

2013

Corporate Responsibility Report

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Contents

At a Glance

Overview.....	3
Chairman's Letter.....	4
Our Approach to Corporate Responsibility.....	6
Year in Review.....	9
Awards & Recognition.....	15
Performance Summary.....	18
About This Report.....	23

Communities

Overview.....	24
Education in Communities.....	25
Innovation in Communities.....	34
Development in Communities.....	43
Service in Communities.....	54

The IBMer

Overview.....	57
Supporting IBMers.....	58
Employee Well-Being.....	59
Employee Inclusion.....	66
Leadership Development.....	70

Environment

Overview.....	74
Commitment to Environmental Leadership.....	75
Global Governance & Management System.....	76
Energy Conservation & Climate Protection.....	83
Product Stewardship.....	95
Process Stewardship.....	105
Pollution Prevention.....	108
Water Conservation.....	113
Solutions for Environmental Sustainability.....	115
Environmental Requirements in the Supply Chain.....	121
Remediation.....	125
Audits & Compliance.....	126

Supply Chain

Overview.....	128
Our Supply Chain.....	129
Supplier Assessment & Improvement Plans.....	132
Industry Collaboration.....	140
Conflict Minerals.....	142
Supplier Diversity.....	144

Governance

Overview.....	146
Governance at IBM.....	147
Privacy & Security.....	150
Enterprise Risk Management.....	152
Public Policy.....	155

At a Glance

In this section, Chairman, President, and Chief Executive Officer Ginni Rometty's letter describes the convergence of key innovations that are transforming society. Within this context, IBM views its business and citizenship strategies as indistinguishable. Corporate responsibility and corporate citizenship are integrated into everything we do.

Chairman's Letter	4
Our Approach to Corporate Responsibility	5
Year in Review	9
Awards & Recognition	15
Performance Summary	18
About This Report	23

A Moment of Transformation

We are witnessing a historic convergence of global shifts — the phenomena known as Big Data, cloud computing, mobility, and social business. Any one of these would have been disruptive for technology and business. Together, they promise to transform global society.

So the question facing every enterprise and institution is: What will we make of this moment? How will we capture the potential of a planet alive with data? How will we make use of powerful business and technology services available on demand, in the cloud? What will we create from, and with, growing networks of consumers, workers, students, patients, and citizens? How will we tap an emerging global culture defined by people determined to change the practices of business and society?

To answer these questions, IBM is executing a bold agenda, which is reshaping our company for the next decade and beyond. It encompasses — indeed, integrates — our business and citizenship strategies. In this report, you will see what that looks like in practice. We describe an approach to citizenship that aims not only to be generous and do good, but to drive systemic transformation.

For example:

Education: Three years ago, IBM created a new paradigm for secondary education — extending through grade 14 and connecting high school directly to college and career. We call it Pathways in Technology Early College High School, or P-TECH. What began as an experiment in one Brooklyn neighborhood is now spreading across America and beyond. By 2015, there will be more than three dozen schools modeled on P-TECH. Seen as the future of education everywhere from the White House to the cover of *Time* magazine, P-TECH teaches the same lesson to business and society that it conveys to its students: The only barrier to progress is thinking too small.

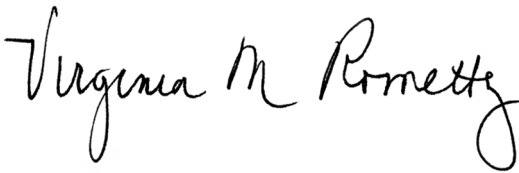
Community engagement: Through our five-year-old Corporate Service Corps, we have pioneered the integration of business leadership development and citizen diplomacy in the world's emerging regions. Here, too, scale and sustainability are critical to the program's impact. More than 2,500 talented IBMers have participated in 850-plus teams across 35 countries to tackle issues as diverse as the environment, healthcare, and economic growth. We are partnering with international development agencies, governments, NGOs, and other companies to aggressively scale a model that the US State Department has lauded as reimagining the role of global business in the developing world. And the result is as transformative for the IBMers who participate as for the communities they serve. Most describe it as one of the most meaningful experiences of their working lives.

Smarter Cities®: IBM is helping make our rapidly urbanizing planet smarter and more livable through the Smarter Cities Challenge®. More than 600 IBMers have jump-started the transformation of urban services in more than 100 cities—with a new slate of 100 cities now on tap. These experts propose breakthrough ideas, measure progress rigorously, and help leaders reimagine their approach to long-standing problems via public-private partnerships—from water quality in Tucson, to traffic in Nairobi, to public safety in Johannesburg and St. Louis.

This list could go on. IBM's On Demand Community® has reimagined volunteerism, with more than 250,000 IBMers and retirees contributing nearly 17 million hours of service over a decade. We are transforming disaster response by focusing on the nexus between relief and recovery—as when Typhoon Haiyan hit the Philippines in 2013. Small and Medium Enterprise Toolkit and Supplier Connection are spurring job growth through collaboration between small and large companies. And our pioneering “cognitive” computing system, Watson™, promises to change the face of healthcare and education—from helping to train medical students at Cleveland Clinic to serving as the basis for new courses at seven leading universities.

These and many more examples of societal transformation at scale are described and quantified in this report. And the lessons we have learned from them are integral to our own transformation as an enterprise.

The most important of these lessons—and the reason I am so optimistic about the unique potential of this historic moment—is the impact of a rising generation of IBMers who are embracing new skills of engagement, of analytics, and of global citizenship. For more than 430,000 of us across the globe, this is the opportunity of a lifetime. We invite you to join us in seizing it.



Virginia M. Rometty

Chairman, President and Chief Executive Officer

Our Approach to Corporate Responsibility

IBM pursues 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. 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 more than 175 countries. We have a supply chain of more than 18,000 suppliers. And we have been in business for more than 100 years, a length of time that speaks to the sustainability of our business practices. Our definition of sustainability includes not only environmental responsibility, but also social responsibility to our workforce, clients, business partners, and the communities in which we operate, as well as a culture of ethics and integrity guided by a rigorous system of corporate governance that promotes transparency on a global basis.

In fact, our definition of sustainability predates today's common use of the term. It originally came from Thomas Watson Jr. in 1969, when he said: "We serve our interest best when we serve the public interest...we want to be at the forefront of those companies which are working to make our world a better place."

This notion of sustainability drives us to operate our business consistent with the highest standards of corporate responsibility. We do so because we acknowledge our obligation to our vast network of stakeholders, from clients and employees to business partners, suppliers, and investors. And we recognize that our work can impact not only individual companies' business success, but also the efficiency and innovation of countries, cities, governments, communities, and our planet's critical infrastructure.

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 make as a global enterprise. In all these efforts, there are several guiding principles we follow.

Alignment to values

We believe a company must be true to its values in all of its activities—both internal and external. While strategies and circumstances may evolve, IBM's core values have remained consistent, and are embedded in all our citizenship activities. These values are:

- Dedication to every client's success
- Innovation that matters for our company and for the world
- Trust and personal responsibility in all our relationships

We insist on the highest ethical practice. Contributions are not connected to any sales transactions. Our contributions align to our business and use the best assets of our business, but are not made with intent to receive any direct benefit back from the recipient, its officers or directors, or to influence their purchasing decisions.

Our commitment to corporate responsibility 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 corporate policies that govern our operations and practices worldwide. The IBM Board of Directors and its committees regularly review performance and compliance.

Our corporate responsibility activities are coordinated by a Corporate Responsibility Steering Committee made up of executives from all relevant global functions across IBM, including human resources, employee well-being, corporate governance, environmental affairs, governmental programs, supply chain, and community relations.

Cross-sector collaboration

No one sector of the economy on its own can solve the problems the world faces. We work closely with the public sector, cities, states, and national governments as well as nonprofit organizations and school systems. We engage with highly qualified public and civic entities that are deeply committed to finding solutions and bringing them to scale.

We seek out the right organizations to work with, those that share our view that innovation, management experience and capacity, deep subject-matter expertise, and commitment to sustainability and scalability are essential to achieve maximum value and impact.

Consistent with our values, we treat our collaborators and grant recipients no differently from business customers, giving them the same attention and support. At IBM, we value depth of engagement. We know that it takes time and hard work to successfully implement technology solutions in organizations. For this reason, we tend to form longer lasting and deeper connections with our collaborators and grant recipients.

Alignment to and integration of the full range of our company resources

IBM's intent is to apply our innovation and expertise to help address significant societal problems. We believe that we can be part of identifying and then implementing solutions. Finding and implementing solutions that can help attack problems at their root cause requires full utilization of IBM's technologies, and in particular the skills of our people. For this reason, we favor rolling up our sleeves in full collaboration with people, companies, and governments across other sectors, as opposed to simple "checkbox philanthropy." Further, we empower our employees and others by helping build their skills to better serve communities through innovative online resources.

Thought and execution leadership

We believe our approach of using our technology in strong collaboration with others can create a path to real and lasting change and demonstrates the essential nature of our company. We have been at the forefront of articulating, implementing, and promoting these ideas. We also strive to be at the forefront of identifying opportunities and demonstrating practical solutions. In all of our community efforts, as in our business pursuits, we aim to provide real leadership in creating solutions, bringing them to scale, and making them sustainable.

Focus on essential issues

We believe it is important to focus efforts on fewer, more comprehensive programs that can help address issues important to society and IBM. This means prioritizing issues and supporting projects consistent with those priorities.

Accordingly, we focus on projects designed to help ameliorate significant social and educational conditions that impact quality of life and well-being around the globe, and we focus on subject areas where our expertise and solutions have particular applicability.

Impact and measurement

Whether it's the complex problems of the world's cities or developing schools that prepare students for careers, we hope to help cause widespread, measurable change. To maximize the leverage of these investments, our relationships with grantees include planning for and incorporating the ability to scale solutions by transferring them to other locations in order to solve the same or similar problems, which results in longevity and sustainability.

As with our business, we measure our results and adjust our approaches regularly to achieve maximum benefit. Programs receiving IBM support include both process and summative evaluation plans. Major new initiatives are structured to include evaluation plans. Ongoing programs are reevaluated regularly to assess their continued impact and value and to modify them as appropriate to help us achieve effectiveness and efficiency.

Good for the business

Good corporate citizenship is also good for business. Strong communities and strong schools go hand in hand with strong business enterprises, which are directly connected to jobs and economic growth, so our good corporate citizenship can produce real value for society and all of IBM's stakeholders.

Also, customers are more likely to enter into business relationships with corporations that have strong values and are involved in their communities, and people are much more likely to want to work and stay employed at a company that is a good corporate citizen.

Year in Review

At IBM, we believe that achieving the highest standards of corporate responsibility is beneficial for our clients and our employees, and strengthens the communities in which we live and work. That is why our business and citizenship strategies are aligned and integrated. In fact, they are one and the same. Our commitment to this approach is evidenced by the business we pursue, the partnerships we establish, the relationships we build with all of our stakeholders, and the achievements we are able to make.

There are four aspects of IBM's corporate responsibility activities that are of particular interest to our stakeholders:

1. The support of our employees and communities
2. The impact of IBM's products and operations on the environment
3. The management of our global supply chain
4. The governance, ethics, and integrity of our company

In this section, you'll find highlights of our activity in 2013 in these four key aspects of corporate responsibility. For more detailed information please visit our [corporate responsibility website](#).

Communities

In 2013, IBM strived not only to address problem areas but to bring about transformation on many fronts, working closely with educators, local and national government leaders, nongovernmental organizations, and communities. We offer solutions grounded in our technology and our expertise that are focused on helping solve some of society's most entrenched problems, and then implementing solutions that are sustainable and scalable. The following examples demonstrate our approach to corporate responsibility:

Replicating a model for success

Over the past few years, IBM has worked with educators in K-12 and higher education to create a new approach to high school designed to transform the learning process and facilitate the successful transition from school to career. Pathways in Technology Early College High Schools (P-TECH) are innovative public schools spanning grades 9 to 14 designed in collaboration with IBM that bring together the best elements of high school, college, and the workplace. P-TECH schools are public schools, open to students without grade or testing requirements. Students begin in grade nine and continue through a six-year sequence of high school and college coursework to earn a two-year, postsecondary degree awarded by the school's college partner.

The goal of this approach is to empower students with the specific academic preparation, credentials, and workforce skills needed to be competitive in the job market, particularly—but not exclusively—in the areas of science, technology, engineering, and math. IBM and its partners designed the first 9-14 school (P-TECH) in September 2011, in Brooklyn, New York. It has been replicated in four Chicago schools in 2012 and two additional schools in New York in 2013. In 2014, three more schools based on the P-TECH model are slated to open in New York City, with

16 more planned throughout the state of New York during 2014, followed by 10 additional schools in 2015. With IBM's assistance, the first P-TECH model high school in Connecticut is expected to open in Norwalk this year, and a half-dozen more are planned for next year.

President Barack Obama highlighted P-TECH in his State of the Union address and visited the Brooklyn P-TECH in 2013. The president also created a \$100 million grant program, Youth CareerConnect, to better equip more high school students with the job skills they will need to compete more effectively in the global economy and expand P-TECH further. "This country should be doing everything in its power to give more kids the chance to go to schools like this one," said President Obama during his visit to P-TECH. The grant program's goal is to encourage the nation's high schools to restructure their curricula, in partnership with industry, in ways that will make students—and the nation—more competitive and the goal more achievable.

Making our cities smarter

IBM's Smarter Cities Challenge demonstrates our integrated approach to corporate citizenship and our commitment to transforming the communities in which we live and work. It began as a \$50 million competitive grant program to provide consulting services led by teams of IBM employees to cities around the world over a three-year period. Today, Smarter Cities Challenge is transforming how companies, foundations, and think tanks engage with cities to make them smarter and improve city services.

These teams of IBM experts work closely with city leadership to help solve complex problems, make the cities more efficient, and improve the quality of life for residents. They focus on critical issues such as healthcare, education, public safety, social services, transportation, communications, sustainability, budget management, jobs, and economic opportunity.

In 2013 alone, IBM deployed 180 employees to 31 cities around the world as part of Smarter Cities Challenge. Though this is a philanthropic endeavor, it draws on the expertise and knowledge we've gained through building a substantial business in helping cities collect and analyze critical data, offering a clearer understanding of how these complex governmental systems of systems really work, and identifying how they can work better.

"The major benefit to Tucson Water from participating in the Smarter Cities Challenge was that it provided a rigorous and strategic evaluation of planned capital investments in technology improvements and helped staff identify a wide range of potential applications for the resulting 'big data,' [enabling us] to improve both customer service and management decision-making."

Jonathan Rothschild, mayor, Tucson

Also in 2013, we expanded our Impact Grants program both within the United States and abroad, utilizing more than 1,000 IBM consultants and making more than 350 grants worldwide with a combined market value of approximately \$11 million.

Transforming foreign aid into citizen diplomacy

In 2008, IBM first launched a unique service program, which some refer to as a corporate version of the Peace Corps, designed to deliver deep benefits at the individual, corporate, and community levels. IBM's Corporate Service Corps (CSC) sends IBMers to countries around the world to work collaboratively with governments, educational institutions, and nonprofit organizations to address critical community problems. The goal is to address local challenges found at the intersection of technology and society and develop sustainable economic solutions. CSC teams comprise eight to fifteen IBMers who spend approximately six months on a CSC engagement — three months in preparation, one month full-time in the local community, and two months in post-service work.

In 2013, CSC sent more than 100 teams of IBM top talent to more than 30 communities in 22 countries, delivering 100 vitally important projects designed to help communities succeed. IBM teams were deployed to new sites including Angola, Ethiopia, the Philippines, South Africa, and Chile. Since the start of the program, more than 2,400 IBMers from more than 50 countries have delivered in excess of 850 projects impacting 140,000 individuals — more service than any other company.

Additionally, IBM continues to work with other companies to help them explore similar programs of their own. One such example: In September 2013, we sent four JPMorgan Chase employees on assignment with our own CSC team to Uberlandia, Brazil. "It's definitely been a life-changing experience for me. I feel I've come back to my organization as a better manager," says Paul LaRusso, vice president, JPMorgan Chase, speaking about his CSC experience in Brazil.

The IBMer

Our 430,000-plus employees across the world personify IBM — they represent our brand, they embody our values, and they drive our success. And so we continuously strive to find new ways to support their growth, development, and satisfaction. To this end, we invested heavily in our employees' personal and professional development in 2013.

Throughout the year, we launched or furthered a number of employee initiatives designed to give IBMers the tools they need to help them develop, learn, and grow. We introduced THINK40, a learning program of at least 40 hours of professional development that every IBMer participates in each year. Thanks in large part to this new program, last year IBMers completed more than 25 million learning hours, a 154 percent year-over-year increase from 2012. We also launched Think Academy, a new method of sharing and learning that the entire company experiences together. The two-hour, online courses take place on the first Friday of each month and are introduced by IBM CEO Ginni Rometty, who frames a given topic, its importance, and key concepts to explore.

Our leadership programs were also expanded in 2013 to include the Manager Champion Group, an experiential program founded to showcase IBM management at its best, honor the critical role of the IBM manager, and develop leaders to create a culture of exceptional IBMers and client experiences. In this program, a globally diverse team of 50 exemplary IBM managers are nominated and selected for a year-long term of service to serve as role models and teachers of IBM values while acting as solution advocates for managerial challenges.

Also in 2013, IBM celebrated the 10-year anniversary of our On Demand Community, an online portal that offers rich tools and resources to facilitate current and retired IBMers' volunteer engagement and action. Since its inception in 2003, IBMers and retirees have logged 16.5 million hours of skills-based volunteer service through the portal.

Environment

IBM has long maintained an unwavering commitment to environmental protection, formalized in a corporate environmental policy in 1971. Our policy calls for IBM to be an environmental leader across all of our business activities—from our research, operations, and products to the services and solutions we provide our clients.

Our comprehensive environmental programs range from energy and climate protection to pollution prevention, chemical and waste management, resource conservation, and product design for the environment. IBM's energy and climate programs are highlighted here because of the global interest in this topic. In 2013, we achieved outstanding operational results and continued to leverage our research, technologies, and solutions to help clients and the world grow in ways that are more energy efficient and protective of the planet. The following are highlights in the area of energy and climate.

Energy conservation across the enterprise

In 2013, IBM's energy conservation projects delivered savings equal to 6.7 percent of our total energy use, significantly exceeding our annual goal of 3.5 percent. These projects avoided the consumption of 334,000 megawatt-hours (MWh) of electricity and 275,000 million Btu of fuel oil and natural gas, representing the avoidance of 152,000 metric tons of CO₂ emissions. They also saved \$35.8 million in energy expense. From 1990 through 2013, our annual energy conservation actions have avoided 6.4 billion kWh of electricity consumption, avoided 4.0 million metric tons of CO₂ emissions (equal to 59 percent of the company's 1990 global CO₂ emissions), and saved \$513 million.

Data center energy efficiency

IBM manages a diverse portfolio of data centers all over the world and deploys uniform practices for energy efficiency leadership across them all. In 2013, three additional IBM data centers were awarded "participant" status on data center energy efficiency, based on the EU Code of Conduct for Energy Efficient Data Centers, bringing our total to 46 registered data centers across 19 countries. The registered data centers represent more than 70 percent of IBM's IT delivery and business recovery data center space in the European Union.

An additional significant energy conservation goal

Since 2009, an integrated team from IBM's environmental and finance staffs, real estate organization and business units have collaborated to realize energy conservation savings through a multi-disciplinary assessment of demand side opportunities in manufacturing, data center, and IT test lab operations. The initial effort from 2009 to 2012 saved 1,246,000 MWh of energy through conservation and efficiency. The projects involved the deployment of unique IBM technologies and know-how, as well as a strong management system supported by senior executives.

The new goal—part of the 2013-15 Energy Conservation and Efficiency Plan—was set in early 2013. The goal is to save an additional 570,000 MWh of energy by year end 2015. By year end 2013, the team delivered 321,500 MWh of energy savings which exceeded the first year target of 207,200 MWh by 55 percent.

Research to advance the use of renewable energy

IBM announced an advanced power and weather modeling technology to help utilities increase the integration into and reliability of renewable energy sources on the electric grid. Named Hybrid Renewable Energy Forecasting (HyREF), the solution uses weather modeling capabilities, advanced cloud imaging, and turbine and solar photovoltaic (PV) sensors combined with advanced analytics technology to provide accurate estimates of energy output. The system has demonstrated a 10 percent increase in the quantity of energy dispatched to the grid and improves planning for and matching of conventional output with the renewable generation sources.

IBM Research is developing the Wind and Hydro Integrated Stochastic Engine (WhISE), an energy generation planning tool that forecasts renewable generation and matches it with expected demand and available hydro resources to manage and optimize the dispatching of committed power. The WhISE approach enables the grid to reduce reserve generation capacity while insuring that demand is met, reducing power costs on the system.

Supply chain

IBM conducts business with suppliers located in nearly 100 countries, and has woven social and environmental responsibility into the fabric of our business relationships. We work closely with our suppliers to encourage them to achieve improvements throughout the global supply chain, across various aspects of corporate responsibility. This work begins with our requirement for suppliers to implement and sustain a Social and Environmental Management System, to embrace the elements of the Electronic Industry Citizenship Coalition (EICC) Code of Conduct, to set voluntary environmental performance goals, measure performance, and to report publicly in order to increase transparency across the entire supply chain.

In 2013, we grew our supply chain assessment activities by collaborating with our suppliers on 83 full-scope audits and 118 re-audits in 23 countries. These third-party audits measure compliance to the EICC Code, version 4.0. In 2013, IBM took action to standardize on this code for all of its suppliers—inclusive of its Services and General Procurement suppliers.

During 2013, IBM and other members of the Conflict-Free Sourcing Initiative (CFSI) continued working toward the goal of achieving a supply chain with socially responsible sources of tin, tantalum, tungsten, and gold. CFSI updated its web-based listing of conflict-free smelters, highlighting companies that successfully completed their rigorous assessment. Last year also saw the release of the updated CFSI Conflict Minerals Reporting Template and dashboard. This survey provides companies a common format for their upstream suppliers to identify the use of the four focus materials, the smelters used and—when known—the country of origin of the raw materials. IBM has deployed successive versions of this survey to account for its use of the four materials and is providing consolidated results to its clients. In 2013, our efforts focused on harnessing the work of the past three years in preparing the reporting documentation required to be filed by June 2, 2014, for the US Security and Exchange Commission's Dodd-Frank Wall Street Reform and Consumer Protection Act, section 1502; specifically, the Specialized Declaration Form and related Conflict Minerals Report.

IBM also saw continued growth in its base of diverse suppliers, with purchases reaching \$3.3 billion inclusive of first-tier and second-tier companies. In parallel, we maintained our support and engagement with organizations worldwide that are dedicated to the nurturing and development of this important element of the extended supply chain.

Governance

At IBM, a rigorous set of corporate governance systems facilitate our ability to achieve the highest standards of ethics, transparency, and integrity. One such system is our Corporate Responsibility Steering Committee, composed of senior executives who meet periodically to provide leadership and direction on key corporate responsibility issues. The Steering Committee is supported by our Corporate Responsibility Working Group, which includes representatives from 10 functional areas who meet monthly to manage IBM's corporate responsibility activities and stakeholder engagement across the company.

Our Business Conduct Guidelines reflect our longstanding commitment to ethical conduct and decision-making. Every IBMer receives training in the Guidelines every year to promote the highest ethical standards in our work.

We have developed a consistent, systematic, and integrated approach to risk management to help determine how best to identify, manage, and mitigate significant risks throughout the company. In 2013 we worked toward including broader communication, increased education, and social collaboration to help support these efforts.

We take privacy and security very seriously at IBM, and we consider these issues in everything we do. We are aware that institutions of all types 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. In 2013, IBM continued its work to promote privacy and security in a number of ways, including our collaboration with Asia-Pacific Economic Cooperation on its Cross-Border Privacy Rules system, updating our own data privacy assessment software tools, and getting involved in the development of the National Institute of Standards and Technology's voluntary Framework for Improving Critical Infrastructure Cybersecurity.

Awards and Recognition

Every year, our corporate responsibility efforts are rated and recognized by a number of publications, advocacy groups, governments, and non-governmental organizations. We are proud to share some of that recognition here.

Corporate responsibility

In 2013, IBM was recognized on the following lists:

- 50 Most Admired Companies by *Fortune*
- 100 Most Reputable Companies by *Forbes*
- 100 Best Corporate Citizens by *Corporate Responsibility Magazine*

Environment

2013 Platts Global Energy Award

IBM won the 2013 Platts Global Energy Award in the category “Stewardship Awards, Efficiency Initiative—Commercial End-User” for its outstanding worldwide energy conservation results in 2012 and 2013. This annual awards program honors exemplary achievement in the energy industry, recognizing corporate and individual performance, innovation and entrepreneurship.

Top 25 Socially Responsible Dividend Stock, Dividend Channel

IBM was named a Top 25 Socially Responsible Dividend Stock by Dividend Channel, signifying a stock with above-average “*DividendRank*” statistics including a strong 2.0 percent yield, as well as being recognized by prominent asset managers as being a socially responsible investment. Environmental criteria included considerations such as the environmental impact of the company’s products and services, as well as the company’s efficiency in terms of its use of energy and resources.

United States

2014 Climate Leadership Award

IBM received a 2014 Climate Leadership Award from the US Environmental Protection Agency (EPA), the Association of Climate Change Officers, the Center for Climate and Energy Solutions, and The Climate Registry. The award recognized IBM for its ambitious greenhouse gas emissions reduction goals and for being at the leading edge of setting requirements for suppliers to measure, disclose and reduce their emissions. This is the third consecutive Climate Leadership Award for IBM, having received one in 2012, the first year the awards were given, and 2013.

“One of Five Companies to Celebrate on Earth Day,” The Motley Fool

To mark Earth Day in 2013, The Motley Fool selected IBM as one of only five “companies to celebrate,” stating: “Perhaps more than any other major US corporation, IBM has been putting environmental stewardship front and center for over 30 years now.” Also highlighted were IBM’s technological advancements and operational excellence in energy conservation and our Smarter Planet® initiatives that help others reduce their consumption of resources.

US EPA ENERGY STAR Certification

IBM's Leadership Data Center in Boulder, Colorado, earned the EPA's ENERGY STAR certification, which signifies that the building performs in the top 25 percent of similar facilities nationwide for energy efficiency and meets strict energy efficiency performance levels set by the EPA. This is IBM's first ENERGY STAR certified data center.

