal probes and heat recovery windows.

-3.5%

In 2011, IBM's hazardous waste generation indexed to output decreased by 3.5% (88 metric tons) over 2010—achieving our goal of annual year-to-year reduction in hazardous waste generated from IBM's manufacturing processes indexed to output.

Pollution Prevention

Pollution prevention is a critical aspect of IBM's environmental efforts, and it includes, among other things, the management of hazardous waste, nonhazardous waste and chemical releases.

Hazardous Waste

The best way to prevent pollution is to reduce the generation of hazardous waste at its source. This has been a basic philosophy behind IBM's pollution prevention program since 1971. Where possible, we redesign processes to eliminate or reduce chemical use and substitute more environmentally preferable chemicals. We maintain programs for proper management of the chemicals needed for research, development and manufacturing, from selection and purchase to storage, use and final disposal.

To more effectively track IBM's hazardous waste management performance, we developed a methodology to correlate the hazardous waste generated from our North American manufacturing operations to their production in 1992 and expanded it to our manufacturing operations worldwide in 1993. We established a voluntary environmental goal based on this methodology in 1995 to drive continual reduction in the hazardous waste generated from these operations, relative to the level of production. The metric covers specific waste streams at IBM's three microelectronics manufacturing locations that can be linked to production at the locations. These three locations generate more than 90 percent of IBM's hazardous waste generation attributable to manufacturing, although not all hazardous wastes generated at these locations is indexed to production.

In 2011, IBM's hazardous waste generation indexed to production output decreased by 3.5 percent, or 88 metric tons, over 2010. This year-over-year decrease was largely attributable to source reduction projects and process line improvements located at two of our three microelectronics manufacturing sites.

For hazardous waste that is generated, we focus on preventing pollution through a comprehensive, proactive waste management program. Of the nearly 7,700 metric tons of hazardous waste IBM generated worldwide in 2011, 44 percent was recycled and 36 percent was sent to landfills. Of the total amount sent to landfills, 85 percent was sludge from industrial wastewater treatment plants. Government regulations required disposition of this sludge in secure hazardous waste landfills.

Hazardous Waste Management Worldwide

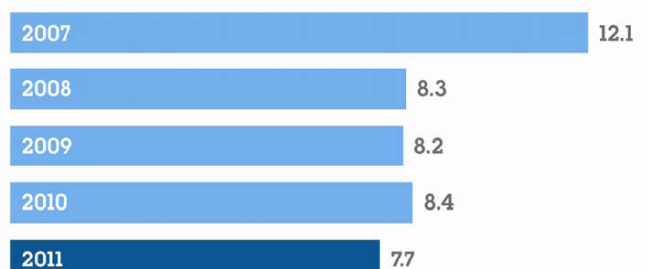
2011 Quantities: 7,700 Metric Tons



IBM's total hazardous waste generation has decreased by 36 percent or 4,360 metric tons over the past five years and has decreased by 97 percent or 220,500 metric tons since the 1987 base year of this metric.

Hazardous Waste Quantities Worldwide

Metric Tons × 1,000



Nonhazardous Waste

IBM also has focused for decades on preventing the generation of nonhazardous waste, and where this is not practical, recovering and recycling the materials that are generated. Nonhazardous waste includes paper, wood, metals, glass, plastics and other nonhazardous chemical substances.

We established IBM's first voluntary environmental goal to recycle nonhazardous waste streams in 1988. The goal has since developed on two fronts. The first expanded on the traditional dry waste streams to include nonhazardous chemical waste and end-of-life IT equipment from our own operations as well as IBM-owned equipment that is returned by external customers at the end of a lease. The second expansion was made to include nonhazardous waste generated by IBM in leased locations meeting designated criteria.

In 2011, IBM's operations generated approximately 70,000 metric tons of nonhazardous waste. This represents a decrease of 1,100 metric tons or 1.5 percent when compared to 2010 quantities. The reduction in waste generated was primarily due to a continued decrease in construction activities at plants and labs located in North America. This was despite an increase of 6 percent in the end-of-life IT equipment being processed from IBM operations in 2011 when compared to 2010 quantities.

Our voluntary environmental goal is to send an average of 75 percent of the nonhazardous waste generated at locations managed by IBM to be recycled. In 2011, we recovered and recycled 78 percent of our nonhazardous waste.

Nonhazardous Waste Generated and Recycled from IBM Locations Worldwide

(Metric tons x 1,000)

	2007	2008	2009	2010	2011
Total recycled	84	62	60	56	55
Total generated	107	82	79	71	70
Percent recycled	78%	76%	76%	79%	78%

Management of Chemical Releases

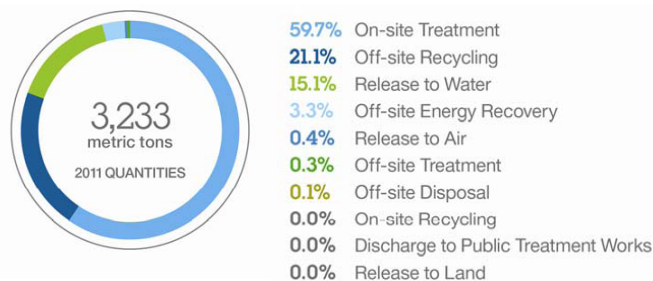
Under Section 313 of the United States Emergency Planning and Community Right to Know Act (EPCRA), companies are required to file an annual inventory of reportable quantities of more than 600 chemicals that were manufactured, processed or otherwise used in quantities exceeding the reporting threshold of 10,000 pounds (4.54 metric tons) for the preceding calendar year. These reportable quantities include:

- Routine releases of chemicals to the environment (e.g., permitted air emissions, permitted water discharges, etc.)
- Chemical quantities that are treated, recycled or combusted for energy recovery on-site
- Chemical quantities that are sent off-site for recycling, combustion for energy recovery, treatment or disposal

Though this is a United States reporting requirement, we've voluntarily extended this reporting metric to cover our worldwide operations since 1994. In 2011, IBM's worldwide reportable quantities of EPCRA-listed chemicals amounted to 3,233 metric tons. More than 84 percent of this quantity was treated on-site or sent off-site for recycling or combustion for energy recovery.

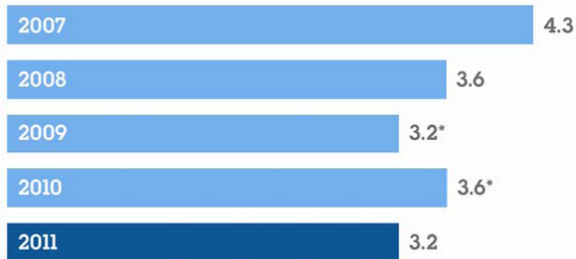
2011 Worldwide Reportable Quantities of EPCRA-Listed Chemicals

(3,233 Metric Tons)



Worldwide Reportable Quantities of EPCRA-Listed Chemicals, 2007–2011

(Metric Tons × 1000)



*2009 and 2010 values have been revised

2011 Worldwide Reportable Quantities of EPCRA-Listed Chemicals

Chemical	Metric Tons
Sulfuric acid (aerosol only)	1,260
Nitrate compound	668
Xylene	517
Hydrogen fluoride	179
Nitric acid	168
n-methyl-2-pyrrolidone	132
Ethylbenzene	111
Ozone	42
All others	156
Total	3,233

IBM's voluntary goal in this area is to achieve year-to-year reduction in routine releases of EPCRA reportable chemicals to the environment, indexed to output.

In 2011, IBM's routine releases of EPCRA reportable chemicals to the environment indexed to output increased by 4.2 percent from the prior year. This year-over-year increase was largely attributable to process changes at one of our manufacturing sites—changes that required an increased use of ammonium and nitrate compounds, and therefore increased the final effluent nitrate discharge from that site. We continue to invest in process upgrades and treatments aimed at reducing the presence of these compounds in our effluents.

Water Conservation

The preservation and protection of the world's water supplies is a focus of IBM's internal operations and also our work with clients in building a Smarter Planet®.

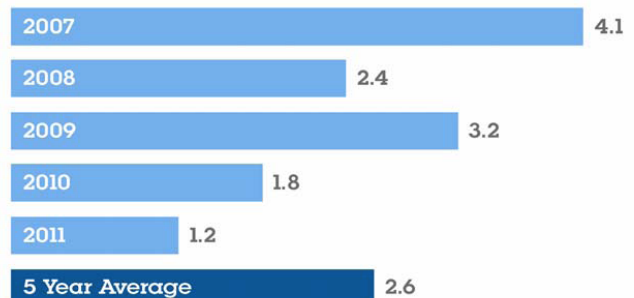
Internally, IBM's microelectronics manufacturing operations are our company's most water-intensive. In 2011, these operations represented more than 80 percent—nearly 9,300 thousand cubic meters (TCMs)—of the approximately 11,500 TCMs of water used at our manufacturing operations and laboratories worldwide.

Though our microelectronics operations are not located in areas of water scarcity, in 2000 we established a water conservation goal to achieve average annual water conservation savings equal to 2 percent of IBM's annual water use at microelectronics manufacturing operations, based on the water usage of the previous year and measured over a rolling five-year period. This voluntary environmental goal measures increases in annual water conservation resulting from new water reduction projects and improvements in water reuse and recycling at these locations.

In 2011, new water conservation initiatives in IBM's microelectronics manufacturing facilities achieved an annual 1.2 percent year-to-year increase in water conservation savings over 2010 usage. Over the past five years, new water conservation initiatives at our microelectronics manufacturing facilities have achieved an average 2.6 percent water conservation savings versus the 2 percent goal.

Annual Increases in Water Conservation Savings in Microelectronics Manufacturing Operations

Savings as percentage of previous year's total water use



2.6%

Goal – To achieve an annual average water savings equal to 2 percent of total annual water usage in our microelectronics manufacturing operations, based on the water usage of the previous year and measured as an average over a rolling five-year period.

Result – As of year-end 2011, IBM's microelectronics manufacturing operations had achieved an average annual water savings of 2.6 percent over the past five years versus the 2 percent goal.

The downward trend in IBM's reported water conservation savings over the last five years is due partly to the significant effort undertaken in the years prior to this period to improve water conservation. It is also due to the fact that new water conservation projects at these locations are seldom financially compelling or beneficial to the environment due to the low cost and high availability of water in the regions where we operate our microelectronics facilities. In addition, some new microelectronics manufacturing processes require more water for cleaning operations than in the past. We will continue to watch this trend while investigating suitable options to further drive the efficient use of water at our manufacturing operations and laboratories worldwide.

In 2011, 646 TCMs of water were conserved in our microelectronics manufacturing operations through new and ongoing reduction, reuse and recycling activities. Of this total conservation, 573 TCMs of water withdrawals were avoided through on-site water reuse, and wastewater and groundwater recycling projects. New water use reduction projects contributed a further 73 TCMs in water savings. The total accumulated conservation efforts over the past five-year period avoided the usage of 4,934 TCMs of water resource.

Product Stewardship

IBM's Product Stewardship program was established in 1991 as a proactive and strategic approach to the company's environmental design and management of products. The program's mission is to develop, manufacture and market products that are increasingly energy efficient; can be upgraded and reused to extend product life; incorporate recycled content and environmentally preferable materials and finishes; and can be recycled and disposed of safely.

Fundamentals

IBM's product stewardship objectives and requirements are implemented through IBM's global Environmental Management System (EMS), internal standards, product specifications and other requirements in IBM's Integrated Product Development process. Product environmental attributes such as energy efficiency, materials content, chemical emissions testing, design for recycling, end-of-life management plans and packaging data must be documented and reviewed in IBM's Product Environmental Profile (PEP) tool at various checkpoints during the development process. Compliance management tools like the [Product Content Declaration for IBM Suppliers](#) support the assessments required for a complete PEP prior to product release. IBM's design and compliance controls, including a specification for [Baseline Environmental Requirements for Supplier Deliverables to IBM](#), Product Content Declarations, and compliance assessment protocols are managed by an interdisciplinary team with representatives from all IBM organizations that design, manufacture, procure, deliver and service our product offerings. The team's activities are coordinated by IBM's Center of Excellence for Product Environmental Compliance.

Enhancing Compliance Processes

Worldwide environmental laws and regulations applicable to information technology products continue to increase, including new and expanded requirements related to product content, energy efficiency, recycling and labeling. In 2011, IBM's product development and supply chain organizations reviewed 109 new and modified environmental laws and regulations affecting information technology products in the global marketplace. In each case, compliance processes and implementation plans were tracked and executed. In addition, management system tools were enhanced to proactively inform suppliers of emerging

requirements and to facilitate data collection and analysis for compliance evaluations. Examples of these tools include IBM's implementation of a new Product Content Declaration for batteries, and modification of the Product Environmental Profile tool to require transition plans for products containing certain phthalate compounds subject to provisions of the EU REACH Directive.

Development Highlights

Other key activities supporting product development in 2011 illustrate IBM's proactive efforts in science, engineering and research to advance environmentally conscious product design.

- **Lead (Pb) elimination:** Unlike less complex consumer products, mission critical systems such as high-end server systems sold by IBM require a longer period of time to identify and qualify the non-lead based alternatives to ensure product reliability requirements are met. These uses of lead are still permitted in exemptions under the EU's Restriction of Hazardous Substances (RoHS) Directive (2011/65/EU).