Vermont Governor's Award

IBM Burlington, Vermont, received a 2014 Vermont Governor's Award for Environmental Excellence for its Photochemical Waste Reduction in Semi-Conductor Photolithography Process. IBM Burlington site engineers redesigned and qualified a device on a lithographic process tool called a "solvent block" that greatly reduced both the volume of cleaning solvent used and the waste of these manufacturing process chemicals. IBM also is the only entity in Vermont to receive recognition every year since the establishment of the award program in 1993.

Most Valuable Pollution Prevention Award

IBM's facilities in Burlington, Vermont, received a 2013 Most Valuable Pollution Prevention (MVP2) Award from the National Pollution Prevention Roundtable. The award recognized IBM for the greenhouse gas use reductions it achieved through its development of a new Reactive Ion Etch process that increased productivity by 30 percent while significantly reducing the use of greenhouse gases and their associated emissions. The IBM Burlington site has received an MVP2 Award for five consecutive years.

Environment Achievement Award

IBM Rochester, Minnesota, received an Environmental Achievement Award for its outstanding promotion in conservation from Olmsted County and Rochester Public Utilities. The award recognized IBM Rochester's work on chiller optimization and Smarter Buildings.

Canada

IBM Canada's Bromont site received an Environmental Excellence Award in the large and medium industries and institution category from the Estienne Environment Foundation for the site's energy management program and ISO 50001 implementation.

IBM Canada's Bromont site received the Energja Award in the Recommissioning category from the Quebec Association for Energy Management (AQME). The recommissioning of heating, chilled water, and HVAC systems saved \$2.3 million between 2007 and 2012 and improved the efficiency and reliability of these systems.

Hong Kong

IBM Hong Kong received the WasteWise Label—Class of Excellence award for its waste avoidance and reduction in the Hong Kong Awards for Environmental Excellence.

Mexico

The Smarter Data Center in Guadalajara was recognized with the DatacenterDynamics LATAM (Latin America) award in the category of Smarter Data Center Energy Efficiency.

Supply chain

In 2013, IBM's Supplier Diversity Program received much recognition for its efforts. Among the top honors were:

- National Corporation of the Year by the National Minority Supplier Development Council
- One of America's Top Corporations by the Women's Business Enterprise National Council
- Ranked first in the 2013 DiversityInc Top 10 Companies for Supplier Diversity
- Corporation of the Year by the Minority Supplier Development Council—China
- *MBN USA* Magazine's Corporate 101 list
- Technology Corporation of the Year and a Corporate ONE Award by the Michigan Minority Supplier Development Council
- Top Supplier by the Ford Motor Company
- "Best of the Best" for Top Supplier Diversity Program and Top Employers of Women by the *Professional Women's Magazine*
- One of America's Top 50 Organizations for Multicultural Business Opportunities by DiversityBusiness.com

Performance 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.

Denotes Key Performance Indicator

Employees

Learning

At IBM, we focus on allowing 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-enabling learning and development activities to accomplish this. This strategy enables us to provide timely, comprehensive, and targeted learning while achieving more efficient, effective learning delivery.

	2009	2010	2011	2012	2013
Learning investments worldwide (\$M) KPI	490	547	466	477	525
Learning hours worldwide (M)	25.5	28.6	27.4	33	40
Learning hours per employee KPI	64	67	63	78	82

Women in the workforce

For more than 100 years, IBM has shown a dedication to addressing the specific needs of women in our workforce and to creating work-life and career development programs that address their needs. We are committed to the progress and leadership development of women in our workforce and providing opportunities across the more than 175 countries where we do business.

	2009	2010	2011	2012	2013
Women in the workforce % KPI					
Global workforce	28.7	28.1	28.5	30	30.1
Global executives	21.2	21.4	21.5	22.3	23.2
Managers	24.6	24.8	24.6	25.6	26.0
Global illness/injury rate					
Total number (per 100 employees)	0.27	0.27	0.33	0.29	.30

Volunteering

IBM supports and encourages employees and retirees in skills-based volunteering in their local communities around the world.

Retiree and employee volunteer hours (k)	2009	2010	2011*	2012	2013
Asia Pacific	118	111	663	116	117
Europe, Middle East, Africa	155	198	430	216	201
Latin America	43	44	152	39	48
North America	954	1,110	1,956	1,210	1,130

* IBM celebrated its Centennial in 2011–12 and the exceptionally high volunteer hours reflect the many special volunteer projects associated with the Centennial.

Giving

IBM tracks and reports 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 by using IBM's innovative skills and technology to improve student performance. Giving by geography is also important to help us understand the alignment of our resources with our global operations. But the type of our giving—a combination of services, technology (including software), and cash designed to transform approaches to societal challenge and achieve measurable outcomes—is what we believe distinguishes IBM.

While education is our highest priority, educational improvement cannot be achieved unless its connection to other issues is understood. Consequently we intend to maintain strategic investments in human services, culture, health, and the environment. In addition, it is vitally important that we maintain the flexibility to address new initiatives and meet extraordinary external conditions, such as disaster relief and recovery. We believe that our contributions in 2013 met these goals. Even in a challenging economic environment, our overall contributions last year rose by more than \$10 million, with education continuing as our largest area of activity.

IBM operates in a global, fully integrated fashion. This is reflected in the distribution of our citizenship contributions by geography. 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, technology and services as a percentage of total contributions increased in 2013, consistent with our focus on providing transformative and effective 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 our most innovative solutions and have a significant and measurable impact on key social issues. Current trends in contributions will not necessarily continue, but rather will be determined within the framework of our goal to increase the effectiveness of our contributions.

2009 - 2013 global contributions

Global corporate contributions by issue (\$M) KPI	2009	2010	2011	2012	2013
K–12 education	44.0	34.7	28.8	24.7	22.4
Higher/other education	92.4	116.8	113.0	118.3	124.7
Culture	5.7	3.2	3.8	3.7	3.0
Human services	15.0	7.7	17.9	16.9	17.3
Health	4.2	4.3	4.5	3.5	3.5
Other	19.9	16.1	22.7	24.8	32.0
Environment	4.7	6.4	5.4	5.2	5.0
Total	185.9	189.2	196.1	197.1	207.9

Global corporate contributions by type (\$M) KPI	2009	2010	2011	2012	2013
Cash	40.3	39.3	46.9	42.6	41.4
Technology	102.2	105.3	91.3	99.2	100.2
Services	43.4	44.6	57.9	55.3	66.3
Total	185.9	189.2	196.1	197.1	207.9

Global corporate contributions by geography (\$M) KPI	2009	2010	2011	2012	2013
United States	77.1	75.8	70.8	69.9	75.7
Asia Pacific	45.4	34.8	36.3	35.9	37.5
Canada	8.4	6.8	6.8	7.1	7.8
Europe, Middle East, Africa	35.2	54.3	60.2	64.4	65.7
Latin America	19.8	17.5	22.0	19.8	21.2
Total	185.9	189.2	196.1	197.1	207.9

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.

Energy conservation

IBM's goal is to achieve annual energy conservation savings equal to 3.5 percent of IBM's total energy use. In 2013, IBM again achieved this goal, attaining a 6.7 percent savings from its energy conservation projects.

Energy conservation KPI	2009	2010	2011	2012	2013
As % of total electricity use	5.4	5.7	7.4	6.5	6.7

Product energy efficiency

IBM's product energy goal is to continually improve the computing power delivered for each kilowatt hour of electricity used with each new generation or model of a product. Performance is tracked by product line—servers and storage systems.

Product energy efficiency **KPI** — Please see the product energy efficiency table on page 96

Recycled plastics

In 2013, 14.8 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 50 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, 10.8 percent of IBM's total weight of plastic purchases in 2013 was recycled plastic versus the corporate goal of 5 percent recycle.

Recycled plastics	2009	2010	2011	2012	2013
% of total plastics procured through IBM contracts for use in its products that is recycle	13.2	11.5	12.4	12.6	10.8

Product End-of-Life Management (PELM)

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

In 2013, IBM's PELM operations sent only 0.3 percent of the total processed to landfill or incineration facilities for treatment.

Product End-of-Life Management KPI	2009	2010	2011	2012	2013
% of total processed sent by these operations to landfill or incineration for treatment	0.5	0.6	0.4	0.3	0.3

Hazardous waste management

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 increased 4.2 percent in 2013.

There were two primary factors for this year-to-year increase; an increase in fluoride/heavy metal sludge generation at one manufacturing site, due to an increase in hydrofluoric acid chemical used as part of the continued transition to single wafer tools and processes at thinner line width integrated circuits, and an increased use of the specific photoresist solvent to improve yield. The waste solvent was sent by IBM to be recycled.

Hazardous waste management	2009	2010	2011	2012	2013
% change in hazardous waste generated from manufacturing operations indexed to output	+8.4	-21.6	-3.5	+2.9	+4.2

Nonhazardous waste recycling

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 2013, we recovered and recycled 86 percent of our nonhazardous waste.

Nonhazardous waste recycling	2009	2010	2011	2012	2013
% recycled of total generated	76	79	78	87	86

Water conservation

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 2013, new water conservation and ongoing reuse and recycling initiatives in IBM's microelectronics operations achieved an annual 3.2 percent savings in water use, resulting in a rolling five-year average of a 2.3 percent savings versus the 2 percent goal.

Water conservation	2009	2010	2011	2012	2013
% annual water savings in microelectronics manufacturing based on previous year usage and measured as an average over a rolling five-year period	3.1	2.8	2.6	2.2	2.3

Supply chain

2013 supplier spend was down \$2.5 billion driven largely by decreased volumes in our Systems and Technology group and from leveraging marketplace pricing opportunities. Geographic distribution of supplier spend remained consistent as our supply base is positioned to serve the needs of our customers on a global basis. We continued to grow diverse supplier spend, which provides IBM a competitive advantage by harnessing the flexibility of this group of companies to meet our changing business needs.

Supplier spending by category	2009	2010	2011	2012	2013
Services and general procurement (%)	69	64	64	64	67
Production procurement (%)	28	33	33	33	30
Logistics procurement (%)	3	3	3	3	3
Services and general procurement (\$B)	22.6	22.1	23.4	22.8	22.1
Production procurement (\$B)	9.3	11.6	12.0	11.5	9.7
Logistics procurement (\$B)	0.9	1.0	1.1	1.0	1.0

Supplier spending by location	2009	2010	2011	2012	2013
North America (%)	39	35	34	35	36
Asia Pacific (%)	29	35	34	35	35
Europe, Middle East, Africa (%)	25	22	23	21	21
Latin America (%)	7	8	9	9	8
North America (\$B)	12.8	12.3	12.5	12.4	11.8
Asia Pacific (\$B)	9.4	12.2	12.5	12.4	11.4
Europe, Middle East, Africa (\$B)	8.1	7.5	8.3	7.4	7.0
Latin America (\$B)	2.5	2.7	3.2	3.1	2.6

First-tier spending KPI	2009	2010	2011	2012	2013
Total US (\$B)	10.9	10.7	10.6	10.7	10.2
Diverse US (\$B)	1.4	1.5	1.7	1.7	1.9
Diverse non-US (\$M)	806	742	881	939	917

IBM's supplier social responsibility assessment protocol requires that all audited suppliers create and submit a Corrective Action Plan (CAP) for all non-compliance, with priority given to major non-compliances. The CAP forms a conduit, linking initial audit findings to supplier-generated improvements geared toward resolution of root causes with verification taking place through a re-audit scheduled following the completion of all improvement actions. The reduction in 2013 Corrective Action Plans was the result of improved supplier code compliance during full audits in 2011-13 and a reduction in the number of full scope audits as we transitioned aspects of our Supplier Assessment program.

Supplier corrective action plans completed and accepted KPI	2009	2010	2011	2012	2013
	84	316	473	311	175

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 2013 and some notable activities during the first half of 2014.

In selecting the content for inclusion in our 2013 Corporate Responsibility Report, we have used the Global Reporting Initiative (GRI) Reporting Principles of materiality, sustainability context, stakeholder inclusiveness, and completeness. A GRI report utilizing the GRI G3 Sustainability Guidelines at a self-declared GRI Applicant Level A, as well as additional details about IBM's corporate responsibility activities and performance, can be found at our corporate responsibility website.

Unless otherwise noted, the data in this report covers our global operations. Information about our business and financial performance is provided in our 2013 Annual Report. IBM did not employ an external agency or organization to audit the 2013 Corporate Responsibility Report.

At IBM, we regularly review our strategy and approach to corporate responsibility to help us identify and focus on the issues of greatest relevance to our business and our stakeholder community. Given these priorities, in 2013 we engaged the Business for Social Responsibility consulting group to conduct a materiality analysis that maps corporate responsibility priorities to IBM's business, IBM's stakeholders, and the global society. This process is currently underway and we plan to use its findings in connection with our 2014 Corporate Responsibility Report.

Communities

At IBM, we believe that our clients benefit most when we strive to go beyond problem solving to achieve transformation. The same is true for the communities we live in—real value results when we work toward innovative solutions that drive significant, scalable, sustainable change. By transforming our schools, our cities, our response to disasters, our efforts to foster active and engaged citizens, and our ability to create economic growth, we can go beyond incremental success and help achieve game-changing solutions that make our planet smarter.

In this section, you will find examples of how IBM led transformation over the course of 2013 and into 2014.

- Education in Communities** 25
- Innovation in Communities** 34
- Development in Communities** 43
- Service in Communities** 54

Education in Communities

Education is an essential foundation of thriving communities. But it must do more than educate. It must arm students with critical skills and prepare them for life's complexities, as well as workplace opportunities.

At IBM, we are working to transform educational systems in order to provide children and young adults with both the foundational knowledge and the relevant skills needed to be successful today. In 2013, our portfolio of educational programs continued to evolve and scale in accordance with these goals.

P-TECH 9-14 school model

New and innovative designs are desperately needed to transform high schools and address the education and skills gap existing in today's labor market. Shortages are most acutely felt in the areas of Science, Technology, Engineering, and Math (STEM), but aren't exclusive to these disciplines. Over the past few years, IBM has worked with educators in K-12 and higher education to create a new approach to high school designed to enable students to gain the academic preparation, credentials, and workforce skills needed to be competitive in the job market—and thus reinvigorate economies. With this approach, IBM hopes to transform not only the educational opportunities available for young people today, but also create a pipeline of talent to help eradicate the skills gap.

Pathways in Technology Early College High Schools (P-TECH) are innovative public schools spanning grades 9 to 14 that bring together the best elements of high school, college, and career. Within a six-year timeframe, students participate in an integrated and rigorous academic sequence of high school and college classes and graduate with an industry-recognized, two-year, postsecondary degree, along with the skills and knowledge they need to continue their studies or step seamlessly into jobs in the Information Technology (IT) industry. This model was designed to be both widely replicable and sustainable as part of a national effort to reform career and technical education, and those plans are coming to fruition.

“This country should be doing everything in its power to give more kids the chance to go to schools like this one.”

Barack Obama, president, during a visit to P-TECH in Brooklyn, New York, in October 2013

9-14 school model components

P-TECH schools are public schools, open to students without grade or testing requirements. Students begin in grade nine and continue through a six-year sequence of high school and college coursework to earn a two-year, postsecondary degree that is awarded by the school's college partner. Valuable workplace skills are integrated into the curriculum.

Students participate in an ongoing, sequenced Workplace Learning curriculum informed by current and future industry standards and solid academics. All students are matched in one-to-one relationships with mentors from IBM and other companies, participate in structured, project-based learning activities, take part in workplace visits, and tackle skills-based, real-world projects through paid internships and apprenticeships. IBM and other

industry partners have provided minimum requirements for entry-level IT jobs that have been mapped directly into the curriculum and are serving as academic benchmarks and targets.

Each student moves through a personalized academic pathway, aligned to college and career requirements, which is closely monitored by his or her teachers and advisors, based on his or her individual needs and performance. The focus is on mastery, not seat time.

A model for replication

IBM created the first 9-14 school (P-TECH) in September 2011, in Brooklyn, New York, as a collaboration among the New York City Department of Education, the City University of New York, and New York City College of Technology (City Tech).

2013 academic achievements at P-TECH in Brooklyn include:

- 94 percent of tenth graders were promoted to eleventh grade; 94 percent of ninth graders were promoted to tenth grade
- Among eleventh graders, 86 percent have enrolled in a college course, 74 percent have met college-ready benchmarks in math, 96 percent have met all of their high school requirements in math, 72 percent have met college-ready benchmarks in English Language Arts, and 93 percent have met all of their high school requirements in English Language Arts
- 74 percent of all students passed at least three Regents exams for graduation
- There are 160 students enrolled in at least one college course at City Tech
- Students enrolled in college courses had earned an average of 12.6 college credits each

“I had an amazing visit with IBM’s P-TECH school today. I am so hopeful, so confident, so optimistic about what these students will accomplish long term. The question for me is always scale. We need more corporations, more leaders, more CEOs to step up and be part of the solution for education. We need more public/private partnerships.”

Arne Duncan, secretary of education, following a visit to P-TECH in Brooklyn in February 2013

P-TECH was replicated in five Chicago schools in September 2012. IBM is spearheading one school, the Sarah E. Goode STEM Academy.

“With IBM’s partnership, vision, and leadership, Sarah E. Goode STEM Academy provides a rigorous education while creating a bridge between students and jobs of the 21st century economy. Chicago has expanded this model, first pioneered by IBM in New York, to five schools across the City for every student to have equal access to receiving a quality education that will prepare them for success in the classroom and in life.”

Rahm Emanuel, mayor, Chicago

Two more schools in New York modeled on P-TECH opened in 2013: Energy Tech High School, in collaboration with ConEd and National Grid, and Health and Emergency Response Occupation (HERO) High School, working with Montefiore Medical Center. Three more in the city will open in 2014.

In addition, the state of New York will open 16 more P-TECH schools across the state this September that are designed to help advance Governor Andrew Cuomo's Regional Economic Development Strategy by linking job training directly to employment opportunities. IBM is serving as lead industry partner for Excelsior Academy in Newburgh, along with Newburgh Enlarged City School District and SUNY Orange County Community College, and is providing thought leadership across all the schools through its participation in the governor's steering committee. Among other companies participating are Regeneron Pharmaceuticals, GlobalFoundries, and SAP.

“In partnership with IBM, New York State is making sure our students are more prepared for life after graduation by linking the skills we teach in the classroom with the needs of 21st century employers. P-TECH is a groundbreaking program that will give students across the state the opportunity to earn a college degree while starting on a pathway to a good-paying job when they graduate. These public-private partnerships are a model for success for our students, our employers, and our economy.”

Andrew Cuomo, governor, New York

In his 2014 State of the State address, Governor Cuomo announced that the state of New York plans to add 10 more P-TECH model high schools in 2015. Connecticut Governor Dannel Malloy announced that the state also will replicate P-TECH. IBM plans to lead one school that will open its doors in 2014 in Norwalk, Connecticut, and will provide guidance to the state's P-TECH network of schools the year after.

“As Connecticut industry and government realign for the 21st century, it has become clear that there is a skills gap in our national and state economies. However, Connecticut is home to many industries that will be growth and innovation sectors over the next 10 to 20 years, and we must prepare our students with the skills they need to succeed in that workforce. We began by partnering with IBM to develop our first P-TECH model program in Norwalk, and we are in the process of partnering with other major employers to develop similar models in other communities.”

Dannel Malloy, governor, Connecticut

President Obama visited P-TECH in 2013 and created a \$100 million grant program, Youth CareerConnect, to better equip high school students with the job skills they will need to compete more effectively in the global economy and expand P-TECH further. The grant program's goal is to encourage the nation's high schools to restructure their curricula, in partnership with industry, in ways that will make students—and the nation—more competitive.

By September 2015, it is anticipated that more than three dozen P-TECH schools will be opened.

Reading Companion

Literacy is a key contributor to the economic growth of any region, affecting various societal issues such as employment, economic status, and health. There are nearly one billion people in the world today who cannot read job advertisements or decipher directions on a medicine bottle—more than 20 percent of the world's adult population. According to the World Literacy Foundation, the annual cost of illiteracy to the global economy is \$1.19 trillion, and no country has ever achieved continuous and rapid economic growth without first having at least 40 percent of its adults able to read and write.

While volunteer reading tutors are always needed, a transformative means of using up-to-date technology to advance literacy was also desperately needed. In response, in the Research lab, IBM created [Reading Companion](#)[®], now a cloud-based literacy initiative that uses voice-recognition technology to help children and adults learn to read in English. Reading Companion is a powerful tool designed to improve literacy rates across the globe by transforming the way people learn to read and empowering them to participate more fully in their respective communities. Developed by IBM researchers in conjunction with schools and nonprofit organizations, Reading Companion is innovative software that “listens” and provides feedback, enabling emerging readers to practice reading and English pronunciation as they acquire fundamental skills and improve their overall fluency.

Users affiliated with Reading Companion grant sites log into the website and are presented with reading materials. The software reads a phrase to the user and provides an opportunity for the user to read the material into a headset microphone. Depending on the accuracy of what was read, the software provides positive reinforcement (for example, “You sound great!”), gives the user an opportunity to try again, or offers the correct reading of the words on the screen. As the user's skills improve, the technology reads less material so that the learner reads more.

IBM employees, teachers, and others interested in contributing to the growing virtual library of original content found in Reading Companion can create practice-reading e-books by using our Book Builder publishing tool. Once e-books are published on the website, they become part of the Reading Companion virtual library that is available to all schools and nonprofit organizations participating in the program around the world. In 2013, 112 new books were added to the virtual library from authors worldwide, bringing the total number of books to 625. Reading Companion also gives educators valuable tools to assess student progress so they can provide more targeted instruction where students need it most. This allows Reading Companion to integrate seamlessly into system-wide literacy initiatives and into existing curricula defined by our partner organizations.

The Reading Companion grant program represents a \$36 million market-value investment by IBM to promote literacy globally. Since IBM's literacy initiatives began in 1996, nearly 1.6 million learners have benefitted from the program in more than 50 countries. In addition to the website, Reading Companion is now also available on smartphones and tablets using the Android operating system. The Reading Companion app can be accessed through the Google Play store.

112 new titles

added in 2013 to the Reading Companion virtual library of e-books from authors worldwide, bringing the total to 625.

1.6 million

IBM has helped 1.6 million learn to read in more than 50 countries since IBM's literacy initiatives began in 1996.

University Relations

At IBM, we believe that higher learning is essential to creating new jobs and building economic growth. We also believe that we can play an important role in helping institutions of higher learning continuously improve their curriculum to keep up with the skills and capabilities in demand today and tomorrow. Recently we've engaged with university faculty around the world to help transform their academic programs so they can create a larger pipeline of critical skills in key technologies such as Big Data, analytics, cyber security, mobile computing, digital commerce, and cognitive computing. IBM does this by offering a rich set of resources through our academic initiatives that provide faculty with no-cost access to software, course materials, videos, real-world challenges, and experts. And our faculty and research awards support new programs and research projects. To date, IBM has announced relationships with more than 1,000 universities globally to develop Big Data, cyber security, analytics courses, and degree programs.

Among the highlights in 2013:

Collaborative Innovation Center for Big Data analytics

Politecnico di Milano and IBM opened a Collaborative Innovation Center, sharing their background and experience to increase awareness, skills, and expertise in the areas of Big Data analytics and optimization. The new center will combine public and private efforts that aim to fill both the need to create new curricula paths and support business development and growth in this area.

Politecnico di Milano's specialized knowledge in engineering and business management will be combined with IBM research, technical capabilities, and real-world business knowledge in Big Data analytics and its applications. The relationship aims to enhance cultural awareness, education, and innovation in analytics by supporting its usage in business, as well as foster the creation of new analytics-related jobs.

Collaborative Innovation Center for financial risk analytics

The Shanghai Advanced Institute of Finance (SAIF) and IBM created the Financial Risk Analysis Strategic Partnership, designed to help make Shanghai a world-class hub for risk analytics that serves the business community and government regulators. The relationship also aims to build a talent pool and ecosystem to advance risk management in solving industry problems.

According to the agreement, IBM will provide technical support for the center at SAIF, giving financial risk analysis a stronger presence in the institute's masters program. IBM will provide practicum content, faculty research funds, and scholarships and internships for outstanding students. The center features an open research platform for academic and financial institutions and regulatory officials. It aims to provide innovative solutions to the financial industry through fundamental policy and application research in financial risk analysis, as well as training for professionals in the financial industry.

Watson in education

Market researcher Gartner Group predicts that by 2017, 10 percent of computers will learn rather than process. IBM is working to introduce university faculty and students to this next era of computing, known as cognitive systems. IBM's Watson is a computer platform that processes information more like a human than a computer—by understanding natural language, generating hypotheses based on evidence, and learning as it goes. Watson has a history of collaboration with top universities, which IBM continues to foster through our Watson in Education program.

In 2012 and 2013, IBM took Watson to university auditoriums and classrooms by providing expert speakers, conducting University Days, contributing curriculum content, sponsoring student competitions and technical challenges, and offering 20 summer internships.

1,000

the number of universities IBM has worked with to enhance academic programs



IBM and SAIF sign an agreement to launch the Financial Risk Analysis Strategic Partnership

2013 Watson in Education highlights:

- Twelve guest IBM lecturers who are Watson experts spoke at universities including Harvard, Duke, Columbia, Ohio State, and Northwestern.
- Two accredited MBA courses featuring Watson were offered at Michigan State University.
- Six universities—Harvard, Stanford, University of California at Berkeley (UC Berkeley), Duke, Columbia, and University of Chicago—sent teams of MBA students to compete in UC Berkeley's Haas School of Business Case Competition featuring Watson.
- One hundred students competed in the University of Southern California's Watson Case Competition, which won Best Marketing Event of the Year from students.
- Thirty-seven teams and more than 85 students from universities such as Carnegie Mellon University and Vanderbilt University participated in The Great Mind Challenge, Watson Technical Edition.

In addition, IBM provided faculty awards totaling \$200,000 to incorporate Watson into curricula and to assist researchers in expanding Watson and other cognitive architectures to accelerate this new era of computing.

Marketing Engineering Lab

The Chinese University of Hong Kong (CUHK) and IBM opened the Marketing Engineering Lab designed to enrich MBA and Executive MBA (EMBA) programs, conduct relevant marketing research, and act as a test bed for Hong Kong companies to experience the benefits of analytics for business advantage. As part of this program, IBM and CUHK developed a four-day EMBA course called Smarter Marketing that focuses on the evolution of marketing in the era of Big Data and the empowered customer. The course is being offered as part of EMBA programs in Shanghai Jiao Tong University and Sun Yat-Sen University. The China National MBA Committee, CUHK, and IBM also jointly organized a Smarter Marketing EMBA Course Workshop for 65 EMBA/MBA professors from 45 top universities in China. The replication of the course intends to improve business leaders' ability to leverage analytics to benefit their business.