To achieve elimination of these uses of lead while ensuring product reliability, we developed a systematic phase out program and supplier scorecard to track and implement engineering changes in the specifications and bills of materials for all products containing parts that use lead in compliant pin connector systems other than c-press connectors and lead in dielectric ceramic for capacitors. This effort requires the transition of more than 750 distinct parts used in nearly 250 IBM machine types. These applications will be eliminated by the end of 2012, in accordance with the EU's Directive.

- **Investigation of bio-based materials:** An interdisciplinary team of materials scientists, procurement engineers and environmental product stewards investigated bio-based plastic materials and technologies for suitable applications for IBM's products. The project resulted in immediate implementation of a bio-based, open cell polyurethane foam for acoustic applications. The foam is fabricated from bio-based polyols derived from soybean and/or castor bean oil. IBM is continuing to work with suppliers to qualify a bio-based resin formulation with adequate flame retardancy to replace PC/ABS (polycarbonate/acrylonitrile butadiene styrene) in thermoplastic housing parts for products.

- **Analytical testing for product compliance:** IBM's scientists played a critical role in solving technical issues related to analytical testing methods for industry standard compliance testing of electronic products. International test standards organizations, such as the International Electrotechnical Commission (IEC), are working to develop test standards that can discern and differentiate between carcinogenic and regulated hexavalent chromium Cr(VI) versus the non-regulated and more stable species of trivalent chromium Cr(III) in plastic matrices.

The test protocol produced low results for Cr(VI) in known samples even when most of the plastics matrix was efficiently dissolved. IBM scientists discovered that antimony trioxide, a synergist often added with flame retardant compounds in these plastic resins, reacts with hexavalent chromium converting Cr(VI) to Cr(III). This interference from antimony in the plastic matrix results in erroneous quantification of hexavalent chromium. The discovery was a significant contribution toward IEC's progress in establishing a reliable test standard for Cr(VI) in plastics to confirm regulatory compliance.

2011 Product Stewardship Goals and Performance

- **Recycled Plastics:** Recycled plastic used in IBM's products can range from 25 to 100 percent by weight of the commercial resin. In 2011, 35 percent of the total weight of plastic resins procured by IBM and its suppliers through IBM's corporate contracts for use in IBM's products were resins that contained between 25 and 100 percent recycled content. Comparing only the weight of the recycled fraction of these resins to the total weight of plastics (virgin and recycled) purchased, 12.4 percent of IBM's total weight of plastic purchases in 2011 was recycled plastic versus the corporate goal of 5 percent recycle.
- **Use of Landfills:** IBM's product end-of-life management operations worldwide processed more than 37,950 metric tons of end-of-life products and product waste, and sent only 0.4 percent of the total to landfills or to incineration facilities for treatment, versus IBM's corporate goal of minimizing its combined landfill and incineration rate to no more than 3 percent of the total amount processed.

Product Energy Efficiency*

- **Servers: IBM System p®:** IBM released three models of Power Systems™ servers for which previous models or generations existed. These new servers provide reductions of 7.5 to 54 percent in the typical power consumption per unit of relative performance compared to their previous generation system.

IBM System x®: The seven System x servers announced in 2011 for which comparison models existed provide reductions in watts/MTOPS** (the Japan Energy Saving Law metric) of 97 percent or greater over the previous generation server.

- **Point-of-Sale Terminals:** IBM introduced a new Self Checkout System (SCS) in mid-year 2011 that integrates the industry standard power management capabilities of the Point-of-Sale (POS) unit (IBM SurePOSTM 700), which is the heart of the SCS. The SurePOS 700 unit controls all the components of the SCS, powering down the whole system when it is not in use and enabling wake on LAN to be used to power it on for software maintenance as well as normal daily operation. This could save a retailer hours of power-on time for each SCS. IBM did not introduce any new POS systems in 2011.
- **Storage Subsystems:** IBM has upgraded the available hard disk drives for the IBM System Storage® DS3524, DS3524EXP, and DS8800, the IBM XIV® Storage System and the IBM Storwize® V7000 Unified Storage increasing the gigabyte/watt capacity metric by 13 to 50 percent. IBM continues to improve storage performance through its use of mixed drive systems with capacity and throughput improvements and optimization driven by software capabilities such as Easy Tier™, thin provisioning and storage virtualization.

* IBM's product energy goal is to continually improve the computing power delivered for each kilowatt-hour (kWh) of electricity used with each new generation or model of a product.

** MTOPS-million theoretical operations per second is a calculation of machine operations based on a specified formula.

Product Energy Efficiency

Product energy efficiency has long been one of IBM's environmental and climate protection objectives. It was formalized as one of the company's corporate objectives when IBM's Product Stewardship program was established in 1991. We have initiated and invested in innovations and integrated solutions through collaboration between IBM's Research and product development teams. These teams have also combined hardware and software innovations to improve the energy efficiency of IT equipment and data centers.

In addition to its internal focus, IBM continues to actively assist in the development of external product energy efficiency standards. As we did in 1992 when we helped to develop and were a charter member of the United States Environmental Protection Agency (EPA) ENERGY STAR Computer program, IBM is currently participating in the development of the ENERGY STAR specifications for server and storage devices, providing technical assistance and equipment operating data to assist in the development of criteria.

In 2009, the United States EPA finalized ENERGY STAR program requirements for computer servers. IBM added new product families to its IBM Power 730, 740 and 750 server systems and qualified seven newly released System x server systems during 2011. As of April 2012, IBM had 15 qualified server systems available on the market—four System p and 11 System x enterprise server systems. These servers meet the United States EPA's requirements for power supply efficiency, idle power limits or power management capability, and data reporting. A list of IBM ENERGY STAR qualified servers may be found on the IBM and ENERGY STAR page.

New Advancements for Increased Product Energy Efficiency Performance

The following are examples of new IBM technologies, software and solutions that have enabled the increased energy efficiency of IBM's servers and storage products:

- IBM engineers have utilized power management capabilities provided by the System x x86 server and POWER7® processors and memory and I/O components to reduce the power drawn by the server when no workload is present (idle power) by 25 to 65 percent when compared to the power used by the system at full workload.
- Storage systems are utilizing various software-based data management capabilities such as Easy Tier, thin provisioning and storage virtualization, which can reduce the number of terabytes required to accomplish a given storage task.
- Many IBM products are incorporating high efficiency power supplies. The new System x dx360 M4, 3650 M4 and 3550 M4 servers all utilize an 80 PLUS Platinum power supply, the highest power supply efficiency designation currently achievable under the 80 PLUS program. All System p power supplies achieved the 80 PLUS gold designation.
- IBM continues to improve server and storage system virtualization capabilities, enabling clients to increase the utilization and delivered workload from hardware investments.
 - The IBM System Storage SAN Volume Controller is a virtualization appliance that can increase storage utilization by as much as 30 percent regardless of manufacturer, and the XIV Storage System can operate efficiently at greater than 90 percent utilization.
 - IBM's System x, System p and System z® servers offer a full range of virtualization capabilities and workload systems optimized for virtualization to improve hardware utilization and increase the amount of work delivered per unit of energy consumed.

70%

less energy is required by the Hybrid Memory Cube while providing 15 times faster memory.

- IBM continues to innovate in semiconductor, hard drive, storage and networking technologies, utilizing virtualization and other software solutions to improve server and storage system performance for each unit of power consumed by the equipment, and to reduce the quantity of equipment required to deliver a specified set of workloads.

Innovations in Semiconductor Manufacturing

IBM's new 3D manufacturing technology is the foundation for commercial production of a Hybrid Memory Cube (HMC) that combines high-performance logic circuitry from IBM with a standard dynamic random-access memory (DRAM). The HMC provides up to 15 times faster memory in a 90 percent smaller package compared to memory products available today. The HMC requires 70 percent less energy to transfer data. Initial applications for the HMC include large-scale networking, high performance computing and industrial automation, followed by consumer products.

In a related effort, IBM is working with another company to jointly develop adhesives that will be used to package semiconductors into a densely stacked silicon package. The goal is to develop the industry's first "glue" that will make it possible to connect a stack of up to 100 separate chips. The process could enable the packaging of logic, memory and other types of functions into a single "brick" that would be 1,000 times faster than today's fastest semiconductors while keeping power usage low—which is key for many manufacturers, particularly those producing tablets and smartphones.

Appliance Systems

IBM is increasing our offerings of “appliance” systems which integrate hardware and software components to optimize performance and reduce energy use for the performance of specific workloads such as analytics and web applications. The IBM WebSphere® DataPower® Integration Appliance for zEnterprise® XI50z is a workload-optimized appliance that helps data and applications on different servers to communicate regardless of the type of platform. When integrated, this system can offer up to 23 times better price/performance when compared to competitive systems.

High Performance Computers (HPC)

IBM has a full menu of HPC systems: the Productive, Easy-to-Use, Reliable, Computing System (PERCS), IBM System Blue Gene®, iDataPlex®, and the Roadrunner supercomputer programs. IBM's supercomputer solutions are prevalent on both the TOP500 and Green500 supercomputer lists. In the November 2011 Green500 List, the top five spots are held by IBM Blue Gene/Q and 12 of the next 20 spots are held by iDataPlex systems. Technologies developed through IBM's HPC development efforts are leveraged across the entire IBM Systems and Technology Group product line to improve performance and energy efficiency.

Blue Gene has been identified as a leader in “green” supercomputing for available solutions every year from 2007 through 2011. The Blue Gene/Q utilizes a hydro-air cooled system, delivering a 9 percent savings on total data center power. The relative cooling cost for a Blue Gene/Q system decreased by 50 percent over the previous generation Blue Gene/P.

The IBM iDataPlex system was designed to meet the needs of high performance, large-scale Internet and cloud computing workloads at up to 40 percent lower energy consumption than 1U industry standard servers and BladeCenter® servers. Reduced energy use is achieved due to significantly lower air flow requirements and shared cooling fans, high-efficiency power supplies and a double-wide water cooled IBM Rear Door Heat eXchanger solution that can absorb 100 percent of the heat generated by the rack and virtually eliminate the need for air conditioning. The iDataPlex system was improved with the M4 update in early 2012,

which introduced an 80 PLUS platinum power supply, increased the idle to maximum power ratio to 63 percent, and offered increased computing capability.

The speed and expandability of IBM's High Performance Computing products have enabled business and science to address a wide range of complex problems and make more informed decisions—not just in the life sciences, but also in astronomy, climate, system simulations and modeling and many other applications. The use of HPC systems enable simulations of a wide range of activities, such as crash testing, vehicle or airplane designs and fuel burners, without the need to expend physical resources on prototypes or physical testing. IBM continues its leadership performance in a space-saving, power-efficient High Performance Computing package to address the most demanding performance applications.

Product Recycling and Reuse

As part of our product end-of-life management (PELM) activities, IBM began offering product takeback programs in Europe in 1989, and has extended and enhanced them over the years. IBM's Global Asset Recovery Services organization offers Asset Recovery Solutions to commercial customers in countries where we do business, including:

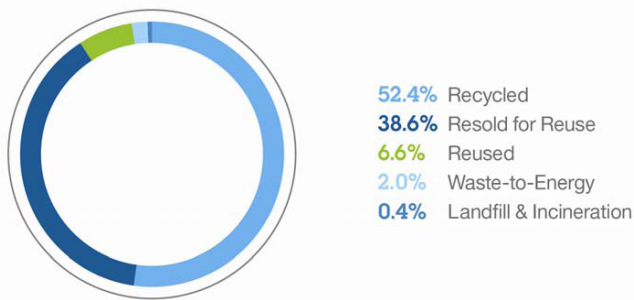
- Management of data security and disk overwrite services
- Worldwide remarketing network for product resale
- State-of-the-art refurbishing and recycling capability for IT equipment
- Optional logistic services such as packing and transportation

In addition, in many countries and individual US states, IBM offers solutions to household consumers for the end-of-life management of computer equipment, either through voluntary IBM initiatives or programs in which we participate.

In 2011, IBM's PELM operations worldwide processed more than 37,950 metric tons of end-of-life products for reuse or recycling. This represents 60 percent of the estimated 63,400 metric tons of new IBM IT equipment put on the market in 2011.

Product End-of-Life Management Operations

2011: Percentage by Weight



IBM's voluntary environmental goal is to reuse or recycle end-of-life products such that the amount of product waste sent by our PELM operations to landfills or to incineration facilities for treatment does not exceed a combined 3 percent of the total amount processed. In 2011, IBM's PELM operations sent only 0.4 percent to landfills or to incineration facilities for treatment.

From 1995, when we first began including product recovery in our annual corporate environmental report, through the end of 2011, IBM has documented the collection and recovery of an estimated 844,900 metric tons (over 1.86 billion pounds) of product and product waste worldwide.

Packaging

IBM has had a program focused on the environmental attributes of its product packaging since the late 1980s. Under the program, IBM packaging engineers design solutions that minimize toxic substances and packaging waste by specifying nontoxic materials and inks. We keep packaging to a minimum while continuing to provide protection to the product being shipped to clients, and collaborate with suppliers to use recycled and recyclable materials and promote reuse.

The design of rugged products and other optimization measures for the efficient use of protective product packaging are addressed within IBM's Product Stewardship program and associated engineering specifications. Efficient use of product packaging and less tangible environmental benefits associated with improvements in transportation efficiency are tracked through this program.

\$4.3 million

savings in annual materials and transport costs.

IBM's environmental requirements for product packaging are included in our Environmental Packaging Guidelines, which were first published in 1990 and have been updated as needed over the years. Key elements of IBM's Packaging Guidelines have also been embedded in various engineering specifications and procurement documents, which extend their reach beyond IBM to include our supply chain and other business partners. Find these documents on our [Information for Suppliers](#) page.

Protective product packaging

In 2011, the integrated worldwide packaging engineering team saved approximately 780 metric tons of packaging materials through the implementation of 24 packaging redesign projects for parts and assemblies shipped to manufacturing operations and for packaged products supplied to clients worldwide. These projects delivered an annual materials and transport cost savings of \$4.3 million. The following are highlights of a few of the key projects implemented:

- Storage system products were previously transported to customers in China using outer wooden crates to protect against the harsh nature of the shipping environment. Following a redesign, the primary corrugated cardboard box was strengthened, which allowed the outer wooden crate to be eliminated. Wood packaging materials savings of 65 metric tons per year were achieved with corresponding annual cost savings of \$416,100.
- The central processing unit option package of the IBM System x server was redesigned to eliminate the individual corrugated carton packaging for each part in the option package which consisted of processing chip, heatsink and fan module. Corrugated cardboard packaging savings of 10.8 metric tons per year were achieved with associated cost savings of \$88,600 annually.

- Certain Power Systems server products were packaged individually in a pizza box with four pizza boxes per carton. After the collaborative redesign between IBM and the supplier, four systems were packaged per carton in a bulk format. The redesign provided materials savings and solid waste reductions of 20.5 metric tons and associated cost savings of \$462,900 annually.
- Past Power System server chassis were packaged and shipped by the supplier to the IBM manufacturing location and the final manufactured product was then newly packaged prior to delivery to the customer. After the redesign, the chassis packaging was strengthened so it could be reused for final delivery of the completed product to the customer. The redesign eliminated the need for the use of new packaging resulting in a materials savings of 78 metric tons per year and a corresponding cost savings of \$508,000 annually.

When suppliers apply the design improvements achieved through collaboration with IBM to packaging designs for other customers, the environmental benefits and cost savings can be far-reaching.

IBM's Requirement for Sourcing Packaging Materials

IBM established our requirement for the responsible sourcing of paper and paper-/wood-based packaging in 2002. The requirement states that the paper and wood-based packaging directly acquired by IBM will be procured from suppliers who source from sustainably managed forests where such sources exist.

When this goal was first established, sufficient quantities of sustainable sourced packaging materials were not yet available for much of the company's needs. With a continued focus on this objective by IBM and our suppliers over the years, in 2011, 99 percent of the paper and paper-/wood-based packaging IBM procured worldwide came from suppliers who contractually warranted that the source was derived from forests managed in an ecologically sound and sustainable manner.

Product Safety

IBM's product safety requirements are included in various steps of the product development, test and manufacturing process. Our Integrated Supply Chain organization helps us ensure that our suppliers provide hardware compliant with current international requirements. Required reviews by IBM Product Safety Review Boards ensure that newly announced products comply with applicable standards and national regulations, and that IBM obtains third-party certifications where required.

Programs for continual improvement include internal and third-party assessment of IBM's product safety design and process implementation. These assessment results are fed back into the evaluation and development cycle. In addition, incident reviews provide effective capture of information and correction of product safety-related incidents.

IBM plays a leading role in the development of national, regional and international product safety standards for information technology products.

Solutions

IBM offers a variety of software and system solutions that enable companies, governments and other entities to improve the energy efficiency of their operations and systems. IBM has responded to climate protection, energy management and operational efficiency opportunities with a suite of offerings from products to services to help clients plan and develop greenhouse gas (GHG) inventory processes and management strategies to improve the efficiency of their data centers, buildings, core business processes, logistics and other operations. Four examples of our suite of "intelligent" products and services are described below.

Smarter Buildings

IBM Smarter Building Software is an advanced solution that optimizes the energy and environmental performance of buildings. This system monitors energy-consuming equipment, manages maintenance activities and reports performance using IBM software. The solution applies analytic rules to heating, cooling, lighting and power systems that identify sub-optimal conditions. It automatically identifies savings, takes immediate action to optimize performance and provides a performance dashboard for management.

We are also deploying IBM's Smarter Building technologies to increase the energy efficiency of our own facilities. We leverage these technologies to uncover opportunities to achieve further efficiency improvements above the results generated from our longstanding, strong energy conservation programs. In 2011, our IBM Intelligent Building Management solution was deployed at 10 locations with plans for deployment at an additional 18 locations in 2012. Early saving results show a reduction of 12 percent or greater of the annual operating cost of the equipment connected to the Smarter Building Solution is possible.

Route Optimization

IBM offers Cognos® and Sterling Transportation Management Software Solutions to assist companies in optimizing their freight and transportation systems to increase container/truck capacity utilization on each trip, optimize routing and improve on-time delivery. These software products assist our clients in a range of industries to improve their efficiency, and reduce their fuel use and carbon emissions.

Rosenau Transport, a midsized business specializing in regional general freight transport in Canada, equipped its fleet of trucks with on-board technology to optimize routes, reduce fuel consumption and provide clients with up-to-the-minute alerts to keep track of their shipments. A performance analysis of the telemetric information utilizing IBM Cognos software helps determine the optimal load and vehicle configuration, reducing their fuel use and carbon footprint. It enables Rosenau's customers to make informed supply chain decisions even before shipments arrive.

IBM logistics solutions are being utilized by many clients to achieve logistics efficiency.

Wind Farm Management

IBM has created a portfolio of solutions that include software, field technologies, analytics and short-range weather forecasting to help wind farm operators optimize the performance of turbines, better predict and balance power output and commercialize wind output as a trading commodity.

We offer a suite of software tools to enable the management of maintenance and operations for wind farm installations. The instrumentation and interconnectedness of the IBM Wind Power Suite generates the data for proactive alerts and work orders.

Advanced analytics and insight can enable better asset management decisions in near or real-time. In turn, the whole system becomes more efficient, reliable, adaptive—in a word, smarter.

IBM also provides computing solutions to optimize the electricity generation from wind farms. We are partnering with a commercial wind turbine manufacturer to deliver improved turbine siting capability using a supercomputer to execute an IBM-designed data modeling solution to slice weeks off the analysis of turbine placement decisions. The solution also reduces response time, managing wind forecasting information to improve wind farm electricity generation. These solutions are helping to address the variability of wind resources by better forecasting electricity generation levels to enable renewables to be more efficiently integrated into the grid.

Electrical Vehicles

IBM is developing solutions to manage electric vehicles within the electricity grid system. We are involved in three levels of system design and integration:

- Integration of electric vehicles into the electricity grid to manage demand: Many renewable sources of energy, such as solar or wind power, can be used to augment the traditional generation of electricity, but only if the sun is shining or the wind is blowing. With the introduction of electric cars on a large scale, the power grid will have significant battery storage capacity attached to it. IBM is engaged in the development of the software and systems needed to manage and integrate electric vehicles into the grid infrastructure.
- Design of Electric Vehicle Software systems: IBM software tools have been a key contributor to the development of the Chevrolet Volt. GM engineers used IBM products to develop some of the Volt's critical electronic controls for the vehicle's innovative battery system, electric drive unit and cabin electronics.
- Battery Development: IBM researchers, along with colleagues in other companies and organizations, including national labs, have announced plans to develop a commercially viable lithium-air battery. Such a battery would use lithium, an energy-dense, highly flammable metal, to react with the readily available oxygen in the air to provide a battery with sufficient energy density to expand the range and capabilities of electric vehicles.

Energy and Climate Programs

IBM recognizes climate change as a serious concern that warrants meaningful action on a global basis to stabilize the atmospheric concentration of greenhouse gases (GHGs). We believe all sectors of society, the economy and governments worldwide must participate in solutions to climate change.

Climate Change

IBM has been a leader in addressing climate change through its energy conservation and climate protection programs for decades. [Learn more about our position and policy on climate change.](#) IBM's leadership is defined by our:

- Longstanding global commitment
- Comprehensive and multifaceted programs—covering the company's operations, products and services
- Leading-edge innovations and client solutions
- Significant results, both early and ongoing, benefiting IBM, our clients and the world

A Five-Part Strategy

We have a five-part strategy to reduce the GHG emissions related to our operations:

1. Designing, building, updating and operating facilities, including data centers and manufacturing operations, that optimize their use of energy and materials and minimize GHG emissions
2. Purchasing electricity generated from low CO₂-emitting and renewable energy-generating sources where feasible
3. Minimizing the use and emissions of perfluorocompounds (PFCs—a family of GHGs) in semiconductor manufacturing
4. Reducing employee commuting and business travel
5. Increasing the efficiency of IBM's logistics operations

In addition, in the area of our hardware and software products and services, IBM's strategy includes designing energy efficient products and providing clients with energy efficient solutions that also help protect the climate.

175,000

metric tons of CO₂ emissions avoided through IBM's energy conservation projects

IBM does not have plans to use emissions offsets to become “carbon neutral” for all or part of its operations. Our efforts to reduce IBM's GHG emissions are focused on delivering results in the areas where the company can make the greatest positive impact on climate protection—by devoting available resources to actions, products and solutions that actually increase energy efficiency and reduce GHG emissions for both IBM and our clients, rather than offsetting them.

Conserving Energy

IBM's commitment to energy conservation dates back to 1974 and has continued, unabated, over the intervening years. Energy conservation is a major component of our comprehensive, multifaceted climate protection program because the release of CO₂ by utility companies powering our facilities, or from the use of fuel for heating or cooling, represents the greatest potential climate impact associated with our operations.

In 2011, IBM's energy conservation projects across the company delivered savings equal to 7.4 percent of our total energy use versus the corporate goal of 3.5 percent. These projects avoided the consumption of 378,000 megawatt-hours (MWh) of electricity and 326,000 million BTUs of fuel oil and natural gas, representing the avoidance of 175,000 metric tons of CO₂ emissions. The conservation projects also saved \$43 million in energy expense. These strong results are due to the continued, across-the-board focus on energy demand reduction, efficiency and the implementation of standard, global energy conservation strategies for facility operating systems.

IBM's energy conservation goal recognizes only identified projects that actually reduce or avoid the consumption of energy in our operations. Reductions in energy consumption from downsizings, the sale of operations and cost avoidance actions, such as fuel switching and off-peak load shifting, are not included in the results for measuring performance against achieving this goal. Moreover, the above results are conservative in that they

include only the first year's savings from the conservation projects. Ongoing conservation savings beyond the first year are not included in the tally. Accordingly, the total energy savings and CO2 emissions avoidance from these conservation actions is actually greater than this simple summation of the annual results.

Electricity And Fuel Use And Related CO2 Emissions

(Scope 1 and 2 CO2 emissions)

	Electricity and Fuel Use (thousand MMBTU)	CO2 (EST) (metric tons x 1,000)
2007	23,638	2,541
2008	22,443	2,502
2009	21,507	2,436
2010	21,622	2,156
2011	21,758	2,182

IBM uses the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard developed by the World Resources Institute and the World Business Council for Sustainable Development for estimating and reporting its CO2 emissions.

CO2 emissions data includes the CO2 avoidance associated with IBM's purchases of renewable energy.

Between 1990 and 2011, IBM saved 5.8 billion kWh of electricity consumption, avoided 3.7 million metric tons of CO2 emissions (equal to 55 percent of the company's 1990 global CO2 emissions) and saved \$442 million through its annual energy conservation actions.

Our global energy management program leverages the expertise of more than 40 IBM energy management professionals deployed around the world. The team has created best-practices checklists that set minimum expectations for building systems and operations, including controls and equipment for lighting, HVAC, central utility plants (CUPs), compressed air, data center and IT systems, cafeterias and office systems. All IBM sites using 2,000 MWh/year or more of energy must complete the checklists, perform a gap analysis and develop an energy conservation implementation plan a minimum of every three years. The program is buttressed by several enterprise-level databases that collect and store energy-use data, conservation project results and completed checklists, enabling monthly metrics reporting to the management team. The continuous review of energy use and conservation performance has driven the strong results noted above.

5.8 billion kWh

of electricity conserved

We use a full range of energy efficiency initiatives in achieving our results. In 2011, more than 2,300 energy conservation projects were completed at 364 IBM locations around the world.

Some examples:

- Projects to match building lighting and occupancy schedules or to install more efficient lighting systems were implemented at 203 locations, reducing electricity use by 16,220 MWh and saving \$1.9 million.
- HVAC systems or operating schedules were modified at 155 locations, reducing electricity use by 41,870 MWh and fuel use by 97,130 MMBTU, saving \$5.2 million.
- CUP projects were implemented at over 60 locations:
 - Boiler and chiller optimization projects reduced electricity use by 12,330 MWh and natural gas use by 2,790 MMBTU, saving \$1.4 million.
 - Free cooling projects reduced electricity use by 11,890 MWh and natural gas use by 1,700 MMBTU, saving \$1.6 million.
 - Equipment upgrades reduced electricity use by 14,900 MWh and natural gas use by 2,500 MMBTU, saving \$1.6 million.
- Re-commissioning projects at 12 locations delivered reductions of 14,800 MWh of electricity use and 32,100 MMBTU of fuel use, saving \$1.2 million.

3.7 million

metric tons of CO₂ emissions avoided

IBM is also implementing innovative, leading-edge technologies that enable real-time management of energy use. We are deploying IBM's Smarter Building technologies to increase the energy efficiency of our own facilities. In 2011, IBM deployed this solution at 10 of its highest energy consuming facilities with an additional 18 locations planned for deployment in 2012. In two of the initial projects, the IBM Rochester, Minnesota, and Silicon Valley Lab, California, facilities reduced energy consumption associated with air handlers by 12 percent and 8.3 percent respectively. Together, the energy reductions at these two sites generated significant savings. When fully deployed, the Smarter Building application will be used at facilities that represent 50 percent of IBM's energy usage—reducing consumption, eliminating GHG emissions and saving an estimated \$5 million in annual operating expense by 2015.