Great Minds student internship

The Great Minds student internship program is a competition for three- to six-month internships at IBM Research labs in Haifa (Israel), Zurich, or Dublin for students from central and eastern Europe, the Middle East, and Africa. In 2013, 10 students won internships, giving them the unique opportunity to work alongside world-class scientists in a leading industrial IT research organization. Since launching this initiative in 2007, IBM Research labs have hosted more than 40 students who have an opportunity to gain insights into real industry challenges and get hands-on experience. They bring back knowledge of IBM's advanced technologies as well as contacts throughout IBM Research.

IBM and Louisiana State University

In 2013, IBM announced plans to open a services center in Baton Rouge, Louisiana, and also made an investment in helping to develop local talent. IBM is working with nearby Louisiana State University (LSU) to expand its School of Electrical Engineering and Computer Science, offering assistance in mentoring, tutoring, and curriculum. Two new concentrations are being offered by LSU: one that focuses on data science and analytics, the other on cloud and network computing. A minor in computational smart commerce is also in the works.

Since the announcement of the Baton Rouge IBM center, the number of students enrolling in LSU with a declared intention to major in computer science has grown by 60 percent.



Opening of the Marketing Engineering Laboratory at CUHK

“LSU is excited to work with Louisiana Economic Development and IBM on a partnership that is bringing new educational and job opportunities to our state. LSU is committed to having a top computer science program, and welcomes students to take advantage of the opportunities offered through the Geaux Digital partnership and the LSU College of Engineering.”

F. King Alexander, president and chancellor, LSU

Teachers TryScience

According to *Teaching Matters*, a report issued by the RAND Corporation, teachers matter more to student achievement than any other aspect of schooling. The report also found that effective teachers are best identified by their performance, not by their background or experience.

To improve science education, we must help raise the skill level of our teachers. To help transform science teaching skills, IBM launched its Teachers TryScience website in 2011 as a collaborative effort with the New York Hall of Science and TeachEngineering.org. The program is designed to help transform how teachers approach project-based learning by providing free and engaging lessons, integrated with pedagogical strategies and resources. The program also goes beyond lessons by giving teachers the practical support they need to help get them comfortable presenting complex concepts to students. For example, IBM has teamed with the National Board for Professional Teaching Standards to create videos of board-certified teachers instructing Teachers TryScience lessons, featuring key teaching moments and teacher reflections. IBM is also working with Achieve Inc. and the New York Hall of Science to map project-based lesson plans to Next Generation Science Standards. The goal is to equip all teachers with the tools they need to help young people master science concepts and inspire their love of science.

“Teachers TryScience is helping me connect what I know about science to the best methods for conveying those principles to students in ways that get them excited and engaged. I know the science behind the lessons, but Teachers TryScience gives me additional instructional strategies to use with my students to enable authentic and sustainable learning.”

Sandra Kelish, M.Ed., national board certified teacher

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 website

In 2013, IBM continued to expand the resources on the Teachers TryScience website, which now features nearly 250 lessons and more than 70 teaching strategies and tutorials. Teachers TryScience also now includes [Kids TryScience](#), a repository of 70 experiments for teachers, students, and parents contributed by science museums around the world.

250

number of lessons available on the Teachers TryScience website

70+

number of teaching strategies and tutorials available on the Teachers TryScience website

KidSmart Early Learning Program

Early learning success is critical to educational success throughout a school career. Providing access to high-quality educational technology in early grades can transform the lives of children in communities around the world. IBM's [KidSmart Early Learning Program](#) enriches pre-kindergarten curriculum with interactive teaching and learning activities through the use of technology. KidSmart 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 68,000 Young Explorers to schools and nonprofit organizations in 60 countries, reaching more than 119,000 teachers and serving more than 11 million students. KidSmart has influenced educators' thinking about what young children are capable of learning and how technology can play a positive role in the early childhood classroom.

Increasingly, countries around the world have identified investing in quality early childhood education as vital for the future success of children. For example, in 2001 IBM teamed up with the Mexican government through the National Council for Educational Promotion (Consejo Nacional de Fomento Educativo or CONAFE), an agency of the National Ministry of Education that provides early childhood, preschool, and elementary educational services to socially disadvantaged children throughout the country. To date, IBM has donated 1,930 Young Explorers, reaching more than 33,000 students and 7,000 educators across all 31 Mexican states each school year. In an evaluation of the program completed by Instituto de Evaluación y Asesoramiento Educativo (IDEA), children who attended a program featuring KidSmart were found to have improved skills in math and science, particularly children from the most disadvantaged communities.

In 2013, Salvador Martínez, country general manager of IBM Mexico, signed an agreement with Alma Carolina Viggiano, general director of CONAFE, to continue evaluating and improving the quality of teacher-training courses. The agreement also pledged to evolve the KidSmart Teacher's Training Manual, which integrates the KidSmart program into the current preschool curriculum approved by the Ministry of Education. "It is a priority to give our youngest children access to information technology as part of providing a quality education. Our partnership with IBM has made it possible to close the digital divide for more than 200,000 children through the KidSmart program, and through it many parents have also had their first contact with technology.

11 million

Reached more than 11 million students since the inception of the KidSmart Early Learning Program in 1998.



Martha Erika Alonso, Puebla DIF President and first lady of Puebla, and her husband Rafael Moreno Valle, Puebla State governor, with two children receiving a KidSmart donation at their school.

“It is a priority to give our youngest children access to information technology as part of providing a quality education. Our partnership with IBM has made it possible to close the digital divide for more than 200,000 children through the KidSmart program, and through it many parents have also had their first contact with technology. Overall, the KidSmart program provided much more than an introduction to technology, it has been embraced by the entire community and has transformed how students are learning through the use of technology.”

Alma Carolina Viggiano, general director, *CONAFE*

IBM has also partnered with various Sistema para el Desarrollo Integral de la Familia (DIF) agencies to contribute Young Explorers to social service agencies led by the first ladies of different Mexican states and municipalities, supporting the company's geographic expansion plans.

In 2012 the US Department of Education announced Race to the Top—Early Learning Challenge (RTT-ELC), a grant competition focused on improving the quality of learning and development programs for young children. In 2012 and 2013, IBM made strategic investments in several states that were awarded RTT-ELC grants including Maryland, Massachusetts, Minnesota, Rhode Island, and North Carolina, donating 545 Young Explorers, consulting services, and software valued at more than \$1.5 million, which exceeded IBM's promised commitment of \$1.3 million.

Innovation in Communities

There is no part of modern life that technology does not affect. As a technology company, IBM works closely with hundreds of organizations to discover ways in which technology can be applied to solving some of the world's most entrenched problems. In 2013, we continued to scale this work in an effort to have a truly transformative impact on key issues.

World Community Grid: A “virtual” supercomputer

World Community Grid[®] is a virtual supercomputer that enables anyone with a desktop, laptop, smartphone, or tablet to donate their unused computing power to cutting-edge scientific research related to topics such as health, poverty, and sustainability. Researchers can take advantage of World Community Grid's free computing power, and have already completed the equivalent of hundreds of thousands of years of research in less than a decade. Through the contributions of more than 640,000 individuals, 460 organizations, and 2.5 million devices, World Community Grid has supported 22 research projects since launching in 2004, including the search for more effective treatments for cancer, HIV/AIDS, and tropical diseases, as well as the development of low-cost water filtration systems and new materials for capturing solar energy efficiently. Many cutting-edge scientific research initiatives require vast computing power; by working with World Community Grid, researchers can break these big research challenges down into millions of smaller questions that can be answered independently by volunteers' devices.

World Community Grid was created to establish a means of eliminating the financial barrier to making headway in areas of critical research. The program brings together three trends that are transforming the way scientific research is being conducted: the advent of cutting-edge computational chemistry techniques to conduct computer-based simulations and experiments that accelerate research; the movement toward open access to research techniques and results with the aim of increasing collaboration and accelerating scientific discovery; and the rise of citizen science, involvement by people around the world eager to understand and take part in scientific discovery by actively supporting professional scientists. By bringing together these groups on the World Community Grid, IBM is working to help advance scientific understanding, enable the development of solutions for some of the world's most pressing humanitarian issues, and include non-scientists to help in the search for answers.

In 2013, World Community Grid further accelerated researchers' work. Among the highlights:

Advancing scientific discovery

Solar energy cells are typically made from silicon, which is expensive and rigid. If they can be made from carbon instead, solar cells could become affordable and flexible enough to paint on roofs or weave into fabrics.

Harvard University's Clean Energy Project announced the discovery of more than 35,000 materials with the potential to double carbon-based solar cell efficiency, after scanning more than two million materials on World Community Grid. Previously, carbon-based solar cells were made from a handful of highly efficient molecules that were painstakingly discovered one by one. Now there are thousands more to explore—an exponential increase. This discovery

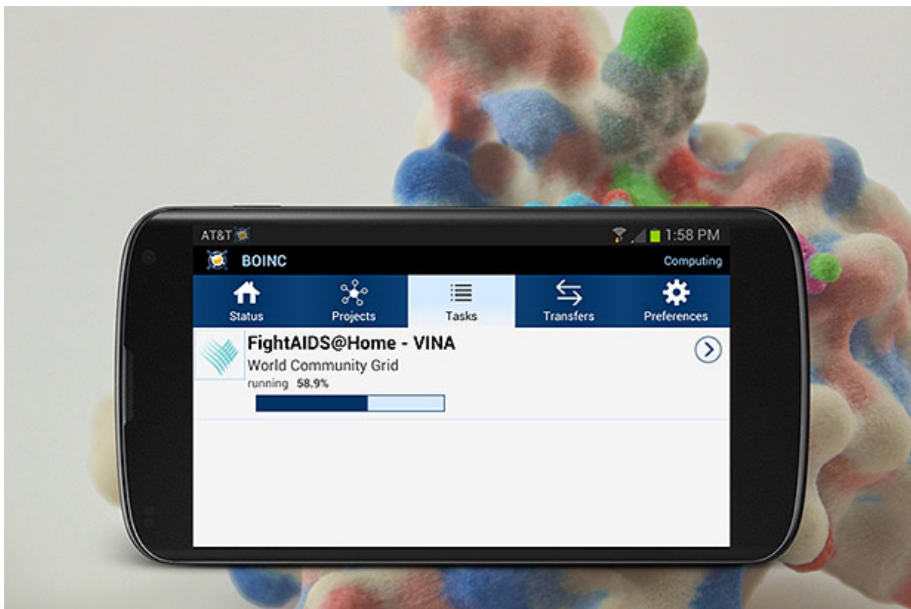
received public praise from the US White House Office of Science and Technology Policy for its role in advancing materials science. This breakthrough and others contributed to the nearly 40 scientific papers that our research collaborators have published in peer-reviewed journals based on work conducted on World Community Grid.

“Our biggest challenge was the change of mindset. Usually, computational chemists are studying 10 or 20 molecules at a time. We had to start thinking in terms of millions of molecules and formulate new ideas based on this new scale. World Community Grid allows us to screen about 25,000 molecules every day as part of what we believe to be the world’s most extensive quantum chemical investigation.”

Dr. Alán Aspuru-Guzik, professor of chemistry and chemical biology and principal investigator, Clean Energy Project, Harvard University

World Community Grid goes mobile

In 2013, World Community Grid became one of the first major volunteer computing initiatives to enable mobile computing with the launch of an Android app for smartphones and tablets. With the unprecedented growth in mobile device ownership, this development allows World Community Grid researchers to tap into a growing source of power.



Powering the search for more effective HIV treatments on an Android device

Identifying the markers associated with cancer

Also in 2013, World Community Grid launched a new project, Mapping Cancer Markers, to help researchers detect cancer earlier and design more effective treatments. Working with the Princess Margaret Cancer Centre in Toronto, Ontario, Mapping Cancer Markers is scanning patient data to identify chemical signatures, or markers, associated with particular types of cancer. These markers indicate an individual's risk of developing a particular form of cancer, as well as how they might respond to a specific treatment.

A global network for good

World Community Grid is a volunteer computing initiative devoted to humanitarian science, providing as much computing power to researchers as some of the world's largest supercomputers. In 2013, volunteers set a new record by contributing 2.5 million scientific calculations a day. In total, volunteers have contributed more than 1.7 billion calculations through World Community Grid—each a piece of the puzzle to solving some of the biggest challenges of our time.



World Community Grid

Volunteers

640,000

Participants in

80 countries

Computers, smartphones and tablets

2.5 million

Impact Grants

IBM strives to make its donations to the nonprofit community sustainable, impactful, and scalable. We closely tie our contributions to our business expertise and product offerings, implementing the same solutions as our clients around the world are using. In this way, IBM eschews "checkbook philanthropy," and instead engages nonprofit organizations on a deeper, more collaborative level. By aligning Impact Grants with our core business capabilities, we are delivering service and technology that help transform nonprofit organizations and, in turn, the communities they work with. We strive to gain a better understanding of the true needs of these organizations so we can deliver greater value, and also to help these organizations improve their skills, thus helping to improve their operations going forward.

IBM Impact Grants provide consulting expertise, hardware, and software specifically designed to support educational and nonprofit organizations in their efforts to serve our communities. The diversity of these grants allows IBM to deliver services and technology that meet the ever-changing needs of the nonprofit sector. These offerings were developed in collaboration with our grantees in the nonprofit community and focus on strategic growth, capacity building, cloud, and business analytics, while leveraging IBM solutions and consulting expertise to build skills.

In 2013, IBM expanded the program both within the United States and abroad, utilizing more than 1,000 IBM consultants and making more than 350 grants worldwide with a combined market value of approximately \$11 million. IBM plans to evolve the program as the

needs of the nonprofit community change and our business offerings grow. Along with the evolution of IBM's strategy, the portfolio of Impact Grants will continue to benefit from new solutions and innovation to help transform communities.

350

the number of grants IBM gave worldwide in 2013, with a market value totaling \$11 million

1,000

the number of grants IBM has given worldwide since 2010, with a market value totaling \$25 million

IBM's consulting-oriented Impact Grants range from one-day workshops for capacity-building offerings, such as leadership and project management, to multi-week engagements that focus on business trends such as social media and big-data analytics. The software grants provide cloud and analytics software, coupled with user training, to help organizations deploy collaboration tools and use data to make smarter decisions. The market value of these grants range from \$10,000 to \$100,000, although custom grants can exceed this value.

IBM's current grant offerings include:

Capacity building

- Becoming a leader of change workshop
- Leading organizational innovation workshop
- Leadership and collaboration workshop
- Leadership styles, coaching, and climate workshop
- Project management: concepts and consultation workshop
- Project review and consultation
- Small-business resource marketing workshop

• Strategic growth

- Digital marketing strategy roadmap
- Social media strategy and planning
- Social strategies accelerator
- Strategic assessment
- Strategic planning
- Technology roadmap
- Website user experience assessment

Cloud

- SmartCloud for social business

Business analytics

- Brand analysis in the social web
- SPSS predictive analytics

Grant spotlights

Maryland Business Roundtable (MBRT) for Education

Grant: Custom

Duration: multi-year

Amount: more than \$250,000

IBM is a founding member of MBRT, a coalition of leading employers—including business, government, and community organizations—that have made a commitment to support education reform and improve student achievement in Maryland. MBRT recognized the need to develop a network for Science, Technology, Engineering, and Math (STEM) teachers to help them connect with industry practitioners willing to share their subject-matter experience in the classroom. IBM's custom Impact Grant helped MBRT build the STEM Innovation Network, an online portal for connecting with these practitioners that also provides Maryland STEM teachers, as well as parents and students, with access to online resources.

Seniors Entrepreneurs

Grant: Social Media Strategy and Planning

Duration: three weeks

Amount: \$35,000

Seniors Entrepreneurs is a Paris-based organization with a mission to foster mentoring relationships between older/retired professionals and young entrepreneurs. The group links young and older professionals to help develop key business skills and networks and to promote entrepreneurship. IBM was introduced to Seniors Entrepreneurs through AGE Platform Europe, a network of more than 30 million Europeans over 50, as part of the organization's focus on active aging. IBM's social media strategy and planning grant was given to help Seniors Entrepreneurs enable its members to understand social media as a key enabler for developing networks and attract funding.

Union for International Cancer Control

Grant: Custom

Duration: six months

Amount: \$50,000

Union for International Cancer Control (UICC), based in Geneva, is dedicated to helping the global health community accelerate the fight against cancer. A customized Discovery Impact Grant from IBM was given to help UICC conduct an initial assessment related to its initiatives in establishing cancer registries in low- and middle-income countries. The grant has helped UICC further its cancer registry agenda and analysis activity.



Disaster preparedness, relief and recovery

When natural disaster strikes, the effectiveness of the response and the speed of recovery are dependent on the local government's ability to help manage resources efficiently. At IBM, we strive to collaborate across our entire company to bring technology, expertise, and volunteers together to address all phases of disaster management. We place particular focus on the longer-term recovery efforts, where IBM's tools can be most effective in building stronger, more prepared communities.

Over the past few years, the global picture of humanitarian disaster response has changed dramatically as events become more frequent and impact populations more severely, especially in countries less able to recover. And so we are transforming our disaster response activities to focus on the most critical global needs, with hopes of improving the overall efficiency of humanitarian response. We see IBM technology having the greatest potential to transform disaster management by actively addressing the collection, filtering, and integration

of massive amounts of data from disparate sources during these disaster events and in sharing this information across relevant government and non-governmental organizations to enable better decision-making and planning. By being able to fuse and deploy multiple technologies, we believe we are expanding affected communities' abilities to collaborate and coordinate relief efforts with better decision-making.

In 2013, as in past years, we continued to bring our many capabilities to people who needed them most.

Typhoon in the Philippines

The devastating typhoon in the Philippines last November brought with it massive humanitarian relief needs and a sense of urgency. IBM quickly responded by providing a grant to the Philippine government's Department of Science and Technology to assist in response and recovery efforts and help improve their ability to deal effectively with future natural disasters. Within two weeks of the disaster, we deployed our Integrated Communications System, including RadioConnect for Sametime from UnifiedEdge, an IBM business partner. This technology enables cross-radio-frequency communications for first responders and emergency relief providers. At the same time, IBMers began deploying in Manila our Intelligent Operations Center (IOC) solution with emergency management capabilities, equipped with software from our business partner Priority 5 Holdings, Inc. The project was designed and implemented by a global team of consultants, technologists, and disaster experts working directly on the IOC system. This IOC provides emergency management capabilities in a technology framework to streamline and integrate government processes to help agencies perform better and deliver a unified, cohesive response. In all, 44 IBMers from four continents were involved, working with 24 people from the Philippine government. The grant has a market value of \$3.5 million. We are planning an additional grant of technology and services to extend the capabilities of the IOC in support of disaster operations.



The newly formed training and support team at IBM's Intelligent Operation Center in Manila.

“IBM helped address the enormity of the crisis and used it as an opportunity to provide innovative technology to help our country respond. Building on a trusted, long-term relationship between IBM and our national government, IBM acted quickly to meet the need for better decision-making support and management of future disasters. IBM's grant will ensure that we have the skills and expertise needed to fully maximize the power of this new technology to make Filipinos safer and more resilient to hazards such as Haiyan.”

Mario G. Montejo, secretary, Philippine government's Department of Science and Technology

During the same time period, we communicated with non-governmental organizations already operating in the Philippines, including the International Medical Corps and the American Red Cross, to identify areas where we can build on government initiatives and assistance.

New grant offerings

IBM created three new Impact Grant offerings designed specifically for use at the time of disaster. These grant offerings bring organizations tools they need during critical times to collaborate and coordinate relief and recovery efforts and help better prepare for future natural disaster events.

In addition to these efforts, IBM was part of global disaster relief and recovery activity following these 2013 events:

- Earthquake in Sichuan, China, in April
- Tornado in Oklahoma in May
- Flooding in Calgary, Canada, in June
- Flooding in Uttarakhand, India, in June
- Flooding and wildfires in Colorado in mid-summer
- Typhoon in India in October
- Earthquake in the Philippines in October

SafetyNet with Nonprofits

At IBM, we understand how essential the social services provided by private, nonprofit organizations are to supporting our most vulnerable citizens, especially in times of economic distress. We also realize that these nonprofits are constantly striving to deliver the most value possible to citizens, be it in areas related to jobs, health, education, recreation, or child or senior-citizen welfare. In order to support the ongoing improvement of social services, we are lending our expertise to transform how nonprofit organizations leverage data to improve services.

IBM has created software called SafetyNet with Nonprofits to help organizations use data to more effectively and efficiently meet their clients' needs, resulting in cost savings and improved delivery of services. This software helps nonprofit workers quickly and easily access the data they need to gain a more complete view of their clients, giving them the ability to better customize and deliver the services needed. SafetyNet can also help reduce the amount of back-office tasks these workers must perform so they can focus more of their time and effort on programming. Because SafetyNet is based on open-source software and hosted in the cloud, vital information is accessible from any Internet-connected computing device.

With SafetyNet, nonprofits can pull together data from disparate sources to quickly generate detailed reports that document their progress and outcomes, making them more nimble and competitive in applying for new grants—some nonprofit users of SafetyNet have reported time savings of between 20 and 40 percent.

The SafetyNet application has been deployed as part of a pilot testing program to a handful of New York City nonprofit social service organizations called settlement houses. This type of agency has existed for more than 100 years and typically provides a gamut of services to entire families. In the United States, these organizations historically specialized in education and workplace assistance to socially and economically challenged immigrants, but their mission has expanded to disadvantaged families of all types.

With the deployment of SafetyNet, The Jacob Riis Settlement House has improved services to its clients, and improved its ability to respond to funders who request information on short notice to document the efficacy of its services. With the software, Riis is also able to better manage, track, and adjust client and family progress through multiple programs. The organization can now better compete for new funding and manage government contracts more easily. As a result, more effective and efficient services are delivered to its clients, along with tangible time and cost savings for the organization.

“IBM SafetyNet provides the hub of our information gathering, reporting, and program evaluation protocol. We are now able to respond to all data requests in a timelier manner with more accurate data. This has been very helpful in the reporting back and managing of government contracts. This was a true partnership where IBM came in and worked with our team to personalize and customize the product based on our particular needs, on our mission, and on our challenges.”

Chris Hanway, executive director, *Jacob A. Riis Neighborhood Settlement House*

By sharing our expertise and technology, we believe we can help improve the delivery of a wide range of nonprofit services, increase collaboration between the public, private, and nonprofit sectors, and make a real difference in people's lives.

Development in Communities

At IBM, we believe it is our obligation to apply our collective expertise and services to help transform communities, cities, companies, and countries. We do this by directly engaging with individuals and organizations to improve the systems that facilitate life on this planet. In 2013, we expanded our efforts in nearly every aspect of our development engagements.

Smarter Cities Challenge

Announced in November 2010, the [Smarter Cities Challenge](#) began as a \$50 million competitive grant program to provide teams of IBM experts to cities around the world over a three-year period. Today, Smarter Cities Challenge is transforming how companies, foundations, and think tanks engage with cities to make them smarter and improve city services. The program shares the deep subject-matter expertise of IBM executives and experts with city leaders around the world. IBM teams work to help cities by applying their knowledge in a collaborative, constructive, and transparent manner to produce actionable solutions and recommendations. The intensive, on-the-ground approach of these engagements give IBMers the chance to align with city leadership on its approach to a problem and the roadmap it delivers. The goal is for cities to use the roadmap to help improve services and make cities safer and more vibrant while enhancing the skills of city managers.

The result of a Smarter Cities Challenge engagement could help transform the way a city works—how it uses data, manages complex systems and organizations, and engages citizens to improve quality of life.

In 2013—the third full year of the program—180 IBMers were deployed to 31 cities to create strategies for mayors to help improve efficiency, spur economic growth, connect citizens to social services, and more.

Smarter Cities Challenge 2013 cities

Belfast, Northern Ireland

Buffalo, NY, USA

Burlington, VT, USA

Cape Town, South Africa

Chennai, India

Christchurch, New Zealand

Copenhagen, Denmark

Date, Japan

Faro, Portugal

Foshan, China

Fresno, CA, USA

Gold Coast, Australia

Jeju, Korea

Khon Kaen, Thailand

Knoxville, TN, USA

Kyoto, Japan

Lagos, Nigeria

Lodz, Poland

Makati City, Philippines

Negeri Sembilan, Malaysia

New Taipei City, Taiwan

Pingtung County, Taiwan

Porto Alegre, Brazil

Québec City, Canada

Reno, NV, USA

Richmond VA, USA

Stavanger, Norway

Trujillo, Peru

Tucson, AZ, USA

Valparaiso, Chile

Waterloo, Canada

\$50 million

competitive grant program that provides teams of IBM experts to cities around the world over a three-year period

180

IBMers deployed to 31 cities in 2013 to work with local leaders

600

IBMers deployed to over 100 cities since 2010 to work with local leaders

Smarter Cities Challenge draws on the expertise and knowledge we've gained through our work. Over the course of each Smarter Cities Challenge project, a carefully selected team of IBMers 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 cities healthier, safer, smarter, more prosperous, and attractive to current and prospective residents and businesses.

“The major benefit to Tucson Water from participating in the Smarter Cities Challenge was that it provided a rigorous and strategic evaluation of planned capital investments in technology improvements and helped staff identify a wide range of potential applications for the resulting ‘big data,’ [enabling us] to improve both customer service and management decision-making.”

Jonathan Rothschild, mayor, Tucson

For nearly four years, IBM has been helping cities in both developed and developing countries collect and analyze critical data, gaining a clearer understanding of how these complex systems of systems really work, and how they can work better. With this understanding, Smarter Cities Challenge team members work alongside leaders from the public, private, and nonprofit sectors and 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. Smarter Cities Challenge grants are valued at \$400,000, on average.

“The IBM Smarter Cities Challenge team delivered recommendations on branding and marketing our city’s agricultural products, and a roadmap to modernize our agricultural system, that was full of new perspectives, an outside point of view, and business insights. The team’s work will stimulate the growth of Date City in the future.”

Shoji Nishida, mayor, Date, regarding a Smarter Cities Challenge grant received to support the revitalization of the city’s agricultural industry after the 2011 Great East Japan Earthquake and subsequent Fukushima Dai-ichi nuclear power plant disaster

Porto Alegre, Brazil

For more than 23 years, the city of Porto Alegre has been a leader in participatory budgeting, whereby citizens have an opportunity to add services and public-works projects to the city’s budget. Mayor José Fortunati asked IBM to help Porto Alegre on its journey to becoming a cognitive democracy, with a focus on enhancing the participatory budgeting initiative to reach the broader population and better inform the decision-making process for investments in local projects.