Data Centers

IBM manages a diverse portfolio of data centers, consisting of both IBM and IBM-managed customer facilities all over the world. IBM also operates additional raised floor space to support our internal operations as well as design and test centers for our Systems and Technology Group and Software Group.

We take a holistic approach to managing our data center portfolio, building new, high-efficiency data center space where we need to expand our raised floor space to meet the needs of existing and new customers, and retrofitting and improving existing data center space to increase utilization and derive more workload per area, equipment and energy resources. These efforts are accomplished through the following initiatives:

1. Building new high-efficiency data center space. IBM's most recent data center expansions in the United States have achieved LEED certification and use state-of-the-art design and system techniques to enable PUE measurements of 1.4 to 1.6 when the data center is fully populated. PUE (Power Usage Effectiveness) is the ratio of the total power required at the data center divided by the power required to operate the IT equipment.
2. Implementing best practices and thermal monitoring programs at our existing data centers to optimize cooling delivery and minimize energy use and cost.
3. Virtualizing and consolidating existing workloads for our internal operations and customer accounts, and utilizing cloud computing capabilities where it provides leverage to our operations and our client operations. Virtualizing workloads allows a single server to support multiple applications or images, making use of the full capabilities of state-of-the-art IT equipment and executing more workload in less space with less energy.

New Data Center Construction

IBM's most recent data center expansion, constructed in 2011 in New Zealand, uses state-of-the-art design and system techniques to enable PUE measurements of less than 1.4 when the data center is fully populated. The data center has several leadership characteristics:

- Smarter data center management: Intelligent building systems connect IT equipment with the centralized energy consumption analysis system, constantly measuring power, water and fuel use in real-time to identify opportunities to conserve energy in line with demand.
- Free-flow cooling: Energy consumption is reduced by taking advantage of free cooling—using the outside air to cool the data center, and rain water stored in over-sized underground pipes for cooling tower make-up. By extracting heat through plate exchangers connected to each cooling tower, this free cooling is made possible for longer periods, even in Auckland's sub-tropical climate. The facility also uses the cool temperatures of the public water supply to pre-cool outside air before releasing it to the data center systems.

- **Variable speed fans:** The data center cooling system uses variable speed fans with directed air flow into the raised floor space, dampers on the perforated floor tiles to manage cooling air flow, and a ducted air return system to optimize the efficiency and coverage of the cooling air delivery.
- **Building standards:** The entire structure is built to a targeted Building Green Star rating of four stars, a targeted Office Green Star rating of five stars and a targeted Data Center Green Grid Level 2 rating.
- **Cloud computing capability:** Built to global IBM cloud architecture specifications, the data center is enabled for virtualization, auto provisioning, metering and billing, and integrated service management to allow clients to access IT resources as they are needed.

Existing Data Centers

In 2011, we completed 228 projects at 86 existing data center locations that reduced energy use by over 33,700 MWh, and saved more than \$3.8 million. These projects included blocking cable and rack openings, rebalancing air flow, and shutting down, upgrading and reprovisioning air flow from computer room air conditioning units. Total savings from these projects are equivalent to the energy use of a 4,000 to 6,000 square meter IBM strategic data center.

IBM's Measurement & Management Technologies, a thermal monitoring management system, was installed at 40 data centers. This innovative technology from IBM Research produces a real-time three-dimensional thermal map of the detailed heat sources and sinks within a data center, allowing for accurate identification and mitigation of data center hot spots and increased data center operating temperatures, with attendant reductions in cooling requirements.

As an example, implementation of best practices, thermal balancing of the raised floor, and increasing the raised floor temperature by 2°F at IBM's Rochester, New York, data center achieved an annual 7.3 percent reduction in energy use in the raised floor area.

Our Global Technology Services business unit initiated a program to verify that x86 servers have power management capabilities enabled when they are installed in IBM data centers. Based on server purchase data and a conservative estimate of idle to maximum power ratio and server utilization rates, this effort is estimated to have reduced electricity use across IBM data centers by 5,000 MWh in 2011.

System Virtualization and Cloud Computing

Virtualizing workloads allows a single system to support multiple applications or images, making use of the full capabilities of state-of-the-art IT equipment and executing more workload in less space with less energy.

IBM is utilizing virtualization technologies to consolidate multiple workloads from servers and storage systems with low utilization onto single systems, reducing energy use and cost by more than 142,000 MWh and \$16.5 million in 2011. IBM has virtualized more than 90,000 applications in our owned/leased data centers in the past three years, moving them from single-use systems to either existing or new virtualized servers or storage systems, and we are continuing to implement virtualization projects at a similar pace in 2012, with an expectation of similar results in improved operational efficiency and lowered capital and operating costs.

We expanded IBM's cloud computing programs over the course of 2010 and 2011. Cloud computing is an efficient model for providing IT services, representing a computing services model that optimizes the use of virtualization technologies. It allows us to better balance workloads, adjust power consumption and virtualize infrastructure in data centers to better align processing needs with power consumption. IBM has established a globally integrated cloud delivery network with centers in New Zealand, Singapore, Germany, Canada and the United States, including the leadership data centers in Raleigh, North Carolina, and Boulder, Colorado, along with 13 global cloud labs.

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IBM data centers in 15 different countries were awarded "Participant" status in Data Center Energy Efficiency, based on the EU Code of Conduct for Energy Efficient Data Centers.

Voluntary Data Center Energy Efficiency Initiatives

In January 2012, the European Commission (EC), the executive body of the European Union (EU), awarded 27 IBM Data Centers in 15 different countries in the EU with "Participant" status in Data Center Energy Efficiency, based on the EU Code of Conduct (CoC) for Energy Efficient Data Centers. The registered data centers represent more than 70 percent of IBM's strategic outsourcing data center space in the EU. The honor represents the largest portfolio of data centers from a single company to receive the recognition to date. The EU CoC is a voluntary initiative that aims to promote energy efficiency performance standards for data centers.

IBM maintains energy efficiency leadership in its data centers by deploying uniform practices across its global data center portfolio. In addition, IBM applies innovative solutions such as Measurement & Management Technologies thermal monitoring and control system, virtualization technologies, dynamically managed air conditioning control systems and development of alternate power systems such as the direct current solar system at IBM's Software Group lab in India.

IBM data center and IT system professionals continue to be involved in governmental and professional data center energy efficiency initiatives including the EU CoC for Energy Efficient Data Centers program, ENERGY STAR and The Green Grid initiatives. These programs set operating criteria or metrics that inform and encourage data center operators and owners to reduce energy consumption in a cost-effective manner while enabling operators to maintain the mission-critical functions of their data centers.

Renewable Energy

In 2011, IBM purchased 518 million kWh of renewable energy. These purchases represented 10.2 percent of the company's global electricity usage and a CO2 emissions avoidance of 215,000 metric tons. IBM continued to contract for renewable energy purchases in Australia, Austria, Belgium, Denmark, Finland, Japan, Netherlands, Sweden, Switzerland, the United Kingdom and the United States in 2011. Renewable electricity purchases declined by 7.6 percent from 2010 to 2011 due to varying market conditions and renewable energy availability in the various markets in which IBM purchases renewable energy. IBM's energy conservation efforts and its procurement of renewable energy in 2011 combined to avoid the emissions of 390,000 metric tons of CO2.

IBM endeavors to procure renewable energy to power its data center operations whenever it is available and financially reasonable. Of the 27 data centers registered to the EU CoC, 18 receive some or all of their electricity from renewable generation sources. In the United States, both the Boulder, Colorado, and Raleigh, North Carolina, data centers receive a portion of their electricity from renewable sources.

Research to Advance Renewable Energy

In addition to procuring renewable energy for our own use, IBM is working to further the availability and affordability of renewable energy by investing in IT-related research and development. Three recent examples:

- **IBM Teams With Bureau of Energy Efficiency to Prepare for India's First Smart Grid Project**

In May 2011, IBM announced a collaboration with The Bureau of Energy Efficiency (BEE) in India to create the country's first smart grid project. Together they will create a cost-benefit analysis for smart grid activities as part of the National Mission for Enhanced Energy Efficiency (NMEEE). A BEE project, NMEEE is one of eight national missions that promote innovative policy and regulatory regimes, financing mechanisms and business models that help sustain the market for energy efficiency.

Through this project, IBM plans to apply our deep services expertise to help determine smart grid readiness in India. We will lay out a strategic assessment framework that looks at the adoption of new smart grid technologies and identifies alignments in policy and regulatory frameworks to make each solution possible. We will help BEE determine global smart grid potential and also create toolkits for regulators and utilities to assess the benefits of smart grid investment decisions.

- **IBM Joins European Consortium to Build a Smart Grid Using Renewable Energy**

In October 2011, IBM announced we had joined a collaborative consortium to help develop an energy grid that uses at least 50 percent of renewable energy sources such as wind power, solar energy and biogas. Led by an EU-funded consortium, the EcoGrid EU project will demonstrate a smart energy grid that allows smart devices to use renewable electricity based on near-real-time pricing and availability.

With 16 partners from 10 different countries, the project will continue for the next 48 months with set goals to increase consumer interest in smart grids, and develop new technologies that will improve energy forecasting and cost balancing, as well as reduce the congestion and losses across the distribution grid.

- **IBM and Sustainable Energy Authority Ireland Focus on Renewable Energy**

In October 2011, IBM announced a collaboration with The Sustainable Energy Authority Ireland (SEAI) to understand and minimize the environmental impact of converting wave energy into electricity. This project, the first to utilize real-time streaming analytics for monitoring underwater noise generated by wave energy conversion devices, represents a significant step toward the ability to successfully and sustainably utilize the ocean as a new renewable energy resource.

CO2 Emissions Reduction

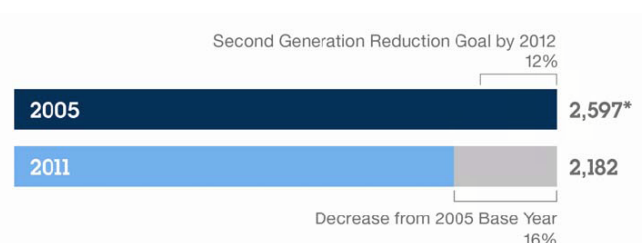
IBM has committed to reduce our operational CO2 emissions in accordance with the objective detailed in the adjacent sidebar. As of year-end 2011, our energy conservation results and procurement of renewable energy resulted in a 16 percent reduction in our energy-related CO2 emissions from the 2005 base year of this goal. Operational CO2 emissions increased slightly from 2010 to 2011 primarily due to the decrease in renewable electricity purchases and associated 12.9 percent decrease in avoided CO2 emissions.

IBM's CO2 emissions reductions have been achieved through the actions outlined below. In addition, improvements in the CO2 emissions profile of the electricity that IBM purchased also had a favorable, albeit limited, impact on the company's performance.

- IBM's energy conservation efforts have reduced or avoided a total of 1.5 million MWh of electricity and 2.7 million MMBTU of fuel use (based on one-year savings associated with conservation projects) from 2006 to 2011, which represents a reduction in IBM's electricity and fuel use of 2.6 percent and 23.2 percent, respectively, against the 2005 baseline use adjusted for acquisitions and divestitures.
- IBM purchased 518,000 MWh of electricity generated from renewable sources in 2011, resulting in an avoidance of 215,000 metric tons of CO2 emissions associated with the generation of the electricity used by IBM. We contract for these purchases through programs sponsored by suppliers or the responsible utility.

CO2 Emissions Reduction

Metric Tons x 1,000



*2005 emissions baseline adjusted for acquisitions and divestitures of operations

PFC Emissions Reduction

IBM releases some perfluorocompounds (PFCs) from our semiconductor manufacturing operations. Although the releases are in relatively small amounts (in CO₂ equivalents, when compared to IBM's indirect CO₂ emissions), IBM was the first semiconductor manufacturer to set a numeric reduction target for PFCs in 1998. We subsequently set a second generation goal to achieve an absolute reduction in PFC emissions from semiconductor manufacturing of 25 percent by 2010 against a base year of 1995. We exceeded this goal by reducing IBM's PFC emissions by 36.5 percent at year-end 2010.

IBM is presently evaluating a third generation goal for PFC emissions reduction. A separate but relevant activity is the Semiconductor Industry Association's current work with the United States Environmental Protection Agency (EPA) to update various parameters (e.g., process emissions factors, emissions abatement system destruction efficiencies) and methodologies for estimating PFC emissions from semiconductor operations. IBM plans to incorporate, as appropriate, the updated factors and methodologies at the conclusion of this industry and EPA effort in establishing its next generation PFC emissions reduction goal.

While our goal-setting process is underway, we continue to take actions to reduce our PFC emissions and monitor performance. Between 2010 and 2011, we reduced our PFC emissions by 2.8 percent—primarily as a result of work at the Burlington, Vermont, facility where C₂F₆ was substituted by C₄F₈ in several chamber clean processes in the 200 mm fab. C₄F₈ is more fully utilized in the clean process and has a lower global warming potential than C₂F₆.

IBM also monitors two other materials with global warming potentials that are used in connection with manufacturing operations: 1) nitrous oxide (N₂O), which is used in the manufacture of semiconductors but has lower global warming potential than the PFC gases; and 2) heat transfer fluids that are primarily used in tool-specific chiller units associated with manufacturing processes.

- IBM emitted 29,200 metric tons of CO₂e of N₂O, which has a lower global warming potential than the PFC gases used in its semiconductor operations.
- IBM generated a CO₂e of 51,000 metric tons from fugitive emissions of heat transfer fluids used in chiller systems.

In addition to monitoring emissions, IBM continues to evaluate preferable replacements for these materials. At IBM's Burlington facility, a wafer test team completed a two-year project to qualify a new non-conductive heat transfer fluid used in tool-specific chiller units. The new fluid fills the microscopic air gaps between the wafer chuck and the physical wafer, on wafer test equipment. It has a lower vapor pressure and a lower global warming potential, resulting in fewer process fluid losses and reducing the metric tons of CO₂e emitted from the process by more than two orders of magnitude and the fluid expense by over \$100,000 a year.

Voluntary Climate Partnerships

IBM continued its participation in the World Wildlife Fund's Climate Savers program in 2011, working toward the committed reduction goal: Between 1990 and 2005, we reduced or avoided CO₂ emissions by an amount equivalent to 40 percent of our 1990 emissions through our global energy conservation program. To extend this achievement, we intend to reduce CO₂ emissions associated with our operational energy (electricity and fuel) use by 12 percent between 2005 and 2012 through energy conservation and the purchase of renewable energy.

Under Climate Savers, IBM has also committed to improving the energy efficiency and energy utilization of our internal and clients' data centers through activities and offerings for data center best practices, measurement and monitoring programs, and virtualization and consolidation programs. Activities in support of this commitment are detailed in the Data Centers section above.

Though the United States EPA discontinued the Climate Leaders program in 2010, IBM intends to meet the second generation GHG reduction commitment we set under the Climate Leaders program: To reduce total global GHG emissions by 7 percent from 2005 to 2012. We achieved our initial goal by reducing total global energy-related GHG emissions by an average of 6 percent per year and PFC emissions by 58 percent from 2000 to 2005.

Transportation and Logistics Initiatives

Employee Commuting and Leased/Rental Vehicles

IBM has been active in promoting programs that reduce the commute to work for our employees. Key contributors to this effort are IBM's two flexible work programs:

- **Work-at-home:** Enables many employees to work from a home office
- **Mobile employees:** Enables many other employees to work from home a designated number of days each week

In 2011, more than 128,000 of our employees (29 percent) globally participated in one of these two programs, which not only helps employees balance their work and personal responsibilities, but also benefits the environment. In the United States alone, IBM's work-at-home program conserved approximately 6.4 million gallons of fuel and avoided more than 50,000 metric tons of CO₂ emissions in 2011.

IBM joined the reconstituted United States Best Workplaces for CommutersSM (BWC) program in 2009. Currently, 22 IBM locations are registered as BWC sites, which represent approximately 60 percent of the company's United States employees. Many locations actively work with their local or regional transit commissions to integrate IBM's programs with regional programs to increase commuting options for the company's employees. Globally, many of our locations provide support for the use of public transit systems, including shuttles from locations to mass transit stations, and alternate transportation or "loaner" cars for business trips during the workday.

In some countries, IBM provides leased vehicles for employees as part of their compensation package. In these cases, we continue our effort to move to more fuel-efficient vehicles by setting standard guidelines for smaller engine sizes with lower emissions profiles. These guidelines enable reductions in average car emission levels as their car fleets are renewed. For the cars our employees rent while travelling, we have worked with rental car companies to require and/or offer higher mileage vehicles for employee rentals.

Business Travel

In 2011, IBM further expanded the use of collaboration tools, both internally and externally, which provides business efficiency and boosts productivity by connecting our global workforce 24/7 while reducing travel-related resource consumption and emissions. We conducted more than one million online meetings and exchanged more than 15 billion instant messages. We also have increased our use of video conferencing to help reduce the need for travel while enabling team interaction. In addition to more than 400 video-equipped IBM conference and briefing rooms globally, we completed work on an initial IBM Sametime[®] desktop video pilot to extend video capability to employees' desktops. Expansion of this capability through further global desktop video pilots is planned for 2012.

Efficiency of Logistics

IBM is reducing the CO₂ emissions associated with transporting our products through the efficient design of our packaging, working with suppliers on their packaging designs and optimizing logistics. In the area of logistics, IBM has been an active member of the United States EPA's SmartWay Transport Partnership since 2006.

SmartWay is a voluntary initiative to improve fuel efficiency and reduce GHG emissions associated with logistics operations.

Since 2009, 100 percent of IBM's spend for shipping goods within the United States and from the United States to Canada and Mexico went through a SmartWay logistics provider. IBM also voluntarily applies specific SmartWay requirements to our distribution operations globally.

IBM's packaging programs also help reduce transport-associated CO₂ emissions by reducing the volume and weight of the company's product shipments through innovative packaging design. Accomplishments in this area are discussed in the Product Stewardship section of this report.

Energy and Climate Protection in the Supply Chain

During 2011, we continued our focus on working with IBM's supply chain to foster greater energy efficiency and climate protection.

- As noted elsewhere in this report, IBM is committed to doing business with environmentally responsible suppliers. We require that all of our "first-tier" suppliers—those firms with which we hold a direct commercial relationship—establish and sustain a management system to address their corporate and environmental responsibilities—including their use of energy. They are also required to measure their performance, establish voluntary, quantifiable goals in this area and publicly disclose their performance against those goals.
- IBM has been an active participant in the Electronic Industry Citizenship Coalition (EICC) Carbon Reporting System, which completed its third year of operation. EICC requests that selected suppliers providing components or products to EICC members disclose their operational energy and water use and GHG emissions to EICC via any one of the following means: a spreadsheet tool developed by EICC, responding to a Carbon Disclosure Project (CDP) Questionnaire or a company's Global Reporting Initiative (GRI) report. As companies gain an understanding of their energy use and GHG emissions, we believe they are more likely to take actions to improve their performance. EICC and its member companies have developed education modules to assist suppliers in developing their energy use and GHG emissions inventories. Companies in the electronics industry share many suppliers, and the EICC GHG emissions disclosure process is expected to provide efficiency associated with information disclosure.

- Through the CDP's Supply Chain program, IBM and other participating companies are focused on how suppliers are addressing climate change and working to reduce GHG emissions. As a participant in the program, IBM invited 107 of our suppliers to respond to the CDP's Supplier Questionnaire in 2011 (reporting 2010 data). These 107 companies represent a cross-section of IBM's supplier expenditures. They included service, general and production-related suppliers, as well as third-party data centers, logistic suppliers and rental car companies.

Of the 107 IBM suppliers that received questionnaires, 93 responded. The 86 percent response rate exceeded the 44 percent average response rate for the companies participating in this CDP program. The following are highlights of the findings from the responding suppliers:

- 93 percent report Scope 1 & 2 GHG emissions
- 67 percent have a GHG emissions reduction target in place
- 97 percent have undertaken emissions reductions initiatives

IBM concluded its participation in the CDP supply chain project in 2011. We remain committed to doing business with responsible suppliers, and we believe we can be more effective if we focus our resources through the EICC by leveraging its programs and network within the IT hardware, software and services sector. Participation in the EICC Carbon Reporting process allows us to more efficiently reach a broader set of companies, including medium-sized and smaller enterprises, to build their capabilities and improve and report their performance in energy and water conservation and GHG emissions reduction.

IBM's Position on the Determination of Scope 3 GHG Emissions

Gross approximations of Scope 3 GHG emissions can help entities recognize where the greatest amounts of GHGs may occur during the lifecycle of a typical process, or general product or service on a macro level. This can be helpful when assessing, for example, what phases of a general product's design, production, use and disposal are ripe for improved energy efficiency and innovation. However, IBM does not assert on a micro level what the Scope 3 GHG emissions are from the operations of our suppliers and external distribution partners in their work that is specific to IBM, or associated with the use of our products and services. The necessary estimating assumptions and corresponding variability simply do not allow for adequate credibility, let alone calculations that could be perceived as deterministic.

Like many manufacturers, IBM has thousands of suppliers around the world. They are in all types of businesses and very few, if any, work solely for IBM. Furthermore, the sources of energy used by these suppliers vary, and IBM does not believe we could determine a credible estimate or apportionment of the energy used by these suppliers that would be associated with the products or services provided to IBM versus that associated with products or services provided to other companies and customers. In addition, IBM's specific scope of business with any given supplier remains dynamic, as it is driven by business need.

Moreover, one company's asserted Scope 3 emissions are another company's Scope 1 and Scope 2 emissions. Since the ultimate goal for climate protection is for global societies to achieve demonstrable reductions in actual GHG emissions, IBM believes real results in GHG emissions reduction are directly achieved when each enterprise takes responsibility to address its own emissions and improve its energy efficiency. This is reinforced by IBM's announcement in 2010 that all of our first-tier suppliers will be expected to develop a management system, inventory their key environmental impacts, including GHG emissions, and develop reduction plans for those key impacts.

Remediation

When groundwater contamination was first discovered at one of IBM's sites in 1977, the company initiated groundwater monitoring at all of its manufacturing and development locations worldwide. Today, IBM has 2,677 monitoring wells and 107 extraction wells.

In 2011, 16,069 pounds of solvents from past contamination were extracted while remediating, controlling and containing groundwater at six currently operating sites and 11 former sites in three countries. At four of these sites, an additional 1,837 pounds of solvents were removed by soil vapor extraction or other methods. IBM also has financial responsibility for remediation at two other former sites.

As a result of the United States Superfund law, IBM is involved in cleanup operations at some non-IBM sites in the United States. The Superfund law creates a retroactive responsibility for certain past actions, even though they may have been technically and legally acceptable at the time.

As of year-end 2011, IBM had received notification (through federal, state or private party) of its potential liability at 110 sites, since the beginning of the United States Superfund program back in 1980. Of these, 57 are on the United States National Priority List. At the majority of the 110 sites, it has been determined that IBM either never had liability or has resolved its potential liability. As of now, IBM believes it may have potential liability at only 17 sites noticed through 2011.

When investigation and/or remediation at an IBM location or an off-site facility is probable, and its costs can be reasonably estimated, IBM establishes accruals for loss contingency. Estimated costs connected with closure activities (such as removing and restoring chemical storage facilities) are accrued when the decision to close down a facility is made. As of December 31, 2011, the total accrual amount was \$262 million.

Audits and Compliance

IBM measures its environmental performance against both external and internal requirements.

Every year, and more frequently for some, IBM's manufacturing, hardware development and research sites and organizations—such as Product Development, Global Real Estate Operations, Global Asset Recovery Services, Global Logistics and Global Service Environmental Compliance—complete a comprehensive self-assessment. Each year, certain sites are audited for environmental, health and safety compliance by IBM's Corporate Internal Audit staff. Audit results are communicated to top management. Follow-up, accountability and actions are clearly delineated.

In addition, as part of IBM's single, global registration to ISO 14001, approximately 25 sites or registered entities are audited annually by an independent ISO 14001 registrar. The company's manufacturing, hardware development and chemical-using research sites are audited by either the Corporate Internal Audit team or the external ISO 14001 registrar at least once every two years.

Accidental Releases

IBM sites around the world report environmental incidents and accidental releases to IBM management through the company's Environmental Incident Reporting System (EIRS). IBM's environmental incident reporting criteria are equal to or exceed legal reporting requirements, and every event meeting IBM's reporting criteria must be reported through EIRS. Each IBM location must have a documented incident prevention program (including provisions for preventing environmental incidents or their recurrence) and reporting procedure.

In 2011, a total of 27 accidental releases of substances to the environment related to IBM operations were reported through EIRS. Of these, 10 were to air, eight to land, three to water, and six to both land and water.

Emissions to the air included nine releases of refrigerants and one release of a fire suppression gas.

Releases to land included two releases of diesel fuel, two releases of hydraulic fluid and one release each of chilled water, treated domestic water, untreated industrial wastewater and a petroleum substance.

Releases to water included two releases of water from fire protection systems and one release of hydraulic fluid.

Releases to both land and water included one release each of untreated industrial wastewater, chilled water, treated industrial wastewater, potable water, sprinkler water and well water.

The root cause was investigated for all releases and corrective actions were taken as appropriate. None of the releases were of a duration or concentration to cause long-term environmental impact.

Fines and Penalties

One significant measure of a company's environmental performance is its record of fines and penalties.

In 2011, IBM received 83 successful agency visits worldwide with no fines being assessed.

Over the past five years, IBM has paid three fines for a total amount of \$31,000.

Fines and penalties worldwide (\$ in thousands)

	2007	2008	2009	2010	2011
Number	1	0	2	0	0
Fines	\$1.0	\$0.0	\$30.0	\$0.0	\$0.0

Supply Chain

To meet our global business needs, IBM uses a broad supply chain of well over 20,000 suppliers in nearly 100 countries. IBM takes social responsibility in its supply chain seriously. In this section, you will find examples of how we set requirements for the companies we do business with, assess and encourage them to improve their environmental and socially responsible performance, continue to grow the global diversity of our supply base, and collaborate with other stakeholders and industry groups to help advance the practice of supply chain responsibility in multiple areas.

IBM's supply chain continued its evolution in support of our product and services offerings to our global customers. With suppliers located in close to 100 countries, social and environmental responsibility is a major facet of our corporate responsibility efforts. As described in the following sections, this area continues to grow in terms of IBM's own efforts and in collaboration with other parties.