In April 2013, the Smarter Cities Challenge team delivered recommendations designed to promote collaborative decision-making by creating an open data portal and implementing community polling; improve citizens’ lives by opening up public transportation information and instrumenting streets, taxis, and official vehicles; build on the existing 311 system, and establish a Cognitive City office in charge of directing process and governance improvements, as well as the adoption of open data initiatives.

The city has already approved a bill to add instrumentation to taxis per the Smarter Cities Challenge team’s recommendation, and accepted bids to install satellite monitoring systems that will transmit location, travel time, and other information every 30 seconds. This information is sent to the Public Transportation and Circulation Company to enable the city to assess service quality and demand.

“The participation of Porto Alegre’s government in IBM’s Smarter Cities Challenge has definitely represented a milestone for all of us of the city’s public administration. The work developed by the executives involved in the program resulted in a true action plan for our teams and proposed a deep reflection for our managers and leaders. Supported by IBM professionals, we were able not only to map a series of initiatives that were already in progress in the city, but we were also provided with new alternatives and paths to follow. The challenge has showed us more clearly the connection between our management and important global trends.”

José Fortunati, mayor, Porto Alegre

Syracuse, New York

In 2013, the city of Syracuse, New York, leveraged the data and analytics expertise from its Smarter Cities Challenge grant to help create one of New York’s first land banks, enabling the city to reclaim nearly 2,000 vacant properties and repurpose them in ways that can revitalize neighborhoods and restore the tax base by millions of dollars over the next eight years. In October 2013, New York State Attorney General Eric Schneiderman awarded the Syracuse land bank \$3 million in competitive funding to further support the city’s rapid investment in acquiring properties and restoring neighborhoods. Mayor Stephanie Miner announced that Syracuse had already seen a 69 percent increase, to \$2.5 million, in collection of delinquent property taxes and fees compared to the previous year and credited the Smarter Cities Challenge for helping the city make bold changes.

“The Smarter Cities Challenge enabled us to use data and analytics to help make decisions so we could focus the city’s resources on areas where they would be most effective. In some cases, some of our data goes back to the founding of our city. What we needed—and what the Smarter Cities Challenge team helped us realize—was a way to transform data into meaningful and actionable information.”

Stephanie Miner, mayor, Syracuse

Townsville, Australia

Like many other cities, Townsville, Australia, is grappling with the challenge of sustainable growth, including managing scarce water resources.

The Smarter Cities Challenge team advised the city on ways to leverage existing smart technologies and give residents the tools to change their behavior, become more energy efficient, and use less water. Following the project, the city worked with IBM to develop a Smart Water pilot to reduce water consumption in nearly 300 homes. The project identified

leaks in approximately 12 percent of those homes, enabling the city to help residents mitigate the problem, resulting in water savings. The pilot earned the prestigious National Smart Infrastructure Award, presented by Australia's Secretary of Infrastructure and Regional Development.

In 2013, mayors and leaders of Smarter Cities Challenge cities continued to deploy the recommendations of our teams, deepening the impact of the program in communities and delivering tangible results for citizens around the world. In late 2013, IBM announced that it would extend the Smarter Cities Challenge, based on strong ongoing demand from cities around the world for the unique value that the program provides.

Corporate Service Corps

IBM launched the Corporate Service Corps (CSC) in 2008 as a vehicle for improved leadership development and corporate social responsibility. Since then, CSC has evolved into an award-winning, skills-based, philanthropic leadership development program that blends social responsibility and business expertise to produce a triple benefit: premier leadership development for IBM employees, pro-bono problem solving for governments and communities, and a greater understanding of communities and their needs for IBM. By deploying its top talent to collaborate with governments, non-governmental organizations, and communities in emerging markets, IBM not only helps bring about meaningful and sustainable change in regions of the world that need it most, but also develops the capabilities of its emerging leaders and builds lasting relationships around the globe. We are working to transform foreign aid into citizen diplomacy.

Through our CSC initiatives, IBM is helping to drive the evolution of skills-based citizen diplomacy, resulting in measurable outcomes on some of the world's most pressing issues. By creating deeper public-private partnerships and applying skills-based problem-solving techniques, we are working to transform how pro-bono problem-solving can address today's most challenging social issues. CSC teams carry out carefully woven, multi-country projects based on common themes—such as patient records tracking—with a spirit of openness and collaboration among corporate peers, as well as between the public and private sectors.

IBM Corporate Service Corps

Essential pro bono problem-solving for communities around the world. In its first five years, IBM's CSC:

Dispatched

2,400 IBMers

Sent participants to

34 countries

Helping to improve life for at least

140,000 people

Pro-bono consulting services valued at

56 million

CSC teams comprise 8 to 15 IBMers who spend approximately six months on an engagement — three months in preparation, one month full-time in the local community, and two months in post-service work. On location, these teams collaborate with government agencies, educational institutions, and nonprofit organizations in areas where business, technology, and society intersect to develop sustainable economic solutions.

In 2013, CSC sent more than 100 teams of IBM top talent to more than 30 communities in 22 countries, delivering 100 vitally important projects designed to help communities succeed. IBM teams created solutions in new sites including Angola, Ethiopia, the Philippines, South Africa, and Chile. In addition, CSC sent its 15th team to Brazil, its 21st team to India, and its 22nd team to China. Since the start of the program, more than 2,400 IBMers from more than 50 countries have delivered in excess of 850 projects impacting 140,000 individuals, more service than any other company.

“The IBM CSC program allowed us to establish a plan of action with better visibility, clarity, and pragmatism. We are now much more conscious of our potential and our capacity to deliver our projects.”

Adil Hafidi Alaoui, president, *Fondation Tanger Al-Madina* in Morocco

Building upon an already strong public and private collaboration, CSC continues to develop relationships to deliver impactful work. For the past three years, IBM has worked with the US Agency for International Development (USAID) and PYXERA Global to deliver projects in places such as Kenya, Kazakhstan, Senegal, and Ghana. Long-term relationships with Digital Opportunity Trust and Australian Business Volunteers also enable us to deliver quality projects throughout the developing world, addressing a variety of societal issues such as education, healthcare, and economic development.

Additionally, IBM continues to be a strong advocate for citizen diplomacy by collaborating with other companies to help them explore the development of their own programs while working together to deliver community impact. One such example: In September 2013, IBM sent four JPMorgan Chase employees on assignment with its own CSC team to Uberlandia, Brazil.

“It’s definitely been a life-changing experience for me. I feel I’ve come back to my organization as a better manager.”

Paul LaRusso, vice president, *JPMorgan Chase*

Other examples of work done by CSC teams in 2013 include:

PEPFAR

The US President’s Emergency Plan for AIDS Relief (PEPFAR) is an initiative to help save the lives of people around the world suffering from HIV/AIDS and other diseases, such as cervical cancer. PEPFAR is the cornerstone and largest component of the President’s Global Health Initiative, which has a special focus on improving the health of women, newborns, and children.

In 2012 and 2013, two CSC teams worked with PEPFAR and the government of Kenya to help improve cervical cancer screening and treatment data management and reporting, scale up a national cervical cancer prevention (HPV vaccination) program, and establish an approach to developing a national cancer registry. The teams made recommendations to:

- Improve data and facilities management capabilities, enhance performance measurement, and use mobile technology for data capture and evaluation
- Increase community engagement and awareness campaigns through stronger partnerships and scalable training for the distribution of services
- Develop a health-personnel awareness program, training programs for cancer registrars, and better governance and technology for sharing data

By adopting these recommendations, Kenya's Ministry of Health can work to improve the collection, management, and reporting of reliable data for fact-based decision-making and policy-making to reduce the incidence, morbidity, and mortality associated with cancer and to improve the lives of all Kenyans.

Coders4Africa (C4A)

This nonprofit organization's mission is to create and support a Pan-African community of competent, internationally certified professionals focused on developing IT tools for African agriculture, business, education, healthcare, government, and general social needs. C4A provides African programmers and developers a gateway to online, high-quality training and certification in new technologies that dominate the software development industry, in order to help turn IT professionals into entrepreneurs and turn great ideas into viable and sustainable businesses and community offerings. C4A has developed a virtual network of coders from African countries and Africans in the diaspora who share knowledge with chapters in seven African countries, including Senegal, which has more than 400 members. In September 2013, the IBM CSC team worked with C4A in Senegal to complement coders' technical training with hands-on entrepreneurial and business training. After this engagement with CSC, three applications from C4A have gone on to receive funding to build key mobile and cloud solutions in healthcare, agriculture, and field-data collection—important growth areas in the IT industry—that will help give coders in Africa an opportunity to compete for business and grow an important area for the local economy.

“One of the biggest challenges for local African coders is moving forward, commercializing their products, and shaping their newly created companies. They lack the necessary business know-how and product and marketing strategies to move their products to market and in the process grow their newly created startups. This is the area where the IBM CSC has made the biggest contribution. We hope to package their work and offer it to future developers.”

Amadou Daffe, CEO and co-founder, *Coders4Africa*

Banco de Alimentos de Mérida

In Mérida, Mexico, a CSC team advised local food bank Banco de Alimentos de Mérida (BAMAC) on ways to improve food sourcing and distribution, as well as assisted in the longer-term goal to help feed more people in need by reviewing their overall operations. The IBM CSC team made several recommendations related to operations and logistics, communications and leadership, and expanding the donor network. BAMAC has already seen improvements in food delivery times as a result of a new inventory system, helping to deliver fresher food to those in need. In addition to the work with BAMAC, strong connections were developed between the larger Banco de Alimentos del Estado de Mexico (the national food bank network with more than 60 members) and the Global FoodBanking Network (GFN) that will enable the team's findings to reach a much larger network on both the national and international level.

“The successful collaboration between IBM Corporate Service Corps and Banco de Alimentos de Mérida is a great example of how GFN helps international businesses find ways to activate their global philanthropy on a local level. One of the ways GFN supports our network food banks is by representing them to best-in-class corporations—like IBM—that want to make a difference in the world. Working with GFN, these global good citizens know they will be helping credible organizations that operate at the highest levels. We are thrilled that the IBM Corporate Service Corps project with the food bank in Mérida, Mexico was a success for all involved.”

Jeff Klein, president and CEO, GFN

SME Toolkit

IBM and the World Bank's International Finance Corporation (IFC) have worked together to create the Small and Medium Enterprise Toolkit, or [SME Toolkit](#), that provides entrepreneurs and small-business owners who visit the website tools to help them grow their business in critical areas such as finance, accounting, international business, marketing, and human resources. SME Toolkit is transforming how small business owners develop the skills needed to grow their companies and add jobs and resources by giving them real-time access to practical business knowledge, information on local regulations, and online tools—all in their own language—to help them overcome the many business challenges they face as they grow their companies. IBM supports SME Toolkit in order to accelerate economic development and job growth in geographies and communities that are striving to increase their engagement in the market economy, as well as to help spur development of women- and minority-owned businesses in the United States.

5 million+

small businesses took advantage of SME Toolkit, now available in 41 countries and 18 languages, in 2013.

“Alongside IBM’s business and technological expertise, we have brought entrepreneurship skills, which are life skills, to entrepreneurs and business owners in low-income countries around the world through SME Toolkit. IBM is truly helping to deliver innovation that matters for the world.”

Jin-Yong Cai, CEO and executive vice president of IFC, a member of the World Bank Group

Organizations hosting the SME Toolkit site in each country are responsible for localizing, customizing, and translating content so that it speaks to the local markets. These organizations, such as the Enterprise Development Centre, a nonprofit institute that’s part of the Pan-Atlantic University in Nigeria, can also help nurture local businesses and improve their chances of survival.

In 2013, more than five million small businesses used SME Toolkit to help support their growth. SME Toolkit sites were launched in Jordan, Lebanon, the Democratic Republic of the Congo, Georgia, and Gabon, bringing the total number to 41 countries and 18 languages supported.

IBM employees in participating countries use SME Toolkit to conduct mentoring and expert workshops with small-business owners and students interested in starting companies. In 2013, workshops hosted in Nigeria, Indonesia, India, and the United States leveraged IBM employees as expert mentors or to deliver workshops on topics such as technology and leadership.

IBM has dedicated more than \$7 million to improve the toolkit’s usability and performance, enhancing functionality with the creation of a resource hub, learning location, and meeting place for small and medium businesses. SME Toolkit is a leading example of IBM’s commitment to help small businesses grow.

SME Toolkit success story

Diana Al-Dajani is the founder and owner of EduTechnoz, a software development firm that creates online games to teach children Arabic. The games inspire children to fall in love with the Arabic language by enabling them to master it in a fun way. Al-Dajani got her own inspiration from SME Toolkit when she attended her first workshop organized by Qatar Development Bank, the SME Toolkit collaborator in Qatar.

Before learning about SME Toolkit, Al-Dajani’s main source of information was her friends, as she did not trust the information she found through web searches. Once Al-Dajani started using the toolkit, she was able to access information on business registration in Qatar, get ideas on possible organizational structures for her company, and access additional information about the local market.

Al-Dajani has also made extensive use of the practical tools and forms offered on the SME Toolkit website, such as cash flow statements and pricing tools. With the site’s help, she developed a business plan that won second place at the AI Fikra National Business Plan Competition, and she was named Best Female Entrepreneur by the MIT Enterprise Forum of the Pan Arab Region in 2013.

Today, EduTechnoz has more than 20,000 registered users.

“I would not have been able to achieve all this without SME Toolkit.”

Diana Al-Dajani, founder and owner, *EduTechnoz*



EduTechnoz, fun Arabic learning for children

Supplier Connection

Supplier Connection is transforming the relationship between small businesses and Fortune 500 corporations, while also promoting job growth in the United States, by helping small businesses access the supply chains of large companies. A contract from a large corporation can mean the difference between a small business surviving and truly thriving. Such contracts bring with them the cash flow required to help stabilize small businesses, enabling them to hire more people in order to serve a large contract and to leverage the credibility of having a Fortune 500 customer to attract new business and increase sales with existing customers. The program's web-based portal was created and is maintained by IBM with more than \$13 million in grant funding from the IBM International Foundation since its inception in 2011.

Small businesses are crucial to the vitality of the US economy. They comprise more than 99 percent of all companies and half of all private sector employment. However, small businesses often find it challenging to enter the supply chain of large companies, especially global companies. IBM and a consortium of 26 large corporations are collaborating to make it easier for small businesses to become suppliers to large companies via one-stop shopping, increasing their ability to expand operations and hire new employees.

Supplier Connection provides small companies with a standardized, streamlined way to register basic information, share business practices, and potentially connect with other small and large businesses to enhance their opportunity for growth. According to the Center for an Urban Future, small companies could potentially double the number of employees and increase their revenue within two years of working with a large corporation. In turn, large companies working with small businesses have more opportunities to find registered suppliers, communicate with them, and forge stronger relationships.

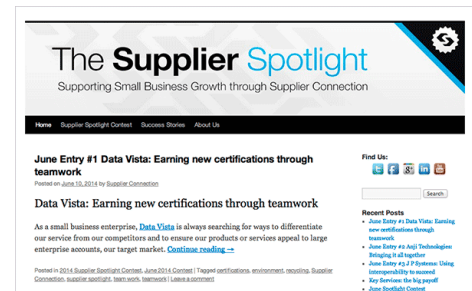
“IBM Supplier Connection really has leveled the playing field, because now you can be a five- or ten-employee company, and you’re not just competing with companies around the block, you’re really able to break into markets around the world by accessing these large corporations—and that wasn’t happening before. Small businesses were very local, and this has really given the tiniest small businesses a huge leg up and an opportunity that they just didn’t have before.”

Jonathan Bowles, executive director, *Center for an Urban Future*

In 2013, Supplier Connection corporate members spent more than \$1.5 billion directly on thousands of small businesses throughout the United States. Large corporate members have collectively increased their total spend on small businesses in the United States to nearly \$15 billion. That represents a 3.5 percent increase in spending by these members with small businesses, compared to spending in 2012, marking a departure from the recent trend of large companies consolidating their spending on fewer, larger suppliers.

Supplier Connection success story: JP Promotional Products

JP Promotional Products, which distributes imprinted promotional products throughout the United States, was started in 2003 by Shari Pulver. Her father, Robert Rosenthal, joined the company in 2005, after more than 35 years in the promotional products industry. In 2013, the father-daughter team decided to join Supplier Connection.



The Supplier Spotlight—Supporting small business growth through Supplier Connection

\$1.5 billion

spent by corporate members with small businesses registered on Supplier Connection in 2013

“After a little research, we realized that Supplier Connection could not only help us secure an order with an existing buying member, but also benefit our business in the long run. We now have the opportunity to bid on significant orders that previously would not have been available to us. We’re also part of a network of buying members and other suppliers, and those connections would be very difficult to initiate on a local level.”

Robert Rosenthal, owner, *JP Promotional Products*

City Forward

Fueled by the movement toward open access to data, [City Forward](#) is transforming how citizens interact with their cities by making complex data sets easier to explore, understand, and discuss. By facilitating the use of this data, City Forward aims to empower organizations and citizens to better understand and drive change in their communities, and to encourage the discovery of unexpected correlations and ideas.

City Forward is an open, web-based platform designed for city officials, researchers, academics, and interested citizens worldwide to view and interact with city data while engaging in an ongoing public dialogue. Information found on City Forward includes publicly available data related to education, traffic, crime, health, and demographics of cities.

City Forward’s straightforward exploration tools enable 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.

City Forward contains data collected from local and national government agencies—from more than 200 cities around the world—and remains one of the only tools of its kind that allows for easy comparison of open data across cities. The site uses the latest IBM technology, including IBM Cognos® Business Intelligence, Framework Manager, and IBM Connections to help bring open data, and the insights it reveals, to life.

Service in Communities

Individuals, and the time they volunteer, can be a powerful transformational force. At IBM, we put service and skills-based volunteerism at the center of our corporate citizenship efforts, encouraging employees to get involved for the benefit of their company, their community, and themselves.

On Demand Community

IBMers often demonstrate their commitment to social responsibility and citizenship through service. To encourage this service, IBM created On Demand Community, an online portal that offers rich tools and resources to facilitate current and retired IBMers' volunteer engagement and action. Using this community, which is designed to accommodate the way people work today by including mobile and work-at-home employees, IBMers can find skills-based volunteer activities and apply their expertise to a cause, helping to make a difference in the communities they care about.

In 2013, we took steps to transform the traditional model of volunteering, in which interested individuals seek out opportunities to serve, by adding a feature that empowers community nonprofits to find the skilled IBMers their organizations need. We did this by opening up our On Demand Community portal to these nonprofits, allowing them to submit service projects that are aligned via skills, interests, and location, and are then pushed out to IBM volunteers globally. Through a robust skills-based matching tool, our technology pairs the needs of our community nonprofits with employee and retiree skills, ranging from project management to technology expertise to communication strategies and many other capabilities.

16.5 million

Hours of volunteer service logged by more than 250,000 IBM employees and retirees since 2003

On Demand Community

Recognizing 10 years of volunteerism

Registrations

250,000+

in 120 countries

Volunteer hours tracked

16.5 million

Community Grants

25,000+

awarded totaling \$40 million+

Skills-based activity kits

45 kits

available to volunteers worldwide in 200+ translations

Community organizations

Access

to post volunteer activities

Awards and recognition

18,000+

volunteers recognized

This unique model allows our community nonprofits to directly find the skills they need with IBMers who are ready to donate their strengths and talents to issues of importance to them. Since On Demand Community's launch in 2003, more than 250,000 IBM employees and retirees have registered at the site and logged 16.5 million hours of volunteer service.

Every year, IBM awards significant individual and team volunteers with the IBM Volunteer Excellence Award. Among the 12 winners for 2013 were:

Envisioning a future without cyberbullying

Research shows that 64 percent of teenagers in Hong Kong and Macau have experienced some form of cyber-bullying. A team of seven IBMers envisioned a program that would work to raise awareness of the problem, help prevent cyber-bullying, and have a real impact on the students and their schools.

In collaboration with the Education Bureau (EDB) of the Hong Kong Special Administrative Region, these IBM volunteers launched the Internet Safety and Anti-Cyberbullying Student Training program to primary and secondary students in Hong Kong in 2012. Due to its tremendous success, the program has been scaled up to include 191 primary school students from 19 schools and 140 secondary school students from 13 schools in 2013.

The team uses many On Demand Community resources, including the Control Your Online Identity and Cyber-bullying and Internet Safety Coaching activity kits, as the basis of their program. They translated the information into Chinese and customized the content with local news, regulations, and teaching materials from EDB to target different audiences. With native-language and local examples, students can better understand and relate to presentations, making the program more effective.

Helping immigrants enhance their skills

What started as assistance from an IBM Centennial grant for a volunteer project with the Amsterdam social security department has developed into a full-blown nonprofit organization.

In 2011, Rosanna Nazir led a large group of IBM volunteers to build and deliver education courses designed to help immigrants enhance their skills and improve their employability. Coming off their success, Nazir worked with several volunteers to formally establish Stichting Vrouwen Aan Het Werk (VAHW), or the Foundation for Women at Work, to turn the project into an ongoing commitment.

Nazir, an IBM professional development program manager, is now the chairwoman of VAHW, dedicated to developing innovative projects to promote economic independence and self-reliance for women, young people, and immigrants. In addition to a curriculum of general information and communications technology courses, the team is adding classes to help women develop targeted skills for the areas in which they will seek employment.

The World Smart College was the original project with the social security department to guide immigrants in job readiness and confidence-building to seek employment in an unfamiliar culture. It ran from November 2011 through June 2012 with more than 100 IBM volunteers on hand. The high success rate of participants finding employment motivated Nazir and others to expand the idea and create VAHW. The volunteer team has made use of several On Demand Community activity kits, including job readiness, project management, and marketing basics.

Giving children with Down Syndrome a fun way to learn

For the last 30 years, special education institutions have used blackboards, pencil, and paper to teach students with special needs, such as Down Syndrome. In 2013, IBM Argentina was invited by ASDRA (Down Syndrome Association of Argentina) to participate in a project aimed at developing information technologies for use in the teaching and learning process of children with intellectual disabilities in school, support centers, and at home. The key was to leverage the extensive use of mobile devices to help people with Down Syndrome learn in a fun, intuitive way that also motivates them to be more open and communicative.

The project was posted on the On Demand Community, in search of professionals with different skills to volunteer their time to develop a set of cognitive exercises for smart phones and tablets. Required skills included open-source programming, drawing, painting, music, leadership, and project management. It took the team of six volunteers about five months to complete the project: A game using open-source software that can be downloaded from the Internet.

The game aims to stimulate emotional responses in children by helping them recognize everyday situations. While playing, the child selects the “face” that represents an emotion described in the stage of the game. Correct answers allow the player to move from the home area through stages in the game; as the player identifies each face drawing correctly, the achievement is recognized with applause. If the player makes an incorrect selection he or she is returned to the original position without highlighting the error. The game has been downloaded more than 2,500 times and is in use at six schools in Buenos Aires.

Community Grants

IBM Community Grants support employees and retirees around the globe who regularly volunteer with nonprofit organizations. When an individual volunteer or teams of IBM volunteers meet the requirements and work with eligible community organizations, the organization qualifies for a cash grant. Grants begin at \$500 and may be higher if an activity kit from the On Demand Community site is used or if a professional skill is involved. Organizations may receive one Community Grant per calendar year. In 2013, thousands of community organizations received grants with a value of \$4 million through IBM Community Grants.

\$4 million

The total in IBM Community Grants given to organizations in 2013

Employee donations and programs

IBM joins 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 develop as leaders and contribute directly to the well-being of their communities.

Employee Charitable Contributions Campaign

The annual Employee Charitable Contributions Campaign (ECCC) in the United States provides employees and retirees with an opportunity to contribute to more than 10,000 community organizations. These organizations offer a wide array of services including environmental, cultural, health and human services, literacy, and disaster relief. The 2013 ECCC generated a total of \$32.5 million in support of communities in the United States. The Employee Charitable Fund program in Canada provided approximately \$3 million in contributions to Canadian organizations. IBM salutes the generosity of its employees and retirees and is proud to provide these programs to assist them in support of their communities.

\$32.5 million

The total of US employee and retiree contributions to the Employee Charitable Contributions Campaign in 2013.

Matching Grants

The IBM Matching Grants program enables US 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 nonprofit organizations have benefited from contributions by IBM and our employees through this program. Recipients of IBM Matching Grants are a variety of organizations 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 2013, 5,979 organizations received grants with a total value of nearly \$11 million.

\$11 million

The total value of matching grants received by 5,979 organizations in 2013.

The IBMer

We understand that in order to bring about positive change for our clients and our communities, we rely on people who share our values and embrace transformation. That's why we make it a top priority to hire, support, train, and retain people who strive to improve themselves and the world around them. In this section, you will find examples of the ways we foster the personal and professional development of our employees.

Supporting IBMers	58
Employee Well-Being	59
Employee Inclusion	66
Leadership Development	70

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. During the last two years, we have been challenging ourselves to rethink how we select, recruit, train, and develop IBMers in a range of critical job roles, especially client-facing and manager roles. This focus continues to intensify.

Since 2012, our focus has been on fostering the link between IBMer engagement and client experience. This focus has included a broad range of tactical activities across geographies and business groups. In 2013, we introduced THINK40, a self-initiated learning program of at least 40 hours of professional development that every IBMer undergoes each year. IBMers completed more than 25 million learning hours in 2013, a 154 percent year-over-year increase from 2012.

Also in 2013, we launched Think Academy, a new method of sharing and learning that the entire company does together, designed to fulfill our goal of being essential to our clients and the world. This online, easy-to-digest approach to learning allows employees to gain insight in areas critical to the business where new knowledge is being rapidly created. This allows employees to become experts in and advocates of rapidly changing areas such as cloud, Big Data and analytics, mobile, and social computing. Courses—called Think Friday sessions—begin on the first Friday of each month, but employees can choose when and how they access content. IBM CEO Ginni Rometty begins each Think Friday session by framing a given topic, its importance, and key concepts to explore. She also regularly interviews clients to gain insight into how a topic affects them and what they are learning about it. Think Academy curates and houses each new topic in an interactive learning environment. Employees can earn THINK40 credit for each Think Academy course they complete.