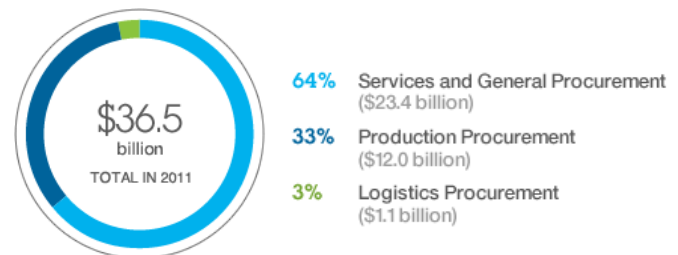
IBM's supply chain is an asset that helps us to deliver consistently high quality goods and services to our customers on a local and global level. We are very much aware of the importance that comes with having a supply chain of this magnitude and, as such, we have crafted our social responsibility efforts in unison with our providers to promote sustainable performance as a shared objective.

In recognition of IBM's leadership in advancing supply chain social and environmental management systems, the Institute of Supply Management, in May 2011, honored IBM with the Award for Supply Chain Excellence for Sustainability. While we were grateful for this recognition, we also realize that our responsibilities in this area are continually evolving and developing. And to this end, in light of the increased interest that many stakeholders have in our global supply chain, this report provides enhanced transparency and data for the initiatives described herein.

Supplier Spending: \$36.5 Billion Total in 2011

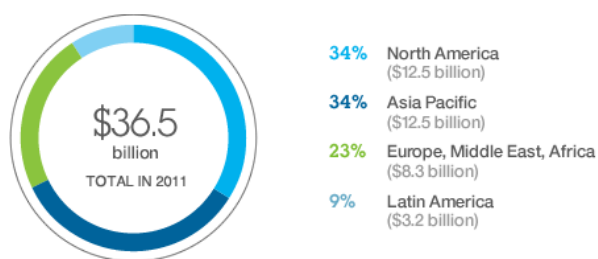
2011 Supplier Spending by Category

Dollars in Billions



2011 Supplier Spending by IBM Location

Dollars in Billions



In 2011, approximately 90 percent of our global spend in Production and Logistics Procurement (in support of our hardware and logistics business operations) occurred with the following firms:

Acbel Polytech	Kingston Technology
Altis Semiconductor	KLA-Tencor
Amkor Technology	Kyocera
Applied Materials	Lam Research
ASML	Lenovo
Avago Technologies	Maxim
Benchmark	Micron Technology
Brocade	Molex
Celestica	NEC
Cisco Systems	NetApp
Compro Business Services	QLogic
Dai Nippon Printing	Quantum
Delta Electronics	Samsung
Emerson Network Power	Seagate
Emulex	Shin-Etsu Handotai
Endicott Interconnect	SMART Modular Technologies
Flextronics	STEC Technology
Fuji Electric	Tel-Ad Electronics
Geodis	The Karrie Group
GLOBALFOUNDRIES	Tokyo Electronic Ltd.
Hitachi	Toshiba
Hon Hai	Venture
Hynix	Volterra
Intel	Wistron
Jabil Circuit	Xyratex

And in Services and General Procurement (in support of our software, services and overall operations) approximately 45 percent of our global spend was with the following firms:

Adecco Group	Internet Initiative Japan
American Express	Johnson Controls
Artech Information Systems	Jones Lang LaSalle
AT&T	Juniper Networks
CA Technologies	LeasePlan
CBRE Group	Lenovo
CDI	Manpower
Cisco Systems	Marriott
Collabera	Microsoft
CTG	Mitsubishi
Deloitte Touche Tohmatsu	MW Group
Delta Air Lines	Oracle
EMC	Platinum Equity
Ernst & Young	Randstad
Fluor	Ricoh
Fujitsu	Rocket Software
GDF Suez	SAP
George P. Johnson	SHI International
Hays	Sumitomo
Hertz	SDI International Corp.
Hewlett-Packard	TES
Hilton	Verizon
Hitachi	Worldwide TechServices, LLC
Infinite Computer Solutions	WPP Group
Infor Global Solutions	ZeroChaos

Supplier Assessment and Improvement Plans

In today's interconnected world, more is expected from all parties in the extended supply chain. This means that IBM works closely with suppliers to encourage the development of best practices and foster the spirit of continuous improvement.

Global Supply Social and Environmental Management System

In 2010, IBM Global Supply introduced its Social & Environmental Management System (S&EMS) to its worldwide supply chain. The requirements therein can be summarized as follows:

- Define, deploy and sustain a management system that addresses corporate responsibility, including social and environmental stewardship
- Measure performance and establish voluntary, quantifiable environmental goals
- Publicly disclose results associated with these voluntary environmental goals and other environmental aspects of their management systems
- First-tier suppliers to cascade these requirements to their own suppliers

In 2011, we embarked on the next step to implement an assessment process to determine if suppliers were meeting these requirements. Baselines were established for what is considered an acceptable level of performance, and suppliers presented evidence of their compliance to S&EMS requirements. To date, the majority of IBM's Production Procurement (hardware) suppliers and its Services and General Procurement suppliers have demonstrated they have a management system in place to address their company's social and environmental responsibilities.

In November, we hosted a Supply Chain Sustainability Summit, bringing together a representative group of suppliers, thought leaders in supply chain management from industry and academia and other invited guests from the industry and related non-profits. The objective of the event was to increase awareness of the growing importance of corporate social and environmental programs. IBM and the attendees shared insights from their own experiences, including the challenges they faced and the benefits

1,100

initial audit assessments measuring supplier compliance from 2004 through 2011.

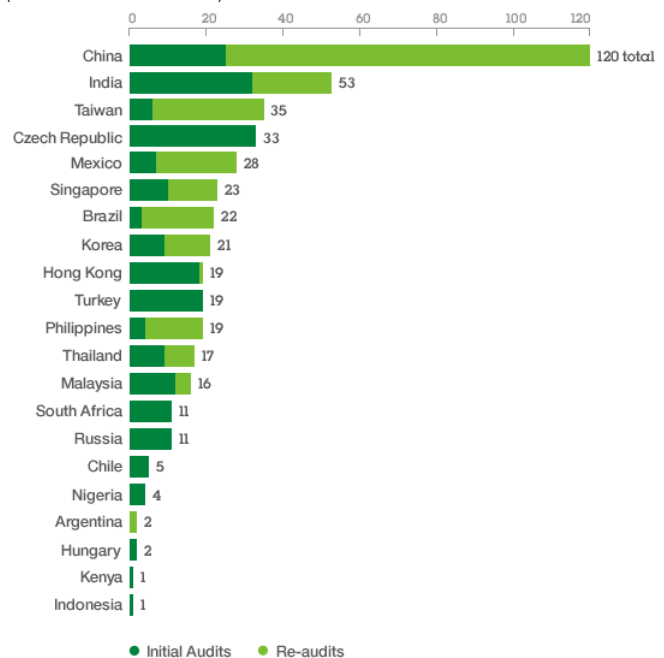
they realized (and expected) from taking a systematic approach to managing their interactions with their employees, society and the environment.

Supply Chain Social Responsibility (SCSR)

Our focus on Supply Chain Social Responsibility (SCSR) has been evident over the past eight years. In each successive year, we have assessed a larger portion of our supply chain in the developing world, and we believe that has helped produce improvements in working conditions for thousands of people working in the supply chain in the electronics sector. In 2011, we conducted 222 full audits and 240 re-audits for a total of 462 assessments of suppliers in 21 countries, the largest single year activity to-date. And we launched assessments for the first time in Turkey, Russia, Nigeria, Kenya and Indonesia.

2011 IBM SCSR Completed Audits by Country

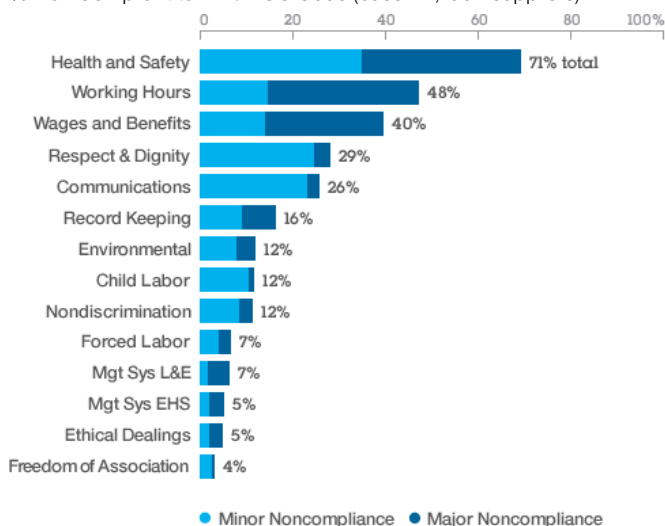
(462 Audits Conducted)



2011 activity lifted IBM's total to over 1,100 initial audits of suppliers in an eight year span, with cumulative results illustrated in the chart below. These assessments measured supplier compliance to the Electronic Industry Citizenship Coalition (EICC) or the IBM Codes of Conduct. IBM is the largest user of the EICC's Validated Audit Process (VAP), directing all hardware supplier assessments through this collaboratively-developed approach, which provides a common process for sharing results and eliminating costly duplicate assessments.

Supplier Initial Audit Results—Global Cumulative (2004–2011)

% Non Compliant to IBM/EICC Code (base = 1,100+ suppliers)

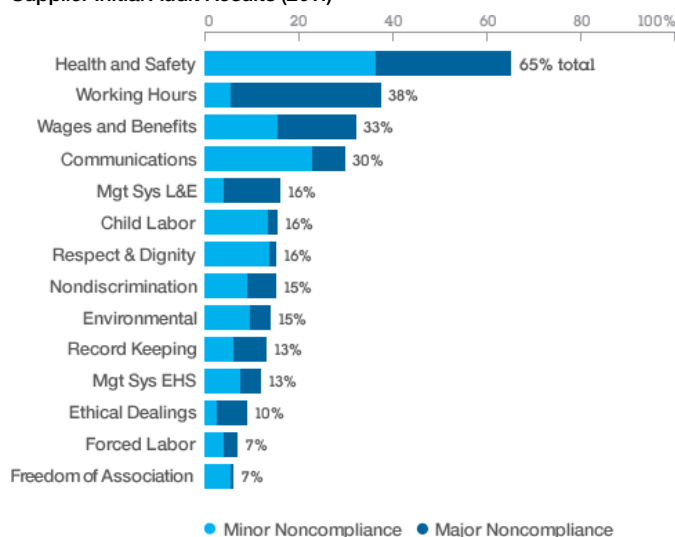


Audits performed in the following countries: Argentina, Brazil, Chile, China, Czech Rep, Hong Kong, Hungary, India, Indonesia, Kenya, Korea, Malaysia, Mexico, Nigeria, Philippines, Poland, Romania, Russia, Singapore, Slovakia, South Africa, Taiwan, Thailand, Turkey and Vietnam

For comparative purposes, the performance of suppliers assessed for the first time in 2011 is depicted in the chart below. There are two primary observations from this data. First, compliance has improved in the areas of Working Hours and Respect and Dignity. These improvements are the result of greater awareness of social responsibility across the global supply chain driven by supplier education, the spread of the EICC Code of Conduct, and the efforts of firms to improve working conditions at all levels in the extended supply chain. However, even with these improvements, initial audits still demonstrate that assessments are needed to identify and resolve issues. In particular, this data

also contains the results of assessments conducted in countries where audit activity has only recently begun. It should also be noted, the major noncompliance in the Child Labor provision was associated with the lack of policies and practices to fully check pre-employment age documentation. In no instances were underage workers found in these audits.

Supplier Initial Audit Results (2011)



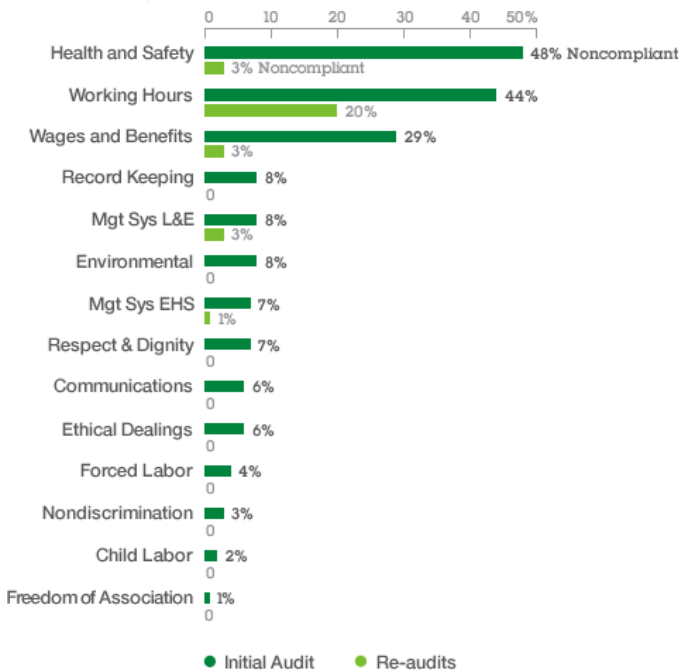
% Non Compliant to IBM/EICC Code (base = 200 suppliers)

IBM's supplier assessment approach requires audited suppliers to create and submit a Supplier Improvement Plan (SIP) for all noncompliance discovered. The SIP links audit findings to root causes with improvements vetted through a re-audit following the completion of all improvement actions. During 2011, 473 SIPs (covering hardware and services suppliers) were reviewed and accepted (from suppliers audited during the previous 12 months) all within 90 days of the initial audit.