We also invested heavily in developing new, more social approaches to finding and cultivating expertise, to understanding employee sentiment, and to fostering collaboration with one another.

Social technologies continue to change how we work together with other IBMers, and how we work with our clients. Today, new hires are given the option to begin building relationships as soon as they accept a job offer, thanks to our social platform called Soon 2 B Blue that connects soon-to-be-IBMers with IBMers already in place. Our learning programs are infused with rich social interaction and collaboration opportunities that continue long after a formal training program is complete. IBMers have the option to thank one another—publicly or privately—in the digital BlueThx environment, built by volunteers at IBM for IBMers. And increasingly, HR teams are using their own internal blogs and Lotus® Connections online platforms to introduce new programs, solicit feedback to existing programs, and fine-tune the IBMer experience.

Also in 2013, we continued to focus on using analytics to drive action by training HR professionals worldwide on the use of data and analytics. Our workforce analytics team takes on an increasing number of projects to determine what distinguishes performance, what makes managers effective, and how to best retain key performers.

25 million

learning hours completed by IBMers in 2013,
up 154% from 2012

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 — at work, at home, or as a member of a larger community.

“We optimize performance through healthy choices, people, workplaces, families, and communities.”

Kyu Rhee, MD, vice president, *IBM Integrated Health Services*, in communicating his vision statement to more than 400,000 IBMers around the world

This vision is further expressed in our well-being mission statements:

- Address local and global health priorities
- Improve the overall health and vitality of our employees
- Provide safe and healthy work environments
- Design health benefits and health-promotion programs to improve access, increase quality, reduce costs, and drive innovation
- Support business continuity and growth

IBM's transformation to a culture of health is the result of relentless focus on our company's vision and mission. Within a framework of well-established scientific evidence, IBM delivers on this vision through a set of global health priorities that encompasses significant aspects of the health, safety, health promotion, and health benefits experience at IBM.

More than 300 physicians, nurses, safety and health promotion professionals, industrial hygienists, and health-benefits experts support well-being at IBM through this interconnected set of global health priorities. These priorities drive the policies, programs, and processes that create the IBM culture of health.

Table of Priorities

One

Safety

- Office and general workplace
- Accident and incident management
- Non-IBM environments
- Acquisitions and outsourcing
- IT maintenance
- Building design and operation
- Ergonomics
- Transportation safety
- Manufacturing and research
- Contractors and vendors

Two

Medical

- Clinical services
- Medical case management
- Occupational injury and illness management
- Travel health and events
- Executive health
- Food and water safety
- Sick leave and disability
- Emergency preparedness and response
- Evidence-based healthcare
- Special programs

Three

Health benefits design

- Behavioral health
- Primary care
- Target populations & conditions
- Medication coverage
- Elder health
- Maternity and reproductive health
- Newborn and pediatric health
- Emergency care
- Specialty care
- Oral and vision health

Four

Health promotion

- Health risk assessments
- Active living
- Healthy eating
- Mental and emotional well-being
- Preventing alcohol, tobacco, and drug abuse
- Infection prevention
- Injury- and violence-free living
- Sleep and rest
- Clinical prevention
- Engagement strategies

Valuing a culture of health

IBM has long known that a culture of health is good for people and business. Evidence that supports this perspective was published in 2013, following a landmark study in which the authors demonstrated that beyond having a positive impact on individuals, businesses with a strong culture of health are superior performers in the marketplace. This study examined the 10-year stock market performance of companies that won the Corporate Health Achievement Award (CHAA), which is given annually by the American College of Occupational and Environmental Medicine to the healthiest and safest companies in North America, and which IBM has been awarded twice. Below is an excerpt from an article published in the *Journal of Occupational and Environmental Medicine* in September 2013:

“Tracking an initial theoretical investment of \$10,000 in publicly traded CHAA recipients from the mid-1990s to 2012, researchers found that these award-winning CHAA companies outperformed the S&P 500. Four investment scenarios were created, using a combination of simulations and past-market performance to create investor portfolios for comparison. While the margin of return varied, CHAA recipients outperformed the market in each of the four scenarios. In the highest-performing scenario, CHAA companies had an annualized return of 5.23% vs. -0.06% for the S&P 500. In the lowest-performing scenario, CHAA companies had an annualized return of 6.03% vs. 2.92% for the S&P 500.”

Providing value through innovation

Constant transformation of traditional mechanisms for delivering health services is required to keep pace with the world we live in and the lives we lead. In 2013, IBM designed new options for employees and their families to obtain needed services around the clock, from home as well as from the workplace.

Wellness Advisor

Often, particularly in growth-market countries, mental health services offered through Employee Assistance Programs (EAPs) are limited by the stigma surrounding psychosocial health. In addition, medical services such as treatment-decision support and condition management are not always available or of high quality. The rapid increase in chronic disease risks highlights the opportunity for wellness coaching, which is a new concept in many regions of the world. Last year, IBM created a new program model called Wellness Advisor, which aims to bring together all of these services to improve access and support, and create a less-stigmatized entry point for EAP services.

IBM's Wellness Advisor service is currently being piloted in Brazil and India, and has been well received by employees and their family members. The program includes the following services, delivered by telephone:

- EAP counseling (telephone and face-to-face)
- Nurse hotline
- Condition management
- Treatment-decision support
- Pregnancy and children's health support
- Wellness coaching
- Legal and financial counseling

Wellness Checkpoint

To better standardize measurements of health, IBM implemented a global health risk assessment tool called Wellness Checkpoint. The tool has been acculturated and adapted for use in 130 countries and is available to employees in 26 languages. It provides a common platform for employees to identify health-improvement opportunities and be directed to relevant follow-up support services.

- More than 50 percent of IBM's global employee population now has access to the tool. In the United States, 60 percent of IBM employees typically complete the assessment, and initial launches in the United Kingdom and India have already reached 20 percent and 10 percent assessment completion, respectively.
- The data generated has already proven valuable. For example, while the average age of participants in India is much lower compared to the United Kingdom, the group in India revealed a higher prevalence of disease predictors and warning signs, supporting further targeted investment in health support. The tool was recently rolled out in Germany, Austria, and Switzerland.

Virtual Health Fair

Engaging employees where they work through social options is essential to creating a culture of health at IBM. With its inaugural Virtual Health Fair, IBM broke new ground with a live, 24-hour opportunity for employees around the world to view health and safety webcasts and then chat with subject matter experts including physicians, safety professionals, and nutritionists.

In addition to webcasts on topics such as sleep health, stress, and active living, we established virtual information booths with additional resources such as Body Mass Index (BMI) charts, depression screening tools, and guidance on healthy eating. In support of IBM's learning agenda, all materials were made available on demand and aligned with our THINK40 self-learning campaign.

Supporting the whole person

Through a holistic lens, IBM in 2013, expanded health benefits and health promotion programs and offerings that consider the physical, mental, and emotional needs of employees and their families.

Inclusive benefits design

In addition to designing benefits that cover primary and preventive care, IBM's Healthcare Design Principles were updated, and now include:

1. We believe pre-existing conditions and disease-specific limitations shouldn't be barriers to receiving care.
2. We believe in and support the power of affordable primary care, including annual wellness exams, clinical prevention that includes relevant, evidence-based screenings and vaccinations, acute and chronic disease management, laboratory and imaging services, and medication coverage.
3. We believe in maternity care.
4. We believe in newborn and pediatric care, including pediatric well-child visits, vaccinations, and relevant tests.
5. We believe health is a shared responsibility where the employee and the employer both contribute to the increasing costs of healthcare.
6. We believe in behavioral health.
7. We believe we must comply with local legal and regulatory requirements.

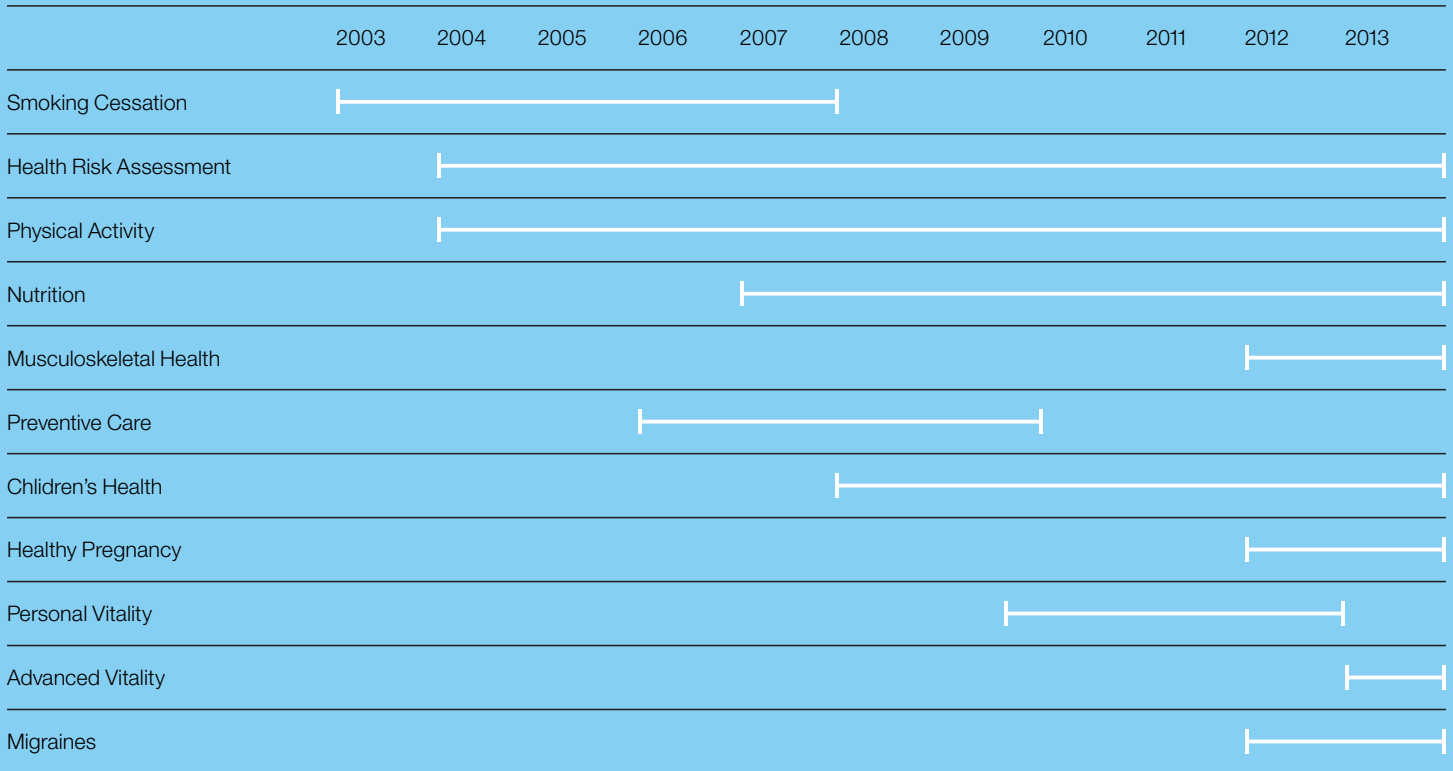
Medical plans were aligned with IBM's global health benefit design principles, while some changes to deductibles were necessary to manage an affordable and sustainable cost structure in view of rising global healthcare costs.

US healthy living rebates

Also in 2013, programs that promote health and well-being were introduced to employees in the United States during their annual benefits enrollment. Employees had the opportunity to participate in two healthy living rebate programs, totaling \$300 annually, to support their wellness efforts. Topics of focus include children’s health, healthy pregnancy, physical activity, nutrition, weight management, and advanced vitality.

The following chart outlines the evolution of this approach to stimulate participation in healthy living choices:

Overall High Engagement in Rebate Program



Consistently high participate rates. On average:
 75% choose to participate at enrollment
 65% engage on the program website (85% of enrolled)
 50% completed 12-week program to earn rebate (75% engaged)

India fitness champions

To promote physical activity and healthy eating habits, IBM India employees were challenged either to maintain their existing BMI (body mass index) or lower a high BMI over a period of six weeks. Employees were given points for participating and awarded weekly prizes through a lottery drawing. The fitness champions program engaged nearly 15,000 employees in 2013, a 53 percent increase from 2012.

Latin America seven healthy habits

To support employees in achieving a well-balanced lifestyle, IBM Latin America focused on seven everyday habits aimed at improving employees' mental, physical, and emotional well-being. Topics of focus included healthy eating, physical activity, addiction prevention, healthy sleep, emotional intelligence, healthy relationships, and preventive care services. Resources and activities were customized within each region to meet the needs of the participating employees.

Mental health awareness

Within IBM, focus continued on expanding mental health awareness through online training aimed at managing employees with mental health conditions. Managers in Australia and New Zealand were among the first to receive this opportunity.

Evolving approaches to safety

IBM continued to evolve its approach to assuring safe workplaces with a realigned service-delivery model and a focus on partnerships. Two IBM organizations, Real Estate Site Operations and Integrated Health Services, joined forces to collaborate on process improvements designed to reduce risk and optimize governance. Engagement by both teams has resulted in tightly monitored building safety at every level, from issue detection to full resolution.

Work at IBM, however, is not confined to office spaces. Employees work at client locations, their homes, and even hotels. Corporate events at external locations are part of IBM's daily business. With hotels and convention centers serving as a new workplace, controlling hazards can be challenging. To meet this challenge, IBM Brazil's health and safety team worked with procurement to think through the requirements that would maintain the well-being of our employees and other event attendees. A total of 25 external locations across Brazil were inspected to assess compliance with safety standards. *Protecao Magazine* recognized this team for excellence in the risk-management category. This recognition capped a five-year effort to establish health and safety standards that diminish risk at external locations where IBM hosts events.

Recognizing excellence

Continued external certification of IBM's Well-Being Management System through the Occupational Health & Safety Advisory Services (OHSAS) 18001 certification process has helped improve the quality and consistency of our global implementation of well-being. It has also enabled IBM to fulfill marketplace demands and foster business opportunities because the company is better equipped to demonstrate its standardized approach to managing employee well-being to existing and potential clients. IBM's health and safety management system is certified by OHSAS 18001 globally.

Local recognition of excellence in 2013 included:

- IBM Canada obtained a rebate of Can\$1.5 million from the Workplace Safety & Insurance Board (Ontario) for accident prevention and return-to-work activities.
- IBM Rochester was awarded the Minnesota Safety and Health Council's Governor's Safety Award of Honor, the highest level of achievement for workplace safety and health excellence bestowed upon Minnesota employers. The site also earned the Liberty Mutual Outstanding Safety Performance award for maintaining an injury/illness lost-time case rate 80 percent below our industry peers.

- All of IBM's hardware research, development, and manufacturing operations in the United States were recognized as Occupational Safety and Health Administration (OSHA) Voluntary Protection Programs Star sites. This is OSHA's highest honor, given only to those that are proactive and exhibit exemplary safety and health programs and results.
- IBM Belgium was awarded the Q Label by Metatecta NV for having the first BioBalance building in Europe. IBM's Brussels office received the award for work that began in 2010 and changed the building's cleaning principles by replacing chemical products with positive bio-organisms to help restore and maintain the bio-balance of buildings.
- IBM Almaden, East Fishkill, Poughkeepsie, Rochester, Yorktown, and Real Estate and Site Operations America locations were recognized by Liberty Mutual Group, our worker's compensation insurance carrier, with safety excellence awards. The award is indicative of exceptional safety performance in comparison to other companies in the semiconductor industry.

Well-Being Management System

IBM's Well-Being Management System (WBMS) is the foundational architecture that provides this coordinated and consistent delivery of health and safety objectives across all geographies and time zones. First implemented in 1999, WBMS is framed around IBM's corporate policy of 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 strategic planning 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. The desired outcomes are improved productivity, managed costs, and elimination of unnecessary expenses.

Employee Inclusion

For more than 100 years, IBM has understood that diversity is the bridge between the workplace and the marketplace. We know that success with our clients begins with success in the workplace. And as we innovate and grow, we continue to focus on our core corporate values to guide us.

Over the years, IBM has responded to the kinds of challenges some parts of the world are still grappling with today—where women continue to struggle for a safe and harassment-free work environment; where lesbian, gay, bisexual, and transgender people lack legal recognition and feel unsafe; and where people with disabilities are denied equal access to employment opportunities due to lacking accessibility standards or discrimination.

“At IBM, diversity is integrated into our business strategy. Diversity is essential, in the same way we view innovation as essential for our business and clients. As a company that conducts business in more than 170 countries, our belief in diversity enables employees to develop their full potential, so in turn, IBM can support clients with talent that represents true diversity of thought.”

Belinda Tang, vice president of leadership and diversity, IBM

As we approach decisions and negotiations on expanding IBM operations around the world, our client teams and business leaders are clear about how we conduct ourselves in the world of business and the global community. Rather than be deterred by different cultures or beliefs, we share our beliefs so that we can conduct business within any country that is aligned with our global corporate values and employment policies. IBM's willingness to take on issues of equity, fairness, and equal opportunity in the United States and around the world not only sets us apart, it makes us a magnet for the smartest and most talented people. And we have a long history of precedent-setting action in this regard. For example:

- 1899: IBM hired three women—Emma Manske, Nettie Moore, and Lilly Philp—20 years before women were given the right to vote.
- 1899: IBM hired Richard MacGregor, our first black employee, 10 years before the founding of the NAACP and 36 years after the Emancipation Proclamation.
- 1914: IBM hired its first employee with a disability, 76 years before the Americans with Disabilities Act.
- 1934: IBM hired its first professional woman, 29 years before the Equal Pay Act.
- 1953: IBM wrote its first Equal Opportunity Policy that called for equal opportunity in hiring regardless of race, color, or creed.

In each of these cases, IBM leadership chose to manage employees in line with our values and beliefs and to engage governments, communities, and other corporations in our effort to change, even if unpopular or disruptive to normal business relationships.

“Men and women will do the same kind of work for equal pay. They will have the same treatment, the same responsibilities, and the same opportunity for advancement.”

T. J. Watson Sr., founder, IBM, 1953

In 2013, IBM continued to demonstrate leadership in its support of constituent groups. The following are a few examples:

LGBT (Lesbian, Gay, Bisexual, Transgender) workplace equality

IBM has a long history when it comes to LGBT workplace equality. As early as 1984, we included sexual orientation in our nondiscrimination policy. In 1995, an 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.

IBM earned the HR Excellence Award 2013 from *Human Resource Manager* magazine in Germany for its global LGBT reverse-mentoring program. A large group of LGBT employees from around the world volunteer to mentor our managers in growth markets on what it is like to be a LGBT employee at IBM and to belong to the LGBT constituency in today's society.

In addition, for the 11th consecutive year, IBM scored 100 percent on the Human Rights Campaign Foundation's Corporate Equality Index, the national benchmarking tool for corporate policies and practices related to LGBT employees. The index, released each autumn, provides an in-depth analysis and rating of large US employers and their policies and practices pertinent to LGBT employees—such as equal-employment opportunity policies that include sexual orientation and gender identity or expression, employment benefits for all benefits-eligible US employees, and ongoing LGBT-specific engagements that extend across the company.

IBM also scored No. 1 in Stonewall's Global Equality Index 2013. Stonewall is a LGB organization based in the UK.

Advancement of women

In 2013, IBM was recognized by Working Mother Media as one of the Top 10 Companies on both their 100 Best Companies and Best Companies for Multicultural Women. In addition, the National Association of Female Executives recognized IBM among the top 10 on their Top 50 Companies for Executive Women.

As part of IBM's ongoing commitment to advancing women in the workplace, more than 640 executive IBM women participated in the Advancing Women at IBM Study published in 2013. The study's paper, *Your Journey to Executive*, focuses on three themes that emerged: 1) Be visible; 2) Plan your career; and 3) Integrate work and life. In addition, we continue to invest in innovative programs like Building Relationships and Influence for Women, a program for high-potential women leaders that uses experiential and action-centered learning to help participants develop skills in building, developing, and maintaining business relationship and influencing skills.

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 while Jeanette Horan was appointed IBM's Chief Information Officer. More than 23 percent of IBM's global executive population is made up of women. About two-thirds of IBM's women executives across the world are working mothers—clearly demonstrating that IBM women do not have to choose between a career and motherhood.

People with disabilities

Skills and capabilities of the workforce must keep pace with a constantly evolving world as the competition for talent intensifies. Including people with different abilities in IBM's workforce is based on sound business judgment and anchored in IBM principles and HR strategy. As employers we have the responsibility to offer equal employment opportunities to everyone.

IBM's recruiting teams play an essential role in identifying and interviewing skilled people with different abilities. In 2013 we updated a training module and a recruitment guide to help recruiters understand how to effectively provide reasonable accommodations when recruiting people with different abilities and to know what support is available within IBM for employing people with disabilities. In addition, IBM has implemented simplified global hiring approvals for qualified People with Disabilities (PwD) candidates and is focusing on educating managers to help ensure PwD employees succeed at work.

Leadership in work-life flexibility

IBM is committed to create a supportive, flexible work environment that provides principles, guidelines, and workforce options to help our employees effectively manage their work and family responsibilities. In fact, that understanding is a cornerstone of our employment value proposition; we know that 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 follows six flexibility principles. These principles can be adapted by each country as needed, based on legislation, local custom, and other factors.

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 and 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 Adaptability Awareness Week to increase the cultural adaptability of the entire organization—from the most senior executive to the recent hires. The focus of the 2013 Cultural Adaptability Awareness Week was to highlight the programs,

activities, and resources we've developed and create new initiatives to help IBMers cultivate deeper cultural knowledge and insights. We asked all IBMers to join the Global IBMers Community located at our internal website and spend time participating in activities to broaden their understanding of cross-cultural challenges, helping to improve the way we do business across borders. These activities included:

- The Amazing Global Race: a contest that gives participants an opportunity to learn and test their knowledge about other cultures
- "This is us" videos: employee-produced video clips of his/her own location shared with the world
- A cultural webcast series focused on more than 11 countries
- A podcast series on becoming an IBM global leader
- A global cultural mentoring practice to gain expertise from global colleagues
- An opportunity to learn a new language or become more proficient
- An opportunity to learn new managing-across-borders skills
- Information on using IBM's Country Navigator tool, developed to help IBMers gain and apply cultural intelligence

Business Resource Groups

As we refine our employment and leadership practices to continuously attract and develop global thought leaders, it is imperative that our diversity strategy enables us to meet the company's business objectives and talent requirements. IBM's Business Resource Groups (BRGs) tie directly into our diversity strategy and voluntarily bring together talented groups of diverse IBM professionals with the ultimate goal of enhancing the success of IBM's business objectives by helping members succeed in the workplace. As part of their charter, BRGs align their programs and initiatives with at least one of four IBM business and talent workstreams: recruitment and hiring, talent development, employee retention, and market development.

IBM has more than 200 BRGs registered globally in 28 countries supporting 13 different constituencies or focus areas:

- Women
- People with disabilities
- LGBT
- Multicultural
- Veterans
- Work-life integration
- Cross-generational
- Men
- Black
- Natives
- Asian
- New hires
- Hispanics

These groups share their achievements in the BRG Connections Community on IBM's intranet social platform.

Leadership Development

IBM has always been blessed with a rich history of leadership. This is not by chance, but rather the result of an unwavering focus on developing leaders at all levels of our organization. One important aspect of leadership at IBM is constant transformation.

We are challenged by our chairman to “restlessly reinvent,” and we are driven by the awareness that our leaders constantly face new challenges as the world around us changes at an historic pace. Data is becoming the new natural resource. The emergence of cloud is transforming IT and business processes into digital services. Social, mobile, and access to data are changing how individuals are understood and engaged. This confluence of market shifts requires our leaders to think, act, and lead differently; to move faster, accelerate our strategy, and embrace new ways to engage employees and make decisions.

Our leadership development initiatives are changing, too. We are experimenting with creative approaches, moving from single events to experiential journeys, and featuring role models to support our leaders’ transformation.

Integration & Values Team 10

Our top leaders contribute to the company’s growth through several teams that focus on key aspects of our company’s success: the Performance Team, the Operations Team, the Client Experience Team, and the overarching Integration and Values Team (I&VT). I&VT develops recommendations to solve enterprise challenges and consists of approximately 300 IBM executives appointed by the chairman and her direct reports annually. Members of I&VT transcend their individual roles and focus on transforming IBM.

In support of their mission, each year a small group of I&VT members are selected to focus on a strategic challenge IBM is facing, providing a tremendous leadership opportunity and allowing these top leaders to grow in their capabilities. Last year, the 10th I&VT, was offered the challenge to eliminate and reinvent for speed and simplicity.

To meet that challenge, we radically transformed the approach for I&VT initiatives. Urged on by the need for speed, we applied “design thinking” as the basis for experimentation, leaning on IBM’s agile method of software development. I&VT 10 brainstormed bold ideas, tried them out, learned, and iterated fast. Each success laid the foundation for bolder actions. I&VT 10 became the first initiative to act as a “do tank” versus a “think tank.” Through this experience, the team engaged employees to help them in their efforts and impacted change throughout several areas of the organization. They became energized and more empowered leaders, inspiring employees and in turn creating more cycles of experimentation and bold actions. “I’m pushing my boundaries and those of my organization,” was a consistent message from participants.

Their experiments pointed out structures and processes in IBM that impeded speed. The group mobilized around four areas for organizational transformation and took action to de-layer and flatten the enterprise. They integrated for greater decision-making and clarity. They made changes to approval processes and daily work habits to give time back to employees so they can focus more on clients. And they highlighted the opportunity to create a new organizational unit.

The design principle of a simplified IBM is to enable speed and simplicity for the IBMer to drive growth and optimization.

Speed

Enable speed

- Simplify operations to gain speed
- Create more time for value creation
- Increase emphasis on content and capability development

Culture

Engage the IBMer

- Enable the simpler, smarter, social IBMer
- Build a sustainable culture of restless reinvention based on simplicity
- Enable top-down change leadership to drive successful culture change

Optimization

Optimize and reinvent restlessly

- Further integrate One IBM team
- Optimize capabilities and offerings
- Build a leaner, smarter enterprise

Growth

Accelerate our growth

- Target practitioners with a digital model
- Develop a new operating model to accelerate growth for select end-to-end initiatives

The organizational changes are perhaps the most expected outcome, however there is an even more profound outcome of the initiative—these senior leaders role-modeled new leadership behaviors: Challenge. Experiment. Disrupt. As they share their experience with IBM at large and inspire all executives to join the movement, they are leading our cultural transformation. *(Note: I&VT was renamed the Growth & Transformation Team in 2014.)*

New leader journeys

The role of an IBM executive is to achieve business results, lead transformation, serve as a client advocate, and engage IBMers in service of our clients. Advancing to an executive role is one of the biggest career transitions an IBMer can make. We view the transition as an 18-month journey and not just a single event. Now, new executives are engaged earlier in the cycle and for longer periods to better enable them for success. Based on input from new executives themselves, we've designed a journey that:

- Celebrates and recognizes their appointment
- Gives them the opportunity to learn about the new expectations, responsibilities, and benefits of being an IBM executive

- Includes participation in an AccEL workshop where they are taught by IBM's top executives
- Develops them in the role of an executive through creating and executing a leadership action plan
- Connects them to peer executives who become their network for success

The journey begins with high-touch recognition, includes a fast-track 90-day start, brings cohorts together for the AccEL workshop, and establishes a foundation for growth. Following AccEL, the next phase of the journey helps the new executive operate in the role with their cohort and business unit support to grow as a leader.

The program's design is a radical departure from the past. What had been an agenda dominated by auditorium speakers is now filled with small group activities and discussions led by senior executives. The program focus has expanded from business leadership to include personal-development sessions on topics such as executive resilience and social tools. As a result of the program, 96 percent intended to make specific leadership commitments to their team and 100 percent plan to apply what they learned to their current role.

Though the 18-month journey is in its early days of implementation, survey data suggests we are on track to accomplish our goals. Participants appreciate where they've been on their leadership journey and have envisioned where they need to go. Most importantly, they are seizing the opportunity to be transformational leaders in IBM.

Newly acquired leader's journey

The same principles for newly promoted executives have been applied for newly acquired executives. IBM is widely recognized for the pace and success of our acquisitions. This is not by accident. The leadership development team engages with acquisition deal teams throughout the acquisition cycle. We engage with acquired leaders early in the acquisition phase and stay with them through their first two years at IBM. These acquired executives embark on a "managed" journey that helps integrate them into IBM. The journey is supported by a series of leadership interventions, including strategic sessions in which the company works with IBM to align the organization, and Executive Insights, a program they attend within their first year as an IBMer. While acquired executives are already successful executives, often they haven't operated in a company the size and scale of IBM. The program creates time for them to think about the leadership impact they would like to have within IBM while they explore IBM's strategy, capabilities, and resources.

The Executive Insights experience is intended to be both a practical and inspiring experience where executives gain a deeper understanding of IBM, a stronger network, and specific actions they will take to make a positive impact on the business and—more importantly—on the IBMers they lead. Following the program, 95 percent of participants have reported an increased sense of affiliation with IBM and 100 percent have said they intend to apply what they learned to their current roles.

Manager Champion Group

IBM has always been proud of our pervasive learning and management culture. Our CEO is personally sponsoring and launching several initiatives to engage all IBMers. Ginni Rometty holds the expectation that all leaders play a primary role in the teaching and development of other leaders, managers, and executives.

One example is the introduction of a Manager Champion Group in 2013. This is an experiential program founded to showcase IBM management at its best, honor the critical role of the IBM manager, and develop leaders to create a culture of exceptional IBMers and client experiences.

A globally diverse team of 50 exemplary IBM managers are nominated and selected for a year-long term of service. Manager champions serve as role models and teachers of IBM values while acting as solution advocates for managerial challenges. This unique leadership development experience is elevating the role of the manager and enhancing manager engagement. In more than 5,000 hours of voluntary service to IBM, manager champions are:

- Teaching management development programs and executing on our line-led strategy of education deployment
- Leading employee engagement initiatives and sharing their stories and experiences through blogging, community postings, hosted calls, and peer coaching
- Helping to redesign and simplify internal processes to enable all managers
- Creating a landmark treatise on the future practice of management at IBM

“The Manager Champion Group’s participation is helping to drive the development of rich, valuable content on THINK Management – and providing practical advice for all IBM managers. Thank you.”

Reena Jana, executive editor THINK Management, an IBM digital resource with management tips and techniques contributed by managers, for managers



Manager champions with IBM Chairman, President, and CEO Ginni Rometty at a recent summit

Environment

Our unwavering commitment to environmental protection is evidenced across all of our business activities. In this section, you will find information on our environmental programs, our performance for the 2013 reporting year and a sampling of client solutions for environmental sustainability.

Commitment to Environmental Leadership	75
Global Governance & Management System	76
Energy Conservation & Climate Protection	83
Product Stewardship	95
Process Stewardship	105
Pollution Prevention	108
Water Conservation	113
Solutions for Environmental Sustainability	115
Environmental Requirements in the Supply Chain	121
Remediation	125
Audits & Compliance	126

Commitment to Environmental Leadership

IBM's corporate environmental programs date back to the 1960s. In 1971, Thomas J. Watson Jr., IBM's CEO at the time, formalized the company's commitment to environmental protection with our Corporate Policy on IBM's Environmental Responsibilities. Updated a number of times over the intervening years, the policy and the global environmental management system and programs supporting it have addressed IBM's intersections with the environment and defined and driven our longstanding commitment to environmental leadership across all of our business activities.

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.

Our product stewardship requirements include product energy efficiency, the use of environmentally preferable materials, and designing for reuse, recycling and safe disposal at the end of the product's useful life. In addition, as we incorporate more purchased parts and components into our products, our requirements for the overall environmental responsibility of our suppliers and the environmental attributes of the goods they provide have become even more important.

Consistent with IBM's value of "innovation that matters—for our company and for the world," we also apply our expertise, research and technology to develop solutions that help our company, our clients and the world address the planet's most challenging environmental problems and operate in ways that are more efficient and sustainable.

Global Governance & Management System

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

Global environmental management system

Our corporate environmental affairs policy objectives range from workplace safety, pollution prevention and energy conservation, to product design for the environment and the application of IBM's expertise to help address some of the world's most pressing environmental problems.

IBM's corporate environmental affairs policy calls for environmental affairs leadership in all of the company's business activities. This leadership is implemented through a global environmental management system (EMS) that integrates 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. It is through the consistent implementation of this global EMS that IBM ensures operations are executed with the same high standards all across the world..

Employee and management responsibility

As noted in IBM's Business Conduct Guidelines, all IBMers have a role to play in protecting the environment. IBM's corporate policy on environmental affairs and its supporting global EMS provide more specificity on IBM's environmental requirements. Every employee is expected to follow IBM's corporate environmental policy 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 its directives. IBM executives are responsible for the environmental performance of their organizations or locations.

Our environmental programs and performance are routinely monitored and results are reviewed annually by all levels of management up to the Directors and Corporate Governance Committee of IBM's Board of Directors. Formed in 1993, this committee was assigned the ongoing responsibility of 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 global 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 the ISO 14001 Environmental Management Systems standard. 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 our 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, our Global Asset Recovery Services, and our Integrated Supply Chain organization.

As our business model evolves to include ever more services offerings, we continue to update our EMS to appropriately address new environmental opportunities and challenges in the services area.

ISO 50001 Standard on Energy Management Systems

IBM's energy management program dates back to 1974, when our CEO issued a formal corporate policy calling for the conservation of energy and materials in all of IBM's activities. Over the intervening years, we sustained our global energy management program and integrated it into the company's global EMS.

Upon the issuance of the ISO 50001 standard on energy management systems in June 2011, IBM set forth a strategy to achieve verification of conformity of our EMS against this newly published standard.

Within one year of the issuance of this standard, we achieved ISO 50001 registration of our energy management program at the corporate level and as an integral component of IBM's global EMS. Our approach recognizes and leverages the fact that IBM's existing EMS addresses both environmental and energy management.

Consistent with our global ISO certification strategy and following our successful ISO 50001 EMS registration at the corporate level, IBM's major energy-consuming locations are now receiving registration audits of their site-specific energy programs under IBM's single global ISO 50001 certification. Nine locations—seven in the United States and one each in Mexico and Canada—have successfully concluded their registration audits thus far. Additional IBM locations are undergoing ISO 50001 registration audits during 2014 as we continue the demonstration of conformity of our global EMS, inclusive of our energy program, against the requirements of the ISO 50001 standard.

Public disclosure

IBM's Corporate Policy on Environmental Affairs also calls for the company to publicly disclose information on our environmental programs and performance. This report marks IBM's 24th consecutive year of annual corporate [environmental reporting](#).

In addition to providing information on our environmental programs and performance in this report, which we have been publishing annually since 2002, we provide a report based on the Global Reporting Initiative (GRI) and provide information through a number of other voluntary reporting programs and tools, such as the Carbon Disclosure Project, EcoVadis and the OneReport Sustainability Reporting Network. For more details on IBM's environmental reporting, see the [IBM Environmental Reporting, Disclosure and Verification webpage](#).

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.

IBM has ongoing dialogues with many stakeholders, including socially responsible investors and other shareholders, environmental nongovernmental organizations (eNGOs), governments, employees, clients, suppliers, and others on a range of environmental issues. We consider these relationships to be very valuable, as they allow us to share ideas and obtain various perspectives, input and feedback regarding our programs, activities and performance. They also inform our reporting, enabling us to better meet the information needs of a wide variety of interested people and entities.

In addition, IBM Stockholder Relations holds an annual Corporate Responsibility Financial Analysts Call and Webcast during which executives from various areas of corporate responsibility in IBM—including Corporate Environmental Affairs, Global Supply Chain, Corporate Legal/Governance, Global Human Resources, and Corporate Citizenship & Corporate Affairs—present a brief update on our programs and performance and invite questions from analysts on any of the areas of corporate responsibility in IBM.

The executives participating on this annual analyst call are on IBM's Corporate Responsibility Executive Steering Committee. Corporate responsibility is not a separate, standalone organization in IBM. Consistent with our century-long commitment to being a good corporate citizen, corporate responsibility is integrated throughout IBM. We coordinate across the company through our Corporate Responsibility Executive Steering Committee, which consists of executives responsible for the various relevant functions in IBM. The Committee is supported on a day-to-day basis by a Corporate Responsibility Working Group of representative experts from these various IBM functions.

Another example of IBM engagement is collaborative innovation. We believe that integrating different expertise and unique perspectives can accelerate new solutions to longstanding problems. You will find examples of IBM's collaborative innovation—in research and solutions, with business partners, clients, universities and other entities—throughout this report and in the section on Solutions for Environmental Sustainability.

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 (NGO) 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 Community's EU ENERGY STAR program and EU code of conduct for energy-efficient data centers.

Examples of partnerships with eNGOs include membership in the Center for Climate and Energy Solutions (C2ES), Best Workplaces for Commuters, and the Wildlife Habitat Council. We also work with and support organizations such as The Conservation Fund, the Environmental Law Institute, the World Environment Center (WEC) and the WEC's Innovations in Environmental Sustainability Council.

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.

The Eco-Patent Commons

The Eco-Patent Commons provides a unique opportunity for 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

Since the launch of the Eco-Patent Commons by IBM, Nokia, Pitney Bowes, Sony, and the World Business Council for Sustainable Development in January 2008, more than 100 patents have been pledged by 11 member companies representing a variety of industries worldwide: Bosch, Dow, Fuji-Xerox, HP, IBM, Nokia, Pitney Bowes, Ricoh, Sony, Taisei and Xerox. The Environmental Law Institute became the host organization in 2013.

A recent addition: The Nature Conservancy's Latin America Conservation Council

The Nature Conservancy is one of the world's premier conservation organizations. As a nonprofit eNGO with work in 30 countries and all 50 US states, it addresses pressing conservation threats at a large scale. The Latin America Conservation Council (LACC) was conceived in 2011 by a group of leading business thinkers and conservationists who wanted to apply their expertise, influence and resources to the task of putting Latin America on a sustainable path.

In partnership with The Nature Conservancy, LACC members aim to help conserve Latin America's "natural capital" —its healthy rivers, forests and seas— as well as to solve environmental challenges across the region and develop innovative, pragmatic, and scalable solutions to three widespread environmental challenges: water security, sustainable food security, and smart infrastructure.

In early 2013, IBM CEO Ginni Rometty joined the LACC on behalf of IBM. Since then, IBM has been leveraging its deep expertise with Smarter Planet solutions and sharing IBM's point of view about the role technology can play for solving these three grand environmental challenges.

For a more complete listing of our voluntary partnerships and initiatives, see IBM's [voluntary environmental initiatives webpage](#).

We also encourage our employees to support environmental efforts. For example, through our Matching Grants program IBM matches contributions made by our US employees to a wide variety of environmental organizations including The Nature Conservancy and the World Wildlife Fund, as well as 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 program. This first-of-its-kind global initiative encourages and sustains 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 nonprofit organizations with 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.

Environmental investment and return

Over the past five years, IBM has spent \$74.7 million in capital and \$479.5 million in operating expense to build, maintain and upgrade the infrastructure for environmental protection at our plants and labs, and to manage worldwide environmental programs.

Environmental Capital and Expense Worldwide (\$M)	2009	2010	2011	2012	2013
Capital	14.3	15.1	18.4	9.9	17.0
Expense*	102.3	90.6	96.1*	98.2	92.3
Total	116.8	105.7	114.5	108.1	109.3

*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 has tracked environmental expenses related to our facilities, corporate operations and site remediation efforts for more than 25 years, and began publicly disclosing this information in our environmental report for 1992. 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. In 2013, total environmental expenditures associated with IBM's operations were \$109.3 million.

IBM also estimates savings that resulted from our policy of environmental leadership. These include savings that come 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, resulting in very conservative estimates.

In addition, IBM realizes the avoidance the of costs that likely would occur in the absence of our environmental management system. These savings are not measurable 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 2013, IBM's estimated environmental savings and cost avoidance worldwide totaled \$125.2 million.

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

\$125.2 million

Estimated environmental savings and cost avoidance worldwide in 2013

2013 Environmental Expenses Worldwide (\$M)

Personnel	\$39.5
Consultant and legal fees	2.7
Laboratory fees	2.2
Permit fees	0.8
Waste treatment and disposal	7.1
Surface water and wastewater management operations	8.7
Air emission control operations	0.3
Groundwater protection operations	0.7
Product takeback and recycling costs	0.9
Waste and materials recycling	4.2
Superfund and former IBM site remediation	16.2
Other environmental operations	9.0
Total	\$92.3

2013 Estimated Environmental Savings and Cost Avoidance Worldwide (\$M)

Location pollution prevention operations*	\$32.5
Corporate operations*	7.4
Packaging improvements	4.7
Environmentally preferable materials usage	0.2
Energy conservation and cost avoidance	49.5
Superfund and site remediation efficiencies	1.0
Spill remediation cost avoidance**	4.9
Compliance cost efficiency***	18.5
Potential fines, penalty and litigation avoidance****	6.5
Total	\$125.2

* 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., EU REACH or RoHS requirements).

Chairman's Environmental Award Program

IBM established the Chairman's Environmental Award Program in 1991 to encourage leadership and recognize achievement and progress in environmental affairs on the part of IBM's organizations. This annual award promotes contributions of IBM's business units toward the objectives of IBM's Corporate Policy on Environmental Affairs. The focus of the 2013 competition was on elements of the policy that call for IBM to:

- Develop, manufacture, and market products that are safe for their intended use, efficient in their use of energy, protective of the environment, and that can be reused, recycled or disposed of safely.
- Utilize IBM products, services and expertise around the world to assist in the development of solutions to environmental problems.

IBM organizations were asked to address their accomplishments in these areas over the past three years, with a winner selected based on its degree of leadership, initiative, and results. Performance against these criteria is evaluated against each nominee's opportunity to contribute, given its mission and operations.

IBM's Integrated Supply Chain (ISC) organization received the 2013 award. ISC encompasses procurement, manufacturing, logistics, engineering, hardware operations, and sales transaction support for all IBM software, hardware, and services offerings globally. It also oversees \$35 billion of supplier expenditure with strategic focus on creating smarter value chains, driving effectiveness and enabling growth that implements IBM's high standards for environmental leadership.

The selection of ISC recognizes its comprehensive and outstanding contributions to product environmental stewardship and excellent environmental results across its diverse activities. Since 2010, ISC has achieved:

- Technical leadership to improve the energy efficiency of power supplies and memory components
- Leadership in developing a strategy to find halogen-free materials for IBM products ahead of regulatory and client requirements
- Execution of an end-to-end global product compliance process which benefits all business units with new tools to proactively address emerging environmental requirements
- Implementation of 111 projects that reduced the use of packaging material by 3,150 tons and saved \$25 million
- Reduction in printed publications, saving over \$19 million
- Expansion of product take-back and recycling programs across the European Union, 25 US states, and growth market countries such as Australia, India, Brazil and Colombia
- Leadership in supply chain environmental management, establishing and communicating requirements to 28,000 suppliers around the world
- Completion of 844 supplier site audits in 30 growth market countries
- Impressive external recognition for environmental sustainability

While only one organization is selected each year to receive the Chairman's Environmental Award, the competition generates an integrated picture of the company's worldwide efforts to demonstrate exceptional commitment to environmental affairs leadership.



IBM Chairman, President and CEO Ginni Rometty presents the 2013 IBM Chairman's Environmental Award to Tom Rosamilia, senior vice president, IBM Systems & Technology Group and IBM Integrated Supply Chain.

Energy Conservation & Climate Protection

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 our energy conservation and climate protection programs for decades. 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 six-part strategy

We have a longstanding commitment to [climate protection](#) and execute a six-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 carbon dioxide (CO₂)-emitting and renewable energy-generating sources where it makes business and environmental sense
3. Minimizing the use and emissions of GHGs in semiconductor manufacturing, including perfluorocompounds and other GHGs
4. Requiring our suppliers to maintain an Environmental Management System which includes energy use and GHG emissions inventories and reduction plans
5. Reducing employee commuting and business travel
6. Increasing the efficiency of IBM's logistics operations

In addition, for 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 reduce their climate impact.

IBM considers energy and material conservation to be the cornerstone of our climate protection efforts. IBM does not have plans to use emissions offsets to become "carbon neutral" for all or part of our 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 ever since. 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 2013, IBM's energy conservation projects across the company delivered savings equal to 6.7 percent of our total energy use versus the corporate goal of 3.5 percent. These projects avoided the consumption of 334,000 megawatt-hours (MWh) of electricity and 275,000 million British thermal units (Btu) of fuel oil and natural gas, representing the avoidance of 152,000 metric tons of CO₂ emissions. The conservation projects also saved \$35.8 million in energy expense, an increase of \$0.8 million over 2012 savings. These strong results are due to our 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 completed 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 conservation results discussed above 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.

3.5%

Goal: Achieve annual energy conservation savings equal to 3.5 percent of IBM's total energy use.

6.7%

Result: Energy conservation projects across the company delivered savings equal to 6.7 percent of IBM's total energy use in 2013.

152,000

metric tons of CO₂ emissions avoided through IBM's energy conservation projects in 2013

Electricity and Fuel Use and Related CO₂ Emissions

Scope 1 and Scope 2 CO₂ Emissions

	Electricity and fuel use (1,000 MMBtu)	CO ₂ emissions (estimated) metric tons x 1,000	
		Calculated with grid emissions factors	Reduced by the CO ₂ avoided by renewable electricity purchases
2009	21,507	2,895	2,436
2010	21,622	2,426	2,156
2011	21,758	2,397	2,182
2012	21,613	2,404	2,195
2013	21,190	2,186	1,962

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 2013, IBM saved 6.4 billion kWh of electricity consumption, avoided 4 million metric tons of CO₂ emissions (equal to 59 percent of the company's 1990 global CO₂ emissions) and saved \$513 million through its annual energy conservation actions.

Managing IBM's energy program

Our global energy management program leverages the expertise of more than 50 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, heating/ventilating/air conditioning (HVAC), central utility plants, compressed air, data center and IT systems, cafeterias, and office systems.

6.4 billion kWh

electricity conserved during 1990-2013 through IBM's conservation actions, avoiding 4 million metric tons of CO₂ emissions and saving \$513 million

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 four years. The program is buttressed by several enterprise-level databases that collect, store and analyze energy-use data, conservation project results, completed checklists, and relevant key performance indicators. These analyses enable monthly metrics reporting to the management team and the identification of opportunities for improvement. The continuous review of energy use and conservation performance has driven the strong results noted above.

More than 2,600 energy conservation projects involving a full range of energy efficiency initiatives delivered savings at 364 IBM locations globally in 2013. Examples include:

- Projects to match building lighting and occupancy schedules or install more efficient lighting systems were implemented at 171 locations, reducing electricity use by 10,400 MWh while saving \$1.1 million.
- HVAC systems or operating schedules were modified at 165 locations reducing 50,700 MWh of electricity use and 107,600 MMBtu of fuel use, saving \$6.1 million.
- Central utility plant projects were implemented at 85 locations:
 - Boiler and chiller operation optimization helped reduce 29,500 MWh of electricity and 4,100 MMBtu of natural gas consumption at a savings of \$1.5 million.
 - Free cooling reduced 2,800 MWh of electricity consumption saving \$98,000.
 - Equipment upgrades and maintenance improvements reduced 22,900 MWh of electricity and 56,000 MMBtu of natural gas consumption while saving \$0.9 million.
- Manufacturing energy-efficiency projects:
 - IBM's microelectronics locations derived energy savings from over 100 efficiency improvement projects in their manufacturing and test areas. These projects saved 28,000 MWh of electricity, 68,000 MMBtu of fuel and \$2.4 million.
 - Results were achieved by increasing manufacturing equipment capacity and throughput, improved HVAC management and optimized temperature and humidity settings, and installation of more efficient equipment.

Leveraging analytics for further efficiencies

As "standard" opportunities for incremental savings from typical energy conservation projects have diminished due to IBM's decades-long focus on energy efficiency, we are increasingly leveraging analytics to uncover less obvious, embedded opportunities to achieve continual improvement in operational energy efficiency.

Smarter Buildings technologies such as IBM TRIRIGA® Energy Optimization (ITEO) are being deployed in IBM facilities to increase energy efficiency. IBM locations are updating and connecting existing sensor networks to analytics-based control systems to collect data and analyze individual events and system trends. The information gained is then used to optimize building energy consumption.

ITEO enables facility operations staff to continually inspect the building infrastructure and quickly correct problems—be they simple or complex. Two examples follow:

- At one location, ITEO identified a discarded piece of cardboard that had partially blocked an intake duct—wasting 453 MWh/year.
- At another location, ITEO identified that a low-temperature safety setting, which runs the air handlers at low outside temperatures to prevent coil freezing and damage, was depending on a sensor that was located in a room that was unheated on the weekend while the air handler was in a heated space. It was thus causing the freeze protection to start automatically most weekends during the winter, wasting 457 MWh/year of energy.

In the above instances, continuous monitoring of the system operations quickly revealed and allowed correction of the out-of-specification conditions, which likely would have lingered for an extended period of time on a traditional, manual preventative maintenance program.

IBM has deployed ITEO at 28 of our highest energy consuming sites, with deployment underway at three more locations in 2014. In 2013, the installed systems realized savings of 13,600 MWh of electricity and 76,000 MMBtu of fuel consumption, with a net savings of \$1.5 million.

IBM has now introduced a new product, TRIRIGA Real Estate Environmental Sustainability Impact Manager (TREES), with increased functionality and capability to replace ITEO. IBM will begin upgrading ITEO to TREES in its internal operations in 2014.

Data centers

IBM manages a diverse portfolio of data centers, consisting of both IBM and IBM-managed customer facilities all over the world. IBM operates additional raised-floor space to support 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 initiatives that include the following:

- 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 Power Usage Effectiveness (PUE) measurements of 1.4 to 1.6 when the data center is fully populated. PUE is the ratio of the total power required at the data center divided by the power required to operate the IT equipment.
- Implementing best practices and thermal monitoring programs at our data centers to optimize cooling delivery and minimize energy use and cost.
- Consolidating and virtualizing workloads for our internal operations and our customers' operations, and utilizing cloud computing.

Efficiency improvements in existing data centers

In 2013, we completed nearly 300 projects at more than 85 existing data center locations. These projects reduced energy use by over 53,400 MWh, and saved more than \$5.2 million. This energy savings is equivalent to the total annual energy use of a 4,000-6,000-square-meter IBM strategic data center.

The IBM Measurement & Management Technologies (MMT) thermal management system has been installed at IBM's major data centers representing more than 60 percent of the global raised-floor energy consumption for IBM's internal and client IT operations. 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. Using the information provided by MMT, IBM has been able to take the following actions over the past three years:

- Install thousands of blanking panels and cable cutout plugs, reducing the short-circuiting of cooling air in the data center
- Shut down more than 30 percent of the total installed computer room air conditioning (CRAC) units from 2010-13 and improved average CRAC utilization to greater than 60 percent
- Increase the average raised-floor temperature by 0.5°C in 2013 and 1.6°C for the period 2011-13, with work continuing to further raise temperatures toward an average of 24°C

MMT offers the additional benefit of rebalancing a data center's thermal profile as equipment is removed and installed, enabling the early identification of developing problems to proactively mitigate their impacts.

\$5.2 million

saved by nearly 300 energy conservation projects at more than 85 existing data center locations that reduced energy use by a total of over 53,400 MWh

System virtualization and cloud computing

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

IBM is utilizing virtualization to consolidate multiple workloads from servers and storage systems with low utilization onto single systems, reducing energy use and cost by more than 99,000 MWh and \$11 million in 2013. IBM virtualized more than 30,000 applications in our owned/leased data centers in 2013 and plans to continue these projects in 2014 and beyond to continually improve utilization of IBM and client hardware assets and reduce data center operation energy use and space requirements.

We continued to expand IBM's cloud computing programs through 2013, offering IBM Cloud Managed Services from 12 IBM data centers around the globe and, with our acquisition of SoftLayer in 2013, an additional seven data centers in the United States and six locations around the globe in third-party data centers. IBM and SoftLayer have announced a \$1.2 billion investment to increase IBM's global cloud data center portfolio to 40 global locations by 2014. Cloud computing is an efficient model for providing IT services that optimize hardware utilization and virtualization technologies. It allows us to further improve utilization of IT equipment assets, better balance workloads, adjust power consumption, and virtualize infrastructure in data centers to align processing and storage needs with power consumption.

Data center power usage performance

IBM measures, calculates or uses estimating protocols to determine the PUE of the data centers we manage. These data centers include recently constructed Leadership Data Centers as well as large legacy data centers. The average PUE for this raised-floor space is 1.73, based on data collected from 58 percent of the raised-floor space.

Because the majority of the data centers in IBM's facility portfolio consists of spaces that are 10-30 years old and contain IT equipment varying in age from new to 10 years, improving the energy efficiency of these data centers requires thoughtful planning and execution to ensure that we meet both our operational objectives and our commitments to our customers.