The effectiveness of our Audit-SIP-Re-audit approach can be seen by comparing the "before and after" results of suppliers experiencing a complete cycle, as illustrated by the chart below. Re-audits conducted on 240 Production and Services & General Procurement suppliers can be compared with their initial audits (conducted in the 2009–2011 time frame). For ease of reading and comparison, only major noncompliance results are depicted in the chart.

Comparison of 240 assessments measuring initial supplier compliance versus re-audits compliance

(major noncompliance levels illustrated)



With regard to a number of code provisions, major noncompliance was completely resolved: Record Keeping, Protection of the Environment, Respect and Dignity, Communications, Ethical Dealings, Forced Labor, Nondiscrimination, Child Labor and Freedom of Association. In all other areas substantial reductions in noncompliance were also realized, including a 50 percent improvement in Working Hour compliance. However, Working Hours still remained as the largest area of noncompliance, and while this is unsatisfactory, it is consistent with our knowledge of the challenges associated with full resolution of this aspect of code compliance. Overall, 75 percent of re-audited suppliers had no major noncompliance after completion of one cycle—a significant achievement. IBM Global Supply is working on contingencies with its suppliers that have remaining noncompliance. The IBM Global Supply leadership team reviews and tracks supplier results on an ongoing basis. Supplier assessment results are compiled and reviewed on a monthly basis by line executives and on a quarterly basis by IBM's Chief Procurement Officer.

2011 Center of Excellence for Product Environmental Compliance

IBM has a global Center of Excellence (CoE) for Product Environmental Compliance, with end-to-end responsibility for meeting product-related government environmental requirements. The CoE's mission includes the development of strategy, processes, deployment plans, research and development of alternate materials and technologies, and education and training materials. The CoE also is active in several industry and regulatory bodies around the world. Year over year the number of environmental regulations continues to increase not only in number but also in complexity. The types of regulations addressed include prohibited substances, product take back programs and product energy usage.

Industry Collaboration

In 2011, IBM grew its engagement with the [Electronic Industry Citizenship Coalition](#) (EICC). Founded in 2004, and incorporated in 2007 as a non-profit industry group, the EICC has continued to make strides toward its objective of having a sector that consistently operates in a socially and environmentally responsible fashion. As one of the founding members, IBM has encouraged its suppliers to join the group and participate in the development and deployment of its code of conduct and utilize the available tools to drive improvements in compliance. At year-end, the EICC consisted of 65 international companies in the electronics, software, logistics and communications industries, representing five tiers of business. IBM continued to serve as Chair of the Board of Directors, and expanded its representation in a number of working groups including Learning and Capability Building, Extractives/Conflict Minerals, Asia Program outreach, Governance Taskforce and the Finance Committee. Through the collective efforts of 65 companies the EICC reached the following notable accomplishments in 2011:

- Expanded the Validated Audit Program to cover 19 countries.
- Commissioned creation of two additional supply chain training programs on Health and Safety and Worker Management Communications
- Refined and expanded its carbon reporting system for supply chains.
- Developed and deployed analytical tools for use in identifying conflict minerals in the supply chain.

In addition to participating in the EICC, IBM is also active in two regional organizations in the Guadalajara/Jalisco region of central Mexico. Jalisco's electronic cluster plays a key role in Mexico's development as well as contributing to Mexico's GDP. IBM, along with other major electronic companies, have established collaboration mechanisms through industry chambers, CADELEC and CANIETI: CADELEC (Cadena Productiva de la Electronica)—(Electronic's Productive Chain) and CANIETI (Camara Nacional de la Industria Electronica y Tecnologias de Informacion)—(National Chamber of Electronic Industry and Information Technologies). IBM has active participation on both chambers and was a founding member of CADELEC.

Through these chambers IBM actively participates and collaborates in different activities ranging from teaming with universities to develop the skills required by the electronic industry, working with government (local and federal) to design and promote economic incentives, and more recently social responsibility by evaluating local and regional suppliers' practices and providing education through seminars and dedicated workshops on CSR.

Through these groups there is engagement for industry stakeholders, and open communication channels are maintained with local NGOs providing a direct link between EICC members operating in Mexico and these parties. IBM's collaboration now provides a wider dimension on the Jalisco community since the chambers' seminars and workshops are open not only to the electronic industry suppliers but also to other industry sectors such as construction, footwear and jewelry manufacturing.

Conflict Minerals

IBM and other member companies of the [Electronic Industry Citizenship Coalition](#) (EICC), in conjunction with the [Global e-Sustainability Initiative](#) Supply Chain Work Group (GeSI), have continued working on the objective of achieving an electronic supply chain free of DRC conflict region-originated minerals. As introduced in the prior report, four minerals (tin, tantalum, tungsten and gold) originating in the Democratic Republic of Congo (DRC) are considered conflict minerals, although these same materials are often found in other parts of the world and from legitimate sources within the DRC that are not conflict-related.

In the past year, IBM formulated and published its conflict minerals standard outlining our recognition of the adverse impacts of the situation and our plans to take definitive steps to keep these materials out of our extended supply chain. This standard is posted to the Global Supply website and has been brought to the attention of our upstream suppliers.

In 2011, EICC/GeSI published its Conflict Free Smelter (CFS) assessment results for the first group of companies that went through this rigorous assessment. The CFS assessment process is directed to smelters and refiners that play a key role in the extended supply chain, as they are the point at which concentrated ores are refined into the higher level materials that ultimately flow into technology products.

This year also saw the release of the EICC/GeSI Conflict Minerals Reporting Template and Dashboard. This survey (and desktop consolidation software) was developed to provide companies with a common survey format for their upstream suppliers to identify the use of the four materials, the smelters used in the extended supply chain and where possible, the country of origin of the four minerals. In the third quarter of 2011, IBM deployed this survey template to 38 direct suppliers of subcomponents to our Microelectronics group. From this work, we learned the identities of over 100 upstream tantalum, tin, and tungsten smelters and gold refiners, located in 21 countries, currently used by our direct suppliers. This information has empowered us to take action to direct these smelters to the EICC/GeSI CFS program. In addition, we were able to share the consolidation of these survey results with over 30 customers of the Microelectronics group in support of external interest in this topic.

During 2012, we plan to deploy this template with direct suppliers to our Systems and Technology group to gain insight to the upstream smelters feeding into that portion of our extended supply chain. This work is in support of our published standard and in preparation for reporting that will be required by the United States Security and Exchange Commission relating to section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Supplier Diversity

IBM is committed to diversity in all parts of its business—and has been for more than one hundred years.

IBM's history of maintaining a diverse supply chain is no exception. The company first established a global supply chain diversity program in 1968. This was four years before the establishment of the National Minority Supplier Development Council (NMSDC) and 29 years before the Women's Business Enterprise National Council (WBENC). We are the first IT company to conduct more than \$1 billion of business with diverse suppliers in the United States. And we learned early on that fostering diversity is not only the right thing to do for society, but for business as well. A diverse supplier base not only provides talent, it also helps add stability throughout our supply chain—and promotes economic growth in local communities.

In 2011, IBM conducted \$3.2 billion of global business with first- and second-tier diverse suppliers. Of that, \$2.5 billion was conducted with first-tier suppliers (world wide), up from \$2.3 billion in 2010, inclusive of \$881 million of business with first-tier, non-US-based diverse suppliers.

Also, a full-time supplier diversity position was created in the U.K. in 2011 to give added focus to diversity in Europe, the Middle East and Africa. In 2010, IBM created a full-time supplier diversity position in China, one of the first companies to do so. These positions were created because supplier diversity is not as well known in many other countries, especially as compared to workforce diversity. IBM continues to place emphasis on these growth markets.

For these and other accomplishments over the course of 2011, IBM's Program Director of Global Supplier Diversity, Michael K. Robinson, received the Executive Leadership Award at the 2011 Congressional Minority Business Awards Gala, and he was recognized by Asian Enterprise Magazine as their Advocate of the Year. In 2010 Michael was honored by the National Minority Supplier Development Council (NMSDC) as the 2010 Minority Supplier Development Leader of the Year.

In addition to the NMSDC, IBM is a founding member of the Women's Business Enterprise National Council the National Gay and Lesbian Chamber of Commerce, United States Business

Leadership Network and the Canadian Aboriginal and Minority Supplier Council. IBM participates in additional international organizations focused on supplier diversity, such as the Australian Indigenous Minority Supplier Council, Minority Supplier Development United Kingdom, Minority Supplier Development China, South African Minority Supplier Development, WEConnect Canada, WEConnect Europe, WEConnect India and the International Gay and Lesbian Chamber of Commerce.

Since the inception of IBM's Supplier Diversity Program, IBM has received hundreds of awards in recognition of its efforts. In the past 11 years, the company has received more than 100 corporate and individual awards from local, regional, national and federal entities. This past year was particularly noteworthy, as IBM's efforts in maintaining a diverse supply chain were recognized by more than two dozen organizations. Among the top honors were:

- Top Corporation by the Women's Business Enterprise National Council
- US Department of Energy's Mentor Award
- Champion of Veterans Enterprise Award from the National Veterans Small Business Coalition
- Recognition by the USHCC (US Hispanic Chamber of Commerce) as a member of their Million Dollar Club
- Induction into the WBE (Women Business Enterprise) Hall of Fame
- 2011 Executive Leadership Award presented to Michael Robinson at the Congressional Minority Business Awards Ceremony
- Supplier Diversity Corporation of the Year by the USBLN (United States Business Leadership Network) for accomplishments with the Disability Supplier Diversity Program

Looking forward, IBM plans to grow the diversity of its supply chain as our business needs continually evolve. IBM works with its supply chain teams to clearly define its requirements in both direct and indirect supply areas, and IBM has actively sought and worked with diverse suppliers that might be able to meet those requirements over time. And we continue to work with diverse suppliers—especially our second- and third-tier suppliers—to help them grow their capacity. This work will continue for many years to come.

Governance

IBM has maintained a culture of ethics and integrity for more than 100 years. We strive to adhere to the highest standards of conduct, and in many cases set the example for what it means to be a well governed corporation. We do this by maintaining a rigorous system of corporate governance. In this section, you will find examples of the many ways we govern the conduct of the company, manage risk, and contribute our expertise to public discourse.

IBM Senior Management is ultimately responsible for our economic, environmental and social performance, as well as complying with IBM's overall compliance programs. Corporate responsibility at IBM is integrated across the business through the following forums:

Corporate Responsibility Steering Committee

Our Corporate Responsibility Steering Committee comprises senior executives from functional areas across the business and is chaired by the vice president for Corporate Citizenship. The Committee meets periodically to provide leadership and direction on key corporate responsibility issues. Each functional area is responsible for the development of its own corporate responsibility goals and strategy, with organization-wide goals approved by the Steering Committee.

Corporate Responsibility Working Group

Our Corporate Responsibility Working Group consists of representatives from 10 functional areas (including global representation) and meets at least monthly to manage IBM's corporate responsibility activities and stakeholder engagement across the company. The Working Group reviews key policy and strategic issues and makes recommendations to the Steering Committee throughout the year.

On a day-to-day basis our activities are coordinated in the Corporate Citizenship & Corporate Affairs organization, which reports to the senior vice president for Marketing and Communications.

Stakeholder Engagement

At IBM, we view stakeholder engagement as much more than communications and consultation. For us, it is about business engagement and collaboration—working shoulder-to-shoulder with communities, governments and the social sector.

Here are a few examples:

- Jams use IBM's large-scale electronic collaborative brainstorming platform to garner stakeholder input and engagement on a scale not previously possible in real time—accelerating the development of solutions to society's most enduring problems. Jams bring together thousands of representatives from not-for-profit organizations, corporations, academic institutions

and government agencies to have real-time, virtual discussions around social and business issues ranging from security and privacy in the digital age to the future of service and volunteerism. For example, ServiceJam, held in 2010, brought together more than 15,000 representatives of not-for-profit organizations, corporations, academic institutions and government agencies in a discussion on how social innovation can help solve our world's largest problems.

- We use a variety of social media to help us more deeply engage with our extended IBM workforce and community. This includes our retirees through the IBM On Demand Community, our online system of community engagement, and a range of in-depth social collaborations as we beta test technology breakthroughs with community organizations, teachers, students and parents worldwide.

We also actively seek to work with organizations that are taking similarly innovative, global, open and collaborative approaches to corporate citizenship and sustainability.

Our memberships include:

- AmCham-China CSR Committee
- Business for Social Responsibility
- Center for Climate and Energy Solutions (C2ES)
- Confederation of Indian Industry National Committee on CSR
- CSR Asia
- CSR Europe (IBM is a Board Member)
- Eco-Patent Commons
- Electronic Industry Citizenship Coalition (IBM is the Chair)
- Environmental Law Institute
- European Academy of Business in Society (IBM is a Board Member)
- Points of Light Institute Corporate Council
- World Environment Center
- World Wildlife Fund Climate Savers Program

Business Conduct Guidelines

Each year, IBMers demonstrate the importance of trust and personal responsibility in all relationships by reading and certifying to IBM's [Business Conduct Guidelines](#). The Business Conduct Guidelines, at their most basic level, are a description of the conduct we establish for all IBMers to comply with laws and ethical practices wherever we do business.

IBM employees who interact with government clients, or who have access to government confidential information, must exercise due care to properly navigate the unique requirements in that environment. This year we refreshed the Government Client Guidelines, a supplement to IBM's Business Conduct Guidelines.