The overall performance of these IBM data centers compares favorably with the average PUE of 1.65 as reported in the Uptime Institute 2013 Data Center Industry Survey of 1,000 data center users predominately located in North America and with an average PUE of 2.9, as reported by a Digital Realty Trust 2012 survey of 300 IT decision makers. IBM has made—and will continue to make—significant investments and improvements to reduce energy demand and improve energy efficiency in our data centers.

Voluntary data center energy efficiency initiatives

In January 2012, the European Commission awarded 27 IBM data centers in 15 European Union (EU) countries with "Participant" status in data center energy efficiency, based on the EU Code of Conduct (CoC) for Energy Efficiency in Data Centres. We subsequently registered an additional 16 data centers to "Participant" status later in 2012.

Three additional IBM data centers were awarded "Participant" status in 2013, bringing our total to 46 registered data centers across 19 countries—the largest portfolio of data centers from a single company to receive the recognition to date. These registered data centers represent more than 70 percent of IBM's IT delivery and business recovery data center space in the EU. The EU CoC for Energy Efficiency in Data Centres is a voluntary initiative that aims to promote energy efficiency performance standards for data centers.

IBM maintains energy efficiency leadership in data centers by deploying uniform practices across our global data center portfolio. In addition, IBM applies innovative solutions such as Measurement & Management Technologies (MMT) 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 lab in India.

46

IBM data centers across 19 countries awarded "Participant" status in data center energy efficiency, based on the EU Code of Conduct for Energy Efficiency in Data Centres

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 Efficiency in Data Centres 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.

An additional significant energy conservation goal

Since 2009, an integrated team from IBM's environmental and finance staffs, real estate organization and business units have collaborated to realize energy conservation savings through a multi-disciplinary assessment of demand-side opportunities in manufacturing, data center, and IT test lab operations. The initial effort from 2009-12 saved 1,246,000 MWh of energy through conservation and efficiency. The projects involved the deployment of unique IBM technologies and know-how, as well as a strong management system supported by senior executives.

In early 2013, the same integrated team leveraged their skill and expertise, and established processes to set a new 2013-15 Energy Conservation and Efficiency Plan to save an additional 570,000 MWh of energy by year-end 2015. By year-end 2013, the team delivered 321,500 MWh of energy savings which exceeded the first-year target of 207,200 MWh by 55 percent.

The following provides a summary of the accomplishments achieved in 2013:

- As discussed earlier, data center cooling optimization and virtualization projects delivered energy savings of 152,400 MWh and \$16.2 million. In addition, we retired end-of-life and/or end-of-project server and storage systems to reduce an additional 12,700 MWh of electricity, saving \$1.3 million.
- Chilled Water Optimization utilizing real-time analytics to maximize the overall efficiency of chilled water systems saved 22,000 MWh and \$1.4 million.
- At IBM's semiconductor manufacturing locations and hardware development and test labs, conservation projects involving equipment and process broadening, optimizing clean room temperature and humidity specifications, virtualization and consolidation of IT equipment, and the installation of higher-efficiency equipment saved 66,000 MWh in energy use and \$3.9 million.

Renewable energy

In 2013, IBM contracted with its utility suppliers to purchase 580 million kWh of renewable energy over and above the quantity of renewable energy provided as part of the mix of electricity that we purchased from the grid. The 580 million kWh represented 11.8 percent of our global electricity usage and resulted in the avoidance of 224,000 metric tons of CO₂ emissions.

IBM's renewable energy purchases increased by 16 percent from 2012 to 2013. The increase was achieved through the addition of 2,178 MWh of wind-generated electricity in India and over 98,000 MWh of hydro power at our New York facilities. In addition, approximately five percent of IBM's electricity purchases from the grid were electricity generated from renewable sources—bringing our total renewable energy purchases to approximately 17 percent of our consumption in 2013.

IBM continued to contract for defined renewable energy purchases above and beyond the renewable electricity supplied in our overall contracts in Australia, Austria, Belgium, Denmark, Finland, Germany, Italy, Japan, Netherlands, Spain, Sweden, Switzerland, the United Kingdom and the United States in 2013. We added 2,178 MWh of wind-generated electricity in India in 2013. These purchases enable 33 percent of IBM's locations with data centers, IT labs, and/or product development labs and over 40 percent of its cloud data centers to source some or all of their electricity from renewable generation sources.

580 million

kWh of renewable energy purchased by IBM from our utility suppliers

11.8%

The amount of IBM's global electricity usage represented by purchased renewable energy

In addition, SoftLayer, which was acquired by IBM in April 2013, procured 10 percent of its electricity use, 6,500 MWh, in 2013 from wind-generation sources at three of its Texas data centers. It completed a contract in April 2014 to increase the procurement to 100 percent wind-generated electricity. SoftLayer's energy use and CO₂ emissions data is not included in this report for 2013, but we wanted to note the renewable electricity purchases that have been made at the three cloud facilities.

We procure renewable electricity generated from a mix of wind, large and small hydro, biomass, and solar installations around the globe. We report all of our contracted renewable electricity purchases and the associated CO₂ avoidance, be they from new, "additional" or existing generation sources, and without discriminating large hydro installations. Our rationale is that all purchases signal to our suppliers our desire for them to maintain and broaden their renewable electricity offerings. We value all economically accessible renewable generation sources and their availability from our utility suppliers.

Our procurement of renewable energy must meet our business needs. Not only should the offerings be cost-competitive with market prices over time, but the electricity supply must also be consistently reliable to ensure uninterrupted power for our critical operations. IBM's strategy of contracting for defined renewable energy has been successful in Europe and we continue to request the inclusion of electricity generated from renewable sources as an option in our contracts in all geographies.

Procuring electricity from renewable sources remains complicated by the relatively low energy density and intermittent nature of wind- and solar-generated electricity, limitations and chokepoints in the electricity transmission system, and international, national, state, and provincial treaty, regulatory and legislative requirements. Continued advances are needed in renewable electricity generation, distribution and storage technologies, and contracting and delivery mechanisms to increase the availability of economically viable renewable electricity in the marketplace to supply electricity directly to consuming locations. IBM is working with industry peers, utilities, NGOs and other renewable energy industry participants to identify, develop and capture opportunities to procure electricity generated from renewable sources where it makes business sense.

IBM also endeavors to incorporate on-site solar energy, co-generation or tri-generation systems, or geothermal systems on an individual location basis. Some recent examples:

- In 2012, we contracted with the landlord of a leased location in Massachusetts to purchase electricity from a 780-kilowatt (kW) rooftop solar panel array at this location. The system supplies electricity directly to the facility and is estimated to deliver 5-10 percent of the location's annual electricity use. The system became fully operational in April 2013.
- Three facilities in Europe have co-generation/tri-generation systems which provide 10-20 percent of our electricity use at these facilities, as well as heating and cooling to support building operations.
- The IBM Zurich Research Center has a 40-kW solar photovoltaic (PV) system to generate electricity and a 480 MWh geothermal heating system.
- The IBM India Research lab operates a 50-kW solar PV system which is used to supply direct-current power to operate a server rack.
- The IBM Research Triangle Park, North Carolina, facility has a solar hot water system that supplies hot water to the site cafeteria.

We are continuing to pursue additional opportunities to install on-site electricity generation systems at our facilities. These systems offer a means to diversify our electricity supply and increase our purchases of renewable energy, though they typically only generate 10-20 percent of our site energy demand because the majority of the energy consumed by IBM occurs at locations with energy-dense activities, such as data centers and semiconductor manufacturing sites.

Research and solutions to advance the use of renewable energy

As noted earlier, procuring electricity from renewable sources remains complicated for all but new-built facilities specifically located to be powered by renewable energy. In part, this is due to the relatively low energy density and intermittent nature of wind- and solar-generated electricity, and to limitations and chokepoints in the electricity transmission system. In addition to procuring renewable energy for our own use, IBM is working to further the availability and affordability associated with various forms of renewable energy by investing in IT-related research and development.

Two examples are provided here. Other examples may be found in the Solutions section of this report.

- IBM Research is developing the Wind and Hydro Integrated Stochastic Engine (WhISE), which is an energy generation planning tool that forecasts renewable generation and matches it with expected demand and available hydro resources to manage and optimize the dispatching of committed power. The WhISE approach enables the grid to reduce reserve generation capacity while insuring that demand is met, reducing power costs on the system.
- IBM partnered with an energy provider in Switzerland to implement an automated demand management program that utilizes residential water heaters to manage the intermittent influx of renewable electricity into the grid. The networked system uses predictive analytics to optimize power transfer from the grid to the water heaters based on a complex set of variables including energy-use forecast data, the availability of renewable-source electricity, and electricity pricing predictions. The innovative system enables intelligent demand-side management, which in turn enables better integration of renewable generation into the grid system, while offering consumers savings on their electricity bill.

Operational CO₂ emissions management

IBM's operational CO₂ emissions, those associated with IBM's use of fuel and electricity at its locations, were reduced 10.3 percent from 2012 to 2013. There were three key factors that drove this year-to-year reduction:

- IBM's energy conservation efforts drove reductions in electricity use for the second year in a row. Electricity use reduced by 3.1 percent year to year as a result of the energy conservation work discussed earlier in this report, resulting in a decrease in Scope 2 CO₂ emissions of 2.8 percent.
- The CO₂ emissions factors associated with our electricity purchases at several locations were reduced as a result of a change in electricity suppliers and/or a change in the mix of generation sources supplying the locations. These changes contributed to a reduction of approximately 6.4 percent in the Scope 2 CO₂ emissions inventory.
- The increase in the amount of renewable energy IBM procured in 2013, discussed above, resulted in a reduction of 1.1 percent in the CO₂ emissions inventory.

IBM met its second-generation climate protection goal in 2012, reducing our operational CO₂ emissions by 15.7 percent against the 2005 baseline and exceeding our commitment to achieve a 12 percent reduction over the period. The significant reductions achieved in the CO₂ inventory in 2013 are indicative of IBM's continued commitment to addressing the challenges of climate change through energy conservation initiatives and the procurement of renewable energy for its operations.

10.6%

The reduction in operational CO₂ emissions associated with IBM's use of fuel and electricity at its locations from 2012 to 2013

PFC emissions management

IBM releases some perfluorocompounds (PFCs) from our semiconductor manufacturing operations, with PFC emissions representing approximately 10 percent of IBM's Scope 1 and 2 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 the end of 2010.

We continue to take actions to reduce our PFC emissions and monitor performance. Between 2010 and 2013, we reduced our PFC emissions by 12.7 percent, emitting 194,300 metric tons of CO₂e. The IBM semiconductor manufacturing plant in Vermont continued to convert from C₂F₆ to C₄F₈ on selected chamber cleaning processes, accounting for approximately half of the reductions. C₄F₈ has a much higher utilization rate and much lower global warming potential than C₂F₆, significantly reducing the GHG emissions from the process. The other half of the reductions can be attributed to reduced production for the year due to current market conditions.

IBM's manufacturing facility in New York also continues to abate its PFC emissions associated with its semiconductor operations, minimizing the emissions from that facility.

IBM also monitors three other materials with global warming potential that are used in connection with manufacturing, lab, and office operations: nitrous oxide (N₂O), which is used in manufacturing semiconductors but has a lower global warming potential than PFC gases; heat transfer fluids (HTFs) that are primarily used in tool-specific chiller units associated with manufacturing and lab processes; and HFCs which are used in chiller units used to cool manufacturing, lab, or office space.

IBM continues to evaluate replacements for the HTFs that have lower volatility and global warming potential. IBM has achieved reductions in these emissions through the use of lower GHG-emitting materials in some test operations and through the installation of solid-state chillers on some semiconductor equipment.

12.7%

reduction in PFC emissions between 2010 and 2013

Overall CO₂ emissions inventory

IBM tracks and manages operational Scope 1 and 2 emissions across its operations, collecting and aggregating data from its data center, semiconductor research and manufacturing, hardware development and assembly and office operations. As discussed in the previous sections, IBM has a broad, effective set of programs and processes to inventory its energy use and GHG emissions and take action to increase the efficiency of its operations. IBM decreased our overall Scope 1 and 2 emissions by 10.4 percent from 2012 to 2013. The summary of its 2013 emissions inventory is provided in the following table:

IBM 2013 Scope 1 and Scope 2 Emissions Inventory

Metric tons (MT) of CO₂ Equivalent

Scope 1 Emissions	Emissions Type	2012	2013
Fuel Use	Operational	220,851	225,514
Perfluorinated Carbon Compounds	PFC	231,832	194,301
Nitrous Oxide	Other	24,037	23,150
Heat Transfer Fluids	Other	57,436	61,747
HFCs	Other	7,428	9,752
Total Scope 1 Emissions		541,584	514,464
Scope 2 Emissions			
Electricity: Using Grid and Location MT CO ₂ /MWh Emissions Factors	Operational	2,162,543	1,934,736
Purchased Energy Commodities	Operational	45,916	43,858
Total Scope 2 Emissions		2,208,459	1,978,594
Total Scope 1 and 2 Emissions		2,750,043	2,493,058
CO ₂ Avoidance: Renewable Electricity Purchases	Operational	(211,819)	(223,624)
Total Scope 1 and 2 Emissions adjusted for Renewable Electricity		2,538,224	2,269,434

Transportation and logistics initiatives

Employee commuting and leased/rental vehicles

IBM has been active in promoting programs that reduce employee work commutes for decades. 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 for a designated number of days each week

In 2013, 105,000 of our 431,000 global employees 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 5.6 million gallons of fuel and avoided more than 44,000 metric tons of CO₂ emissions in 2013.

IBM is a member of the Center for Urban Transportation Research Best Workplaces for Commuters (BWC) program. Currently, 22 IBM locations are registered as BWC sites, which represent approximately 60 percent of the company's US 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 that they may use for both business and personal purposes. For these vehicles, we continue our effort to move to more fuel-efficient models 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 for business, we have worked with rental car companies to require and/or offer more fuel-efficient vehicles for employee rentals.

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. IBM has been an active participant of the US 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 conservation and climate protection in the supply chain

As noted elsewhere in this report, IBM is committed to doing business with environmentally responsible suppliers. One of the supply chain areas on which we focus is our suppliers' energy efficiency and climate protection programs.

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 and Scope 1 and Scope 2 GHG emissions. Our suppliers are also required to measure their performance, establish voluntary goals in these areas, and publicly disclose their performance against those goals. We manage this requirement through two processes: IBM's own supplier environmental management system requirements, and our membership in the Electronic Industry Citizenship Coalition (EICC).

IBM has continued to work with Tier 1 suppliers to further our company's requirement that all IBM suppliers have an environmental and social management system in place and disclose information on goals and performance. More information on this supplier program may be found in the Environmental Requirements in the Supply Chain section. The IBM Integrated Supply Chain organization assesses suppliers (existing and new) as to their compliance with the IBM Social and Environmental Management System Requirements as a component of its broader supplier management and assessment process.

IBM's requirements for our suppliers rest on the foundational belief that real results in GHG emissions reduction are made possible by actionable information about a company's energy use and GHG emissions, and that each company is best positioned to assess and implement actions to address its own emissions in a way that is meaningful and sustainable. In short, each enterprise must take responsibility to reduce its own energy use and GHG emissions.

IBM has been an active participant in the EICC Environmental Reporting Initiative, which asks EICC members and suppliers in the global electronics supply chain to measure and report key energy consumption, carbon emissions, water, and waste indicators. We believe, as do the other EICC members, that as companies gain an understanding of their energy use and GHG emissions, 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 provides efficiency associated with information disclosure. We use the EICC reports completed by our component and parts suppliers to augment and validate our internal supplier assessment work.

IBM's position on the determination of Scope 3 and product GHG emissions estimates

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.

Product Stewardship

IBM's Product Stewardship program was established in 1991 as a proactive and strategic approach to the environmental design and management of our 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.

Framework

IBM's product stewardship objectives and requirements are implemented through our 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.

Process efficiency for dynamic requirements

Our supply chain represents a significant aspect of IBM's product manufacturing. Accordingly, our environmental management system includes programs and processes to monitor and verify supply chain performance against IBM's environmental requirements as well as legal requirements. These programs and processes must be increasingly dynamic and efficient to keep pace with the changing cadence of environmental requirements globally.

Frequent verification of product data is needed to maintain the accurate status of parts and products relative to both IBM's product environmental requirements and the latest regulatory requirements such as the expiration schedule for exemptions in the European Directive on the restriction of hazardous substances (RoHS, 2011/65/EU) and disclosure of the regularly amended list of Substances of Very High Concern for the European REACH Directive (Regulation (EC) No 1907/2006).

In 2013, IBM developed new processes to automate the revalidation of Product Content Declarations (PCDs) for procured parts. The processes identify a regular refresh cycle for PCDs and use a third-party service provider to contact suppliers to request updated declarations. This system was piloted by 10 engineering commodity teams which worked with

the third-party provider to improve the request process with suppliers and the reports generated for affected parts.

At the conclusion of the pilot, all production suppliers were notified of IBM's PCD revalidation requirements and the revalidation program began processing 2,000 PCD updates per month. This process improvement in product data management ensures that IBM's technical documentation for product hardware meets the quality requirements of European Norm 50581, "Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances."

In a parallel project, quality audits of selected PCDs were conducted to identify improvements in administrative and technical content of the declarations. The quality audits resulted in better correlation between declarations and supporting prints and specifications from IBM's centralized corporate engineering repository for product development, and in focused training for specific suppliers on calculations associated with the data requested for particular regulatory requirements.

Also with respect to improvements in technical documentation, IBM led a team of international experts to develop a set of technical compliance guidelines for hexavalent chromium (Cr(VI)) in metallic surface coatings. The guideline supports the IEC 62321 standards, which define methods for testing electro-technical products in order to determine the levels of chemical substances regulated by international legal frameworks like the EU RoHS Directive. The guidelines provide interpretation of test results which, according to the international analytical test protocols for the Cr(VI) standard, are measured in different units (grams/surface area) than those specified for legal compliance in the relevant regulation (grams/coating weight).

2013 Product Stewardship Goals and Performance

Recycled Plastics	Recycled plastic used in IBM's products can range from 50 to 100 percent by weight of the commercial resin. In 2013, 14.8 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 50 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, 10.8 percent of IBM's total weight of plastic purchases in 2013 was recycled plastic versus the corporate goal of 5 percent recycle.
Use of Landfills	IBM's product end-of-life management operations worldwide processed 32,200 metric tons (71 million pounds) of end-of-life products and product waste, and sent only 0.3 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 Power Systems™: IBM released six models of IBM Power Systems servers, the 710 and 720 one-socket servers, the Power® 730 and 740 two-socket servers and the Power 750 and 760 four-socket servers. All servers use the POWER7+™ processor.

The two servers for which typical power consumption per unit of relative performance as measured by watts per relative performance, are available from the comparable, previous generation system, the 730 and 740, achieved reductions between 50 and 60 percent in this metric. These Power Systems servers continue to use 80 PLUS Platinum certified power supplies, one grade above the ENERGY STAR requirements and two grades above the EU server power supply requirements. Four systems, the Power 730, 740, 750, and 760, are certified to the ENERGY STAR server requirements (Version 2). The two-socket servers reduce idle power 28-50 percent from maximum power, and the four-socket servers 16-30 percent, depending on the configuration.

IBM System x®: The power/performance characteristics as reported in watts/MTOPS** under the Japan Energy Saving Law Metric were compared generation to generation for four System x servers announced in 2013; the metric improved by 16-84 percent. The majority of servers announced in 2013 featured 80 PLUS Platinum certified power supplies. Eleven systems have been certified to the ENERGY STAR server requirements (Version 2). The ENERGY STAR certified servers reduce the power used at idle 23-67 percent, depending on the machine type/model and the configuration of the server.

IBM System z®: IBM announced the new IBM zEnterprise® BC12 entry-level mainframe system which offers the capability to consolidate multiple traditional and cloud-based workloads onto a single platform with superior workload delivered per unit of energy consumed. The new BC12 has the same energy use and cooling footprint as the previous generation model, while supporting 77 percent greater workload with higher availability, improved security, and simplified operation.

Storage Subsystems

IBM continues to innovate in storage products, improving storage performance through the use of mixed-drive systems with capacity and throughput improvements, integration of flash drives and optimization driven by software capabilities such as Easy Tier®, thin provisioning, data compression and deduplication, and storage virtualization. IBM announced new product offerings for XIV® and the Storwize® family of products to incorporate new hardware and software capabilities to store more data more efficiently on a smaller quantity of storage media.

* 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 Research and our product development teams. These teams have combined hardware and software innovations to improve the energy efficiency of IT equipment and data centers.

IBM also actively assists 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 US Environmental Protection Agency (EPA) ENERGY STAR Computer program, IBM is currently participating in the development of the ENERGY STAR specifications for server and storage products. We are providing technical assistance regarding the assessment of the new Server Efficiency Rating Tool (SERT) metrics data, working both inside IBM and in conjunction with industry groups to evaluate the SERT results and assist EPA and various regulatory bodies outside the United States in developing server energy efficiency criteria based on the SERT metric. Similar work is planned to assess the Storage Networking Industry Association Emerald results for storage products.

On December 16, 2013, Version 2 of the ENERGY STAR program requirements for computer servers became effective. Version 2 also creates new product categories for blade servers and resilient servers, and eligible systems can be qualified upon the publication of the Version 2 requirements.

As of May 2014, IBM has certified 11 server machine types to the ENERGY STAR requirements: qualified server systems available on the market — four Power systems and seven System x enterprise server systems. These servers meet the US EPA's requirements for power supply efficiency, idle power limits or power management capability and data reporting. For a list of IBM ENERGY STAR certified servers, see our ENERGY STAR qualified products webpage. IBM intends to qualify its System p® and System x servers to the ENERGY STAR Version 2 requirements, including the addition of blade and resilient servers.

The ENERGY STAR Data Center Storage Specification Version 1 went into effect on December 2, 2013. IBM intends to certify several of its storage systems to the specification in 2014.

Our IBM technical experts are also participating in the Institute of Electrical and Electronics Engineers 1680.4 working group that is developing a standard that defines environmental requirements for some server products. It is expected that this standard will be completed in 2015, and that it could be incorporated in the Electronic Product Environmental Assessment Tool process that is used by the US government and other large institutional purchasers of electronic products to define more environmentally preferable products.

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 System x

IBM announced new server solutions designed to expand cloud and analytics capabilities, helping to make Smarter Computing a reality for IBM System x x86 server clients. IBM's new portfolio of x86 computing solutions includes the following:

- **IBM X6 Technology:** The X6 technology delivers a resilient server based on x86 technology combined with IBM innovations that produces an enterprise server that offers unique and superior capabilities. Available systems include the x3850 and x3950 X6 servers and the IBM Flex System® x280, x480, and x880 X6 compute nodes. From an energy efficiency standpoint, these server products offer several options:
 - **Calibrated Vecteded Cooling™:** Innovations include tandem counter-rotating fans, hexagonal ventilation holes, and isolated cooling zones which match individual fans to zones of the server so that only a single fan, rather than the full fan set, accelerates to cool an isolated hot spot. These features reduce energy use and wear and tear on the fans.
 - **80 PLUS Platinum-rated power supplies:** These supplies have efficiencies up to 94 percent, putting more energy to work and reducing cooling requirements.
 - **2.5-inch Hard Disk Drives (HDD) and Solid State Drives (SSD):** 2.5-inch drives use 40 percent less energy than 3.5-inch drives and SSDs consume 2 watts compared to 5.5 watts for 2.5-inch HDDs. Using these storage technologies reduces energy use while improving performance of the overall system.
 - **Low-Voltage Memory:** The X6 products use 1.35-volt DIMMs, which offer 19 percent energy savings compared to the standard 1.5-volt DIMMs.

- The IBM System x3650 M4 is optimized for virtualized and cloud environments and is offered in three ENERGY STAR certified machine types, each configured for specific workloads. The servers have an 80 PLUS Platinum certified power supply, and power management capabilities that can reduce energy consumption by 23-64 percent when no workload is present. The idle reduction achieved depends on the configuration of, and system power management settings used for, a given server.

The energy use reduction benefit of IBM System x products is exemplified by an IBM System x3650 M4 server installation completed at a fast-growing US retailer in 2013. IBM consolidated 20 x86 servers by virtualizing the workloads onto three x3650 M4 servers integrated with a V7000 storage solution, increasing the flexibility and resiliency and expandability of the system while significantly reducing energy use.

IBM Power Systems

Power Systems provide enterprise-class server capabilities for traditional and cloud applications, offering superior utilization, security, virtualization, reliability, serviceability and data processing capabilities. Power Systems are optimized for the compute-intensive performance demands of database and analytics applications. From an energy efficiency standpoint, Power Systems can deliver the most workload for unit energy consumed of any server when the system is configured to achieve maximum utilizations of 50-65 percent through workload virtualization, and the use of EnergyScale™ power management capabilities which match energy use to the workload levels on the server. The recently announced POWER8™ builds on and strengthens these capabilities, delivering significant performance increases with minimal change in the power footprint of the server systems. An example of the benefits of a client's use of a Power Systems solution follows:

- A regional energy provider upgraded its IT infrastructure with four Power 770 servers, reducing the number of physical servers by 95 percent through a virtualization project, reducing estimated electricity use by one-quarter to one-third, and increasing system flexibility and scalability to respond to the dynamic demands of its business.

IBM PureSystems®

PureSystems combine automated systems management expertise and pre-loaded/pre-tuned application software with open, scalable hardware systems that help maximize system utilization and reduce the total number of servers required in the data center. By eliminating lower utilization servers, PureSystems allow companies to consolidate their IT operations and enable continued application/user growth without significant hardware system additions. Increased utilization leads to a smaller real-estate requirement, lower energy costs, and lower systems management costs.

- A regional water and energy utility needed to upgrade its IT infrastructure to respond to the increasingly dynamic business environment resulting from deregulation of their primary markets. They chose two flex systems each running 110 virtual servers. The upgrade reduced the server footprint by 66 percent and energy costs by 20 percent.
- A client installed a single IBM PureFlex® System combined with a V7000 disk system to replace twelve servers and four storage systems. The project compressed their IT footprint from four to one rack, significantly improving system utilization and reducing electricity costs by more than 40 percent.