By establishing these guidelines decades ago and giving them the weight of a governing document, we have embraced the proposition that our choices and actions define IBM for others and that our relationships—with clients, investors, colleagues and the communities in which we live and work—are built on our core value of trust and personal responsibility.

Privacy and Security

Today's digital society is built on the fast flow and analysis of information. The strides we make in gathering, routing and analyzing torrents of data hold the promise of an ever-brighter future, a vision we at IBM refer to as Smarter Planet.

But behind these data are real people, real organizations and real concerns about privacy and security. At IBM, we take these concerns very seriously.

Privacy

IBM believes that consideration for privacy and data protection must be built into the fabric of our business, and our society, in order for individuals and organizations to realize the promises of social progress and economic growth offered by our increasingly interconnected and data-driven world.

The economic value of information continues to increase, and much of that information relates to us as individuals. This information, and how we use it, is at the heart of new business models, new jobs and new ways in which individuals and businesses organize and connect with one another around the globe. Institutions of all types—including businesses—must work to

earn the public's trust in their ability to steward information, and in turn we as consumers must take educated steps to protect ourselves and our families.

IBM has long been a pioneer in privacy policy and practice:

- Early 1970s—first company in the world to adopt a global privacy code of conduct
- 2000—one of the first companies of any size to appoint a chief privacy officer
- 2005—first company to adopt a global genetic nondiscrimination and privacy policy
- 2010—recognized as “Most Trusted for Privacy” in the technology industry in the United States and Canada

In 2011, IBM launched a number of new initiatives around privacy, and expanded others already underway. Some of these programs are designed to help organizations in need of expertise in these areas, some share what works at IBM with the rest of the world, and others strive to promote consideration of privacy and security in the realm of public policy.

Pro Bono Privacy Initiative

According to Independent Sector, a coalition of not-for-profit organizations, foundations and corporate giving programs, there are 1.4 million not-for-profits in the United States serving the broad public interest by providing services such as homeless shelters, domestic violence assistance and nutrition support. Given the staggering growth of digital data, these organizations are increasingly likely to encounter issues related to privacy and personal data security that they must understand, analyze and address.

In 2011, IBM took part in creating an initiative dedicated to providing these not-for-profit organizations with free legal and other advice on responsible and pragmatic practices for protecting individual privacy and data security. Called the Pro Bono Privacy Initiative, this group of privacy professionals aims to engage with human services agencies to help them navigate mission-critical privacy and data protection considerations. As part of the initiative's pilot, IBM is sharing its data security and privacy expertise with Safe Horizon, the largest victims' assistance agency in the United States.

The Pro Bono Privacy Initiative is designed to help:

- interested not-for-profits improve their compliance and risk posture
- participating privacy professionals give back to society while enriching their experience and networks
- supporting companies, law firms and consultancies demonstrate corporate citizenship

Privacy by Design

IBM has done extensive work to build a globally recognized enterprise privacy program, and in 2011 we furthered those efforts by sharing our experiences with others. Our progress in turning privacy policy into practice is summarized in this case study written about IBM by Ann Cavoukian, Ph.D., information and privacy commissioner of Ontario, Canada. Cavoukian is a globally recognized leader in privacy initiatives who is attributed with developing the concept of Privacy by Design.

The paper discusses the importance of designing data protection policies into every operation in an organization, and describes how IBM used the principles of Privacy by Design, despite our geographically dispersed and culturally diverse workforce. In doing so, IBM has been able to become proactive, meet business objectives, and create a user-centric environment that fosters respect for privacy.

Cavoukian writes: “For IBM, such a strategic focus on privacy has enabled process improvements that demonstrably link to reduced operational costs and documented compliance. Beyond the foundational objectives at the heart of every organization's privacy program, the team at Big Blue discovered that Privacy by Design enabled them to tackle more ambitious challenges—ones that directly supported the business strategy of the company.”

IBMPrivacy.com

In 2011, we launched IBMPrivacy.com, a site that offers resources and discussion about privacy and data protection for large enterprises, small businesses and not-for-profit organizations. In doing so, IBM hopes to help demystify the privacy and data security issues that all organizations must address in today's digital world. By proactively developing privacy plans based on current and practical knowledge, organizations will be better

positioned to achieve their overall missions in a way that maintains their good reputation and also enhances compliance.

Among the resources available free of charge from this site are Security & Privacy Made Simpler, a toolkit and guide offered in the United States by the Better Business Bureau that was informed and co-sponsored by IBM and other leading experts and corporations. There's also Privacy & Security Resources, presented by the Bureau of Consumer Protection office of the United States Federal Trade Commission. And, for a fee, visitors can download "Building a Privacy Program: A Practitioner's Guide," published by the International Association of Privacy Professionals.

Cybersecurity

Security is an important aspect of the entire lifecycle of any system, from design and architecture through to implementation, testing, deployment, maintenance and retirement. Today, organizations and individuals are confronting heightened risks and security threats as IT moves further into the fabric of business and consumer systems. The sizeable increase in online criminal activity compounds the challenge.

At IBM, we recognize and consider cybersecurity challenges when conceiving, developing and marketing our technology solutions. But we also recognize that it is important to collaborate with public and private organizations that build market awareness of these issues and implement policy governing them. We understand the benefit of providing education as well as technology.

Community Engagement

In support of that understanding, IBM took part in Safer Internet Day, held in early 2012. This year's theme was "Connecting generations and educating each other." IBM released free Internet safety training tools for students and deployed thousands of volunteers around the world to help educate consumers and businesses on Internet safety and digital awareness. The kits are designed to help teach teenagers how to protect their personal data and reputation online, to give teachers or adults working with children information on Internet safety and common Internet activities that young people engage in and to help adults recognize and prevent cyberbullying among youth.

Other External Engagements

In 2011, IBM also expanded its Institute for Advanced Security to help clients, academics, partners and other businesses understand, address and mitigate complex, multidisciplinary issues associated with securing cyberspace. Formed in 2010 with headquarters in Washington, DC, the Institute opened an office in Asia-Pacific in 2011, providing assistance to countries within the region to help mitigate a range of emerging security complexities. IBM also opened a division of the institute in Europe to help European organizations understand the complex issues associated with addressing their cybersecurity challenges by leveraging IBM's broad array of security scientists, researchers and experts.

IBM also continued its strategic engagement with government organizations to assist them as they grapple with their role in addressing cybersecurity in today's changing risk environment. For example, in response to NATO Secretary General Anders Fogh Rasmussen's call for European allies to adopt a smarter approach to maximizing scarce defense resources, IBM in 2011 joined with the Atlantic Council to help develop strategies and practical road maps for NATO's modernization to confront future challenges. This initiative focuses on providing thought leadership and innovative policy-relevant solutions for NATO's continued reform and role in cyber defense and security. "Aligning with IBM allows the Council to continue our cutting edge work on transatlantic security challenges, focusing on NATO reform and cybersecurity," said Frederick Kempe, president and CEO of the Atlantic Council. "We are especially pleased to work in concert with IBM, a global leader in leveraging technology to increase value, flexibility and productivity across the private and public sector."

Secure, Smart and Social Computing Programs

IBM recognizes the value that social computing can bring to a company, both for internal employee interaction and building stronger relationships with customers, providers and partners. But the use of social media can also introduce risk. We realize that if not managed correctly, individuals' engagement with social and other computing technologies can work against an organization's relationship-building efforts and pose significant security threats.

Thus, in 2011, IBM took several additional steps to fortify the company's ongoing risk management efforts. We formalized an internal Social Business Management Council, a cross-company group of senior leaders charged with aligning the company's social business strategies with risk mitigation priorities, as well as leading our employee education and enterprise policy initiatives in this area. We continued to review and update the IBM Social Computing Guidelines and we are deploying mandatory employee security education and an interactive set of resources to emphasize and reinforce secure social computing called the "Digital IBMer Hub." We've also developed social recruiting guidelines that outline how social media can and should be used by employees during the recruiting process, as well as an employee guide for managing digital reputations that stresses the importance of individuals taking responsibility for their own online personas. Finally, recognizing the changing risk environment in which all organizations now operate, we updated and streamlined the resources available to IBM's entire workforce for reporting suspicious incidents involving data or IT systems, and we continue to devote resources to support expert response efforts.

Enterprise Risk Management

Managing risk is a complex and nuanced business discipline. Every strategic decision within an enterprise carries with it both risk and opportunity.

And because IBM's business could affect our many stakeholders—our shareholders, clients, business partners and employees—it is critical that the company takes a strategic and disciplined approach to Enterprise Risk Management (ERM). This includes the consideration of risk in strategy formulation, anticipating risks associated with the execution of chosen strategies and managing risk in the operations of the enterprise. We believe that effective risk management is critical to helping protect and enhance the value of the company.

For example, the company has benefited from its investments over the past several years in growth markets. The focus now is on geographic expansion of IBM's presence, and on creating markets and new business models to take advantage of the opportunities, while managing the risks. As we pursue our entry into specific markets, we inform our strategies with analysis of the attendant risks and strive to manage them in ways that are consistent with our economic, environmental and social responsibilities.

Another key element of the company's strategy has been focused on becoming the premier globally integrated enterprise. In the early part of the decade, the company drove implementation of a consistent set of processes and standards worldwide to reduce inefficiencies and improve collaboration. With its processes integrated, the company then implemented a new operating model with work shared in global resource centers of excellence located where it made the most business sense.

The company is now embarking on the next generation of its transformation in which new capabilities and technologies such as business analytics and cloud computing will be rolled out to help drive performance. The proven principles of the globally integrated enterprise will be applied to all of the company's spending to continue to drive additional productivity benefits in shared services, integrated operations and end-to-end process transformation.

In conjunction with our internal business transformation and global integration initiatives intended to improve quality and productivity and enable rapid scaling, we implement comprehensive risk mitigation strategies.

One of the most effective ways to manage risks in a global enterprise is to integrate a culture of risk identification, analysis and mitigation throughout the company. We began by infusing that culture into the business units, one of the most important dimensions since that is where risk may be taken for commercial gain, and subsequently focused on the geographic units and on the enterprise processes.

In 2011, senior management continued to be engaged in a collaborative approach to identifying, evaluating and managing enterprise-level risk. This included communication with the Audit Committee of the Board of Directors because an overall review of risk is inherent in the Board's consideration of IBM's long-term strategies and in transactions and other matters. In addition, our senior vice presidents, consistent with their accountability for managing risk to acceptable levels, have led the work for various identified risks. A key aspect of their leadership is the governance model and management system they put in place to foster collaboration and transparency in managing risk. This enterprise purview enables risk mitigating actions taken in one part of the business to be standardized and applied globally, across

business units. And risk management is integral to our executive compensation, which is designed to motivate our leaders to deliver a high degree of business performance without encouraging excessive risk-taking.

Throughout the company, the approach we take to identifying and managing risk is based on the ISO 31000 ERM Standard. We consider and assess potential financial, operational, regulatory and other risks to our business. And setting the context is especially important. There are risks we encounter because of where we do business, how we do business and the nature of our offerings. It is particularly challenging to identify risks that have not been previously identified. We continue to try to enhance our risk identification process. In 2011, for example, we reviewed several sources to assist with identifying risks, including our peers' 10K filings and industry surveys. We worked with leading consultants. And we conducted a rigorous self-examination that included several rounds of reviews with approximately 100 key executives. This effort resulted in some key changes to the set of enterprise-level risks that will receive senior executive focus in 2012. Benchmarking activity has shown that IBM's ERM program goes beyond key standard elements to emphasize collaboration and meeting interdependencies.

Because the very nature of our business—information technology—changes so rapidly, we continually challenge ourselves to identify risks that we haven't encountered before, or escalate the importance of existing risks due to changed circumstances. For example, the company's approach on cybersecurity demonstrates its ability to adapt to a changing environment, as well as the depth and breadth of its global capabilities. IBM has implemented a multifaceted approach involving people, tools and process to identify and address cybersecurity risks. The company has established policies and procedures that provide the foundation by which IBM's infrastructure and data are managed, which help protect IBM and client data.

We continue to drive a culture of risk management into all parts of the enterprise, in an effort to encourage our business and regional organizations, as well as process experts, to define and manage risk at increasingly granular levels.

15%

of GDP growth in the United States alone has come from goods, services and content flowing through the Internet over the past five years.

Public Policy

In seeking to build and transform the business and societal systems by which our planet works, IBM is deeply engaged with many of the most urgent issues facing the world today.

In this work, we are necessarily drawn into deep collaboration across civil society—working with lawmakers, regulators, public officials and civic leaders and contributing our expertise, experience and perspective.

One example of this from 2011 is IBM's work with international governing bodies on the development of transparent and high-quality international rules, norms and best practices to govern cross-border data flows. In the United States alone, the goods, services and content flowing through the Internet have been responsible for 15 percent of GDP growth over the past five years, according to the National Foreign Trade Council (NFTC). Other countries have seen similar trends. In order to sustain and promote this global commercial activity, a global approach is needed to create a framework that instills trust and confidence in online transactions, supported by appropriate government rules, public-private partnerships and responsible approaches by commercial entities.

And so in 2011, IBM and other companies joined with the NFTC to develop a set of United States business community policy priorities for modernizing the international trade rules and practices governing cross-border flows of data and information. By working to enable data flows and remove unnecessary restrictions, such rules could help create greater opportunities for users to safely and reliably reap the benefits of the Internet, cloud computing, business analytics and other applications of information and communication.



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