Appliances

An IT appliance combines server, storage and network capabilities and optimizes them to execute a specialized task or group of tasks with a significantly smaller IT hardware and energy footprint than would be required if conventional systems were combined. IBM released a new server appliance, named MessageSight, designed to help organizations manage and

communicate with the billions of mobile devices and sensors found in systems such as automobiles, traffic management systems, smart buildings and household appliances. The appliance can support up to 1 million machine-to-machine (M2M) or smart and mobile devices in near-real-time, handling up to 13 million messages per second. Previously, achieving connectivity at this level required up to 280 servers; the MessageSight appliance manages the same connectivity with a single 2U rack appliance, reducing the energy use by two orders of magnitude while improving the efficiency of the data collection and access process. Furthermore, it enables management of the “Internet of Things” in ways that are likely to improve the efficiency and reduce the energy use of a whole range of activities and systems.

Storage systems

IBM continues to enhance our portfolio of storage systems, utilizing and improving various software-based data management capabilities such as Easy Tier, thin provisioning, data compression and deduplication, and storage virtualization which can reduce the storage hardware and energy footprint and the number of terabytes required to accomplish a given storage task.

In 2013, IBM introduced a range of flash-based storage systems. The FlashSystem™ 840 offers up to 12 flash cards in 2- and 4-terabyte sizes. Flash storage reduces energy use by 60 percent or more compared to disk drives, and significantly improves server and storage performance by minimizing the latency associated with data transfer within the data center.

In May 2014, IBM announced Elastic Storage, a software-defined storage technology which accelerates access to data storage both locally and globally and enables storage automation and virtualization in both traditional enterprise and cloud environments. Elastic Storage will enable reduction of storage costs through data consolidation and the use of data placement technologies to optimize the use of available storage devices, including tape storage. The ultimate outcome is to maximize the amount of data stored on a minimum number of storage products, in turn minimizing the energy use and hardware deployment of the overall storage system.

High Performance Computers (HPC)

IBM offers a full range of purpose-built and “off-the-shelf” technical computing (supercomputer) solutions. IBM’s supercomputer solutions are prevalent on both the TOP500 and Green500 supercomputer lists. As of November 2013, 16 of the top 25 most energy efficient supercomputers in the world are built on IBM high-performance computing technologies; Blue Gene®/Q and iDataPlex® dx360 M4. IBM HPC systems also occupy five of the top ten spots and nine of the top twenty-five spots on the November 2013 TOP500 list of the world’s top supercomputers. 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.

The speed and expandability of IBM’s HPC products have enabled business and the scientific community to address a wide range of complex problems and make more informed decisions in the life sciences, astronomy, climate, system simulations and modeling, and many other applications. The use of HPC systems also enables simulations 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 HPC package to address the most demanding performance applications.

As an example, IBM is partnering with the National Center for Atmospheric Research on a supercomputer named Yellowstone, which is being used to explore the nature of tornadoes, hurricanes, water shortages, solar patterns, and wind. The supercomputer is also working to study how wind turbines interact with the weather to get a detailed picture of when and why turbines turn, helping to develop predictive programs and siting algorithms to enhance the efficiency and utilization of wind farms.

Product recycling and reuse

As part of our product end-of-life management (PELM) activities, IBM began offering product take-back 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. These solutions include:

- 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 many countries and US states, we offer 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 2013, the total weight of end-of-life products and product waste processed by these operations was 32,200 metric tons (71 million pounds). This represents 67 percent of the estimated 47,800 metric tons of new IBM IT equipment put on the market in 2013.

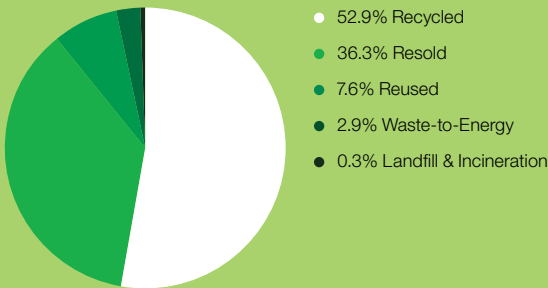
3%

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

0.3%

In 2013, these operations sent only 0.3% of the total amount processed to landfills.

2013 Product End-of-Life Management Operations
(total processed: 32,200 metric tons (% 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 IBM to landfills or to incineration facilities for treatment does not exceed a combined 3 percent of the total amount processed.

Of the 32,200 metric tons processed by IBM PELM operations worldwide; approximately 52.9 percent was recycled as materials, 36.3 percent was resold as products, 7.6 percent was product reused by IBM, 2.9 percent was incinerated for energy recovery, and 0.3 percent was sent to landfills or incinerated for final disposal.

IBM's corporate-wide requirement for the environmental evaluations of the company's PELM suppliers was established in 1991, an expansion of our supplier environmental evaluation program introduced in 1972. We evaluate these suppliers prior to doing business with them and every three years thereafter. Our objective is to use only those suppliers that have a strong focus on environmental management, including complying with laws and regulations as well as sound management practices. More about IBM's requirements for our PELM suppliers may be found in the Environmental Requirements in the Supply Chain section of this report.

In 2013, IBM's PELM program reached another major milestone. From 1995, when we first began including product recovery in our annual corporate environmental reporting, through the end of 2013, IBM has processed over 2 billion pounds (913,000 metric tons) of product and product waste worldwide.

2 billion

pounds (913,000 metric tons) of product and product waste collected and processed for reuse and recycling from 1995 through 2013

IBM Worldwide PELM Operations: Total Annual Quantity Processed
(Metric tons)

Year	Total Processed
2009	38,000
2010	36,700
2011	38,000
2012	36,100
2013	32,200

Product packaging

IBM has had a program focused on the environmental attributes of our 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 we 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 product-protective packaging are addressed within IBM's Product Stewardship program and associated engineering specifications. Efficient use of product packaging and improvements in transportation efficiency are tracked through this program.

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 these 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. The following supplier environmental packaging requirements are accessible from the [Information for suppliers webpage](#):

- IBM Packaging Requirements; Packaging and Handling Supplier and Interplant Requirements – EC G48655
- IBM Engineering Specification (ES) 5897661: Recyclable packaging materials, selection and identification
- IBM ES 5897660: Packaging materials, essential requirements, restricted heavy metals and other substances of very high concern
- IBM ES 37L8024: Wooden packing, materials treatment and marking requirements

IBM's environmental packaging requirements incorporate a list of the most commonly used packaging materials. Each is evaluated on a variety of environmental criteria. When options are available, suppliers are required to choose the material that has the least possible adverse effect on the environment. The materials listed are based on practical and regulatory experience and customer feedback. Other environmental areas addressed in the packaging requirements include:

- Ozone depleting substances
- Restricted heavy metals and other materials of concern
- Source reduction
- Re-useable packaging systems
- Recyclable packaging
- Conserving natural resources

Protective product packaging

In 2013, the integrated worldwide packaging engineering team saved an estimated 452 metric tons of packaging materials through the implementation of 19 packaging redesign projects for parts and assemblies shipped to manufacturing locations, and for packaged finished products supplied to clients worldwide. These projects delivered an annual materials and transport cost savings estimated at \$4.74 million.

The following are highlights of two projects implemented:

- Packaging engineers redesigned a storage systems' single-use cardboard box packaging for supply of sub-assemblies from Romania to IBM Vac, Hungary. The single-use corrugated cardboard carton containing the part was replaced with a plastic box that could be reused, on average, 18 times. Fifty metric tons of packaging materials were saved per year with annual cost savings estimated at \$208,500 for materials and transportation.
- The redesign of the molded cushions and outer cardboard carton for an IBM xSeries blade server resulted in added compression strength to protect the server while reducing the overall size of the corrugated cardboard carton. The smaller design allowed the packing of up to 48 units on a full pallet compared to 42 with the old packaging, which resulted in a significant reduction in shipping cost. The annual estimated savings on packaging materials was 88 metric tons with cost savings estimated at \$1.3 million per year for materials and transportation.

IBM suppliers are also applying these types of new design specifications across IBM and with their other customers to deliver tangible benefits across the integrated supply chain. Over the last six years, IBM has reported combined environmental savings of over 6,670 metric tons of product packaging materials from redesign projects implemented by the packaging engineering team worldwide. The total materials and transportation cost savings was \$65.1 million over the same period, benefiting IBM, parts suppliers and clients globally.

IBM's requirement for sourcing packaging materials

IBM established its voluntary environmental requirement for the responsible sourcing of paper- and paper/wood-based packaging in 2002. It required that the paper- and wood-based packaging directly acquired by IBM be procured from suppliers that source from sustainably managed forests, where such sources exist.

When this goal was first established, sufficient quantities of sustainably sourced paper and 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, 99.7 percent of the cut sheet paper and paper/wood-based packaging IBM procured worldwide in 2013 came from suppliers that warranted that the source was derived from forests managed in an ecologically sound and sustainable manner. This requirement is now incorporated into our standard supplier specification for paper/wood-based packaging.

Product safety

IBM's product requirements are integrated within various steps of the product development, test, manufacturing and delivery processes as part of a comprehensive product safety management system. Each product completes required product safety and electromagnetic compatibility compliance reviews as part of IBM's Integrated Product Development process to ensure that newly announced products comply with applicable standards, regulations and third-party certification requirements.

Compliance management tools are used by interdisciplinary teams from all IBM organizations that design, manufacture, procure, deliver, and service our product offerings.

IBM's Integrated Supply Chain organization ensures that the design and certification requirements necessary to ensure compliance are fully incorporated into supply chain functions from procurement through product delivery. Supplier procurement specifications and contracts include design-specific regulatory compliance requirements. Manufacturing controls and product end-of-line tests are implemented in each production facility to ensure compliance with applicable requirements.

Programs for continual improvement include both internal and third-party assessments of IBM's product safety design, development and product control implementation. These assessment results are fed back into the development and conformity assessment process for future products. In addition, product safety and regulatory compliance incident review programs provide effective capture, investigation and remediation of product safety-related incidents.

IBM also plays a leading role in the development of national and international product safety and electromagnetic compatibility design and conformity assessment standards for IT products and solutions. IBM's subject-matter experts are an integral part of international standards development organizations that are working on "next generation" and state-of-the-art standards that will be used to design and provide safe and compliant products in the future.

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 EMS through which we support the objectives of our Corporate Policy on Environmental Affairs, 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 find alternative 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.

IBM has a long history of continually taking proactive steps to evaluate the chemicals used in our processes and products; identifying potential substitutes that may have less impact on the environment, health, and safety; and eliminating, restricting and/or prohibiting the use of substances for which a more preferable alternative is available that is capable of meeting quality and safety requirements of our processes and products.

The following provides a sampling of IBM's 40-plus years of early leadership in prohibiting or restricting many substances of concern from our processes and products before regulatory requirements were imposed. For a more complete listing, see our [Materials use webpage](#).

- **Polychlorinated biphenyls (PCBs)**

IBM initiated a multi-year effort to eliminate PCBs from use in our products in 1974 and achieved elimination in 1978.

- **Chlorofluorocarbons (CFCs)**

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

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

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

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

Examples of other chemicals that IBM voluntarily prohibited from our manufacturing processes include TCE in the late 1980s, ethylene-based glycol ethers in the mid-1990s and dichloromethane in 2003.

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

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

- **Cadmium**

IBM 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)**

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

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

By definition, nanotechnology is the application of scientific and engineering principles to make and utilize very small things (dimensions of roughly 1 to 100 nanometers), creating materials with unique properties and enabling novel and useful applications. It involves an ever-advancing set of tools, techniques and unique applications involving the structure and composition of materials on a nanoscale.

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, more energy efficient, and it has been critical to advancements in the IT industry.

IBM Research became involved in the world of nanoscience in 1981 when Gerd Binnig and Heinrich Rohrer invented the scanning tunneling microscope, revolutionizing our ability to manipulate solid surfaces the size of atoms. Since then, IBM has achieved numerous developments in the field—from moving and controlling individual atoms for the first time, to developing logic circuits using carbon nanotubes, to incorporating 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. IBM, along with the International SEMATECH Manufacturing Initiative and other semiconductor companies, is participating in a collaborative study with the National Institute for Occupational Safety and Health and the College of Nanoscale Science and Engineering of the University at Albany, State University of New York, to monitor potential workplace exposure to nanoparticles during chemical mechanical planarization 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.

Two of our latest nanotechnology research advancements:

- **New polymers that could deliver cheaper, lighter, stronger and recyclable materials ideal for electronics, aerospace, airline and automotive industries**

IBM researchers recently discovered a new class of synthetic polymers. They are the first new family of polymers discovered in decades. To achieve this advancement, the researchers used a novel computational chemistry hybrid approach to accelerate the materials discovery process that couples lab experimentation with the use of high-performance computing to model new polymer-forming reactions.

The new materials are strong, cheap, flexible, readily recyclable, and self-healing. IBM delivered the news in a peer-reviewed publication in the academic journal *Science* in May 2014. The new industrial polymers are the world's first family of materials that are stronger than bone and solvent resistant while being completely recyclable back to their starting material. Additionally, these strong materials can be made at least 50 percent stronger through the addition of carbon nanotubes to their composition.

The application of these materials across a broad range of engineering and product design challenges is highly likely. They could be used as cheaper, lighter and stronger recyclable materials in manufacturing industries such as semiconductors, aerospace, airline and automotive industries. They could also be used to replace the current polymers in more common items such as drink bottles and secure food packaging that currently are difficult to recycle.

- **Turning waste plastic bottles into antifungal agents**

Researchers from IBM and the Institute of Bioengineering and Nanotechnology have made a nanomedicine breakthrough in which they converted common plastic materials like polyethylene terephthalate (PET) into non-toxic and biocompatible materials designed to specifically target and attack fungal infections. Traditional antifungal therapeutics need to get inside the cell to attack the infection but have trouble targeting and penetrating the fungi membrane wall. Also, since fungi are metabolically similar to mammalian cells, existing drugs can have trouble differentiating between healthy and infected cells.

Recognizing this, IBM scientists applied an organic catalytic process to facilitate the transformation of PET, or waste plastic from a bottle, into entirely new molecules that can be transformed into antifungal agents. This advancement is significant as plastic bottles are typically recycled by mechanical grinding and can mostly be reused only in secondary products like clothes, carpeting or playground equipment. These materials self-assemble through a hydrogen-bonding process, sticking to each other like molecular Velcro in a polymer-like fashion to form nanofibers. The positively charged nanofibers selectively target and attach to only the negatively charged fungal membranes through electrostatic interactions. After binding, the nanofibers break through and destroy the fungal cell membrane walls, preventing it from developing resistance.

Pollution Prevention

Pollution prevention is an important aspect of IBM’s longstanding 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 manufacturing operations relative to production in 1992. We established a voluntary environmental goal based on this methodology in 1995 to drive continual reduction in the hazardous waste generated from these operations.

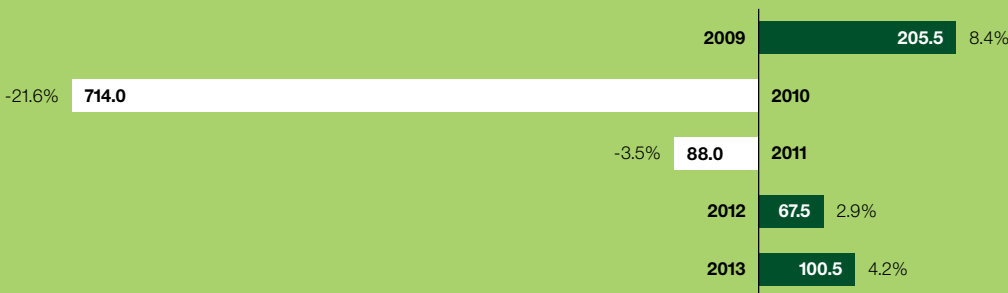
The goal is to achieve year-to-year reduction in hazardous waste generation from IBM’s manufacturing processes, indexed to output. The metric is measured at IBM’s three microelectronics manufacturing locations that generate the majority of IBM’s hazardous waste attributable to manufacturing processes.

In 2013, IBM’s hazardous waste generation indexed relative to production output increased by 4.2 percent, or approximately 100 metric tons, compared to 2012. There were two primary factors for this year-to-year increase: first, an increase in fluoride/heavy metal sludge generation at the Industrial Wastewater Treatment Plant (IWTP) at one of the manufacturing sites as a result of increased hydrofluoric acid chemical usage, and second, an increased use of a photoresist solvent with a corresponding increase in bulk waste solvent generation. The increase in hydrofluoric acid usage was due to the continued transition to single wafer tools and processes at thinner line width integrated circuit technologies—a continuing trend occurring across the semiconductor industry. The increase in bulk waste solvent generation was due to a higher use of the specific photoresist in the photolithography process to improve wafer yields. The waste solvent was sent by IBM to be recycled.

4.2%

In 2013, IBM’s hazardous waste generation indexed to output increased over 2012 by 4.2% despite ongoing, focused reduction efforts.

Annual Change in Hazardous Waste Generation Indexed to Output
(metric tons and % change)



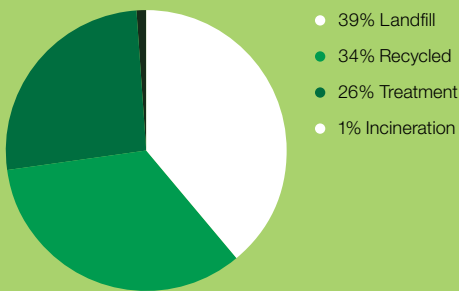
For the hazardous waste that is generated, we focus on preventing pollution through a comprehensive, proactive waste management program. For example, the spent solvents from photolithography are considered hazardous waste by regulatory definition and are therefore included in our hazardous waste metric. However, IBM has an active program for increasing the off-site reclamation and beneficial use of the primary spent solvent in this waste.

Of the total 7,450 metric tons of hazardous waste IBM generated worldwide in 2013, 34 percent was recycled, while 26 percent was sent off-site for treatment, 39 percent was sent by IBM directly to suitably regulated landfills, and 1 percent was sent for incineration worldwide.

At the end of 2012, one of IBM's microelectronics manufacturing locations successfully concluded an initiative to have its IWTP sludge delisted from a hazardous waste to a nonhazardous waste, pursuant to the US Environmental Protection Agency (EPA) regulations. As a consequence, beginning in 2013, the EPA and the relevant state regulatory agency authorized a beneficial use of the 2,200 metric tons of sludge this IBM location generated in 2013 as an "Alternative Daily Cover" for a landfill in Vermont. As such, this application helped the landfill operator avoid the purchase of other clean fill materials for the required cover.

In 2013, our worldwide operations generated and sent off-site for treatment approximately one percent more hazardous waste compared to 2012. The disposal of 2,300 metric tons of soil sent to landfill from a soil removal project at one manufacturing site in the United States was a factor influencing this result. Government regulations required disposition of the excavated soil in a secure landfill.

2013 Total Generated Hazardous Waste Worldwide by Treatment Method
(7,450 metric tons)



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 our first voluntary environmental goal to recycle nonhazardous waste streams in 1988. The goal has since evolved 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 at our leased locations, meeting designated criteria.

75%

IBM's goal is to send an average of 75% of the nonhazardous waste generated at locations managed by IBM to be recycled.

86%

In 2013, IBM sent 86% of its nonhazardous waste to be recycled.

In 2013, our worldwide operations generated and sent for treatment off-site approximately 65,100 metric tons of nonhazardous waste, a reduction of 3,800 metric tons (five percent) compared to 2012. This reduction was achieved despite the inclusion of over 2,200 metric tons of the IWTP sludge categorized as hazardous waste in 2012 being de-listed to nonhazardous waste, as previously outlined in this report. Source reduction and waste prevention initiatives implemented by IBM worldwide were estimated to have prevented the generation of over 8,100 metric tons of nonhazardous waste, with estimated annual handling, treatment and disposal cost savings and revenue returns totaling \$9.8 million.

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 2013, 86 percent of the nonhazardous waste generated by IBM worldwide was sent to be recycled.

Treatment methods that were credited toward the waste recycling target included: recycle, reuse, energy recovery, composting, reclamation, fuel blending, and land farming. Treatment methods that were not credited toward the recycling target included:

- Incineration
- Landfilling
- Treatment, such as aqueous treatment, biodegradation of organics, filtration, neutralization and stabilization

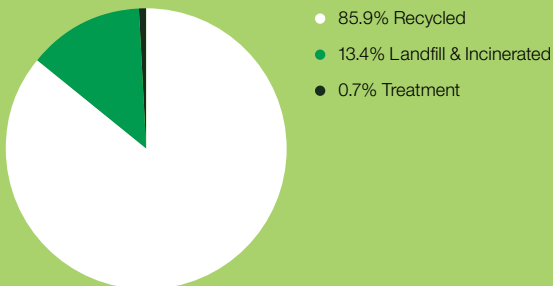
The majority of materials recovered from nonhazardous waste and sent to be recycled included: paper and cardboard, metals, plastics, furniture, wood, construction debris, cafeteria waste, waste chemicals, and mixed waste. Materials sent by IBM for landfilling or incineration as treatment for final disposal were primarily construction debris and mixed waste.

Total Annual Nonhazardous Waste Quantity and Recycling Performance
(Metric Tons x 1,000)

	2009	2010	2011	2012	2013
Total sent for recycling	60	56	55	60	56
Total generated	79	71	70	69	65
Percentage recycled*	76%	79%	78%	87%	86%

* Percent recycled versus the target of 75%

2013 Total Nonhazardous Waste Worldwide by Treatment Method
(65,100 metric tons)



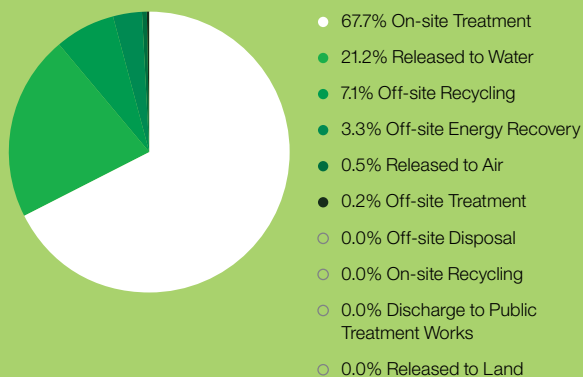
Management of chemical releases

Under Section 313 of the US 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, 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 EPCRA is a US reporting requirement, we have voluntarily extended this reporting metric to cover our worldwide operations since 1994. In 2013, IBM's worldwide reportable quantities of EPCRA-listed chemicals amounted to 2,857 metric tons, representing an increase of 2.1 percent compared to 2012. More than 78 percent of this quantity was treated on-site or sent off-site for recycling or combustion for energy recovery.

2013 Worldwide Reportable Quantities of EPCRA-Listed Chemicals
(2,857 metric tons)



Worldwide Reportable Quantities of EPCRA-Listed Chemicals*
(2009–13, metric tons x 1,000)



* As defined under Section 313 of the US EPCRA.

2013 Worldwide Reportable Quantities of EPCRA-Listed Chemicals

Chemical	Metric tons
Sulfuric acid (Aerosol only)	1,167
Nitrate compound	756
Xylene	115
Hydrogen fluoride	246
Nitric acid	207
n-methyl-2-pyrrolidone	143
Ethylbenzene	25
Ozone	37
All others	161
Total	2,857

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 2013, IBM's routine releases of EPCRA reportable chemicals indexed to output increased by 15.4 percent from the prior year. The primary reason for this year-over-year increase was due to an increase in nitrate releases indexed to output at one of our manufacturing sites and the delayed start-up of that site's nitrate reduction process, which was designed and constructed on a voluntary basis to address these releases. Releases of nitrate compounds from this facility are not regulated by the facility's discharge permit and are not impacting the quality of the receiving water body in a material way. However, limiting discharges of nitrate compounds is a requirement of IBM's own corporate environmental practices. Accordingly, we invested in process upgrades and treatments aimed at reducing nitrate discharges in our effluents. We expect the nitrate reduction process to be in operation in the second half of 2014.

Water Conservation

The preservation of water resources and protection of watersheds are important areas of focus for IBM.

IBM's microelectronics manufacturing operations represent our company's most water-intensive business activities. In 2013, these semiconductor manufacturing operations represented 82 percent, or 9,302 thousand cubic meters (TCMs), of the 11,391 TCMs of water used in 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 in our 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 2013, new water conservation initiatives at IBM's microelectronics manufacturing facilities achieved an annual 3.2 percent water conservation savings versus 2012 usage. Over the past five years, new water conservation initiatives at our microelectronics manufacturing facilities have achieved an average of 2.3 percent water conservation savings against the 2 percent goal.

2%

IBM's goal for water conservation is 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 five-year period.

2.3%

As of year-end 2013, IBM's microelectronics manufacturing operations had achieved an average annual water savings of 2.3 percent over the five years versus the 2 percent goal.

Annual Percentage Increases in Water Conservation Savings in Microelectronics Manufacturing Operations
(savings as percentage of previous year's total water use)



In 2013, 643 TCMs of water were conserved in our microelectronics manufacturing operations through new and ongoing reduction, reuse, and recycling activities. Of this total conservation, 509 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 134 TCMs in water savings. The total accumulated water conservation over the past five-year rolling period was 3,331 TCMs.

The significant efforts undertaken by IBM's microelectronics operations in the early years of our water conservation goal were very effective in capturing opportunities for water conservation. Over the past 13 years since 2000, when the goal was introduced, water conservation efforts have avoided the accumulated use of 20,345 TCMs. As additional annual water conservation savings become harder to secure, due in part to the significant conservation efforts already delivered, we are evaluating options to further drive the efficient use of water resources across our business operations worldwide.

Solutions for Environmental Sustainability

We apply our expertise, research and technology to develop solutions that help our company, our clients and the world operate in ways that are more efficient and protective of the environment.

Our world's sustainability requires a balance among many interdependent and competing needs—of society, its economies, and the planet itself. As the world has become increasingly instrumented and interconnected, we are witnessing an extraordinary growth of “big data.” A range of technologies and capabilities—from cloud computing to analytics, from mobile and social platforms to cognitive learning—is transforming this data into a resource that can lead us to better choices and new opportunities for improving environmental sustainability.

IBM is leveraging these technologies and applying our expertise to understand these competing needs and develop innovative solutions to help build and live on a smarter, more sustainable planet. These efforts reflect our longstanding commitment to environmental leadership and one of IBM's core business values “innovation that matters—for our company and for the world.” Examples of IBM solutions that are advancing sustainability follow.

Water

Water is one of the world's most abundant natural resources but it is also fast becoming one of the most stressed. Growing populations can strain the supply of clean water, while changing weather patterns challenge our ability to sustain agriculture through droughts or to prevent floods during storms.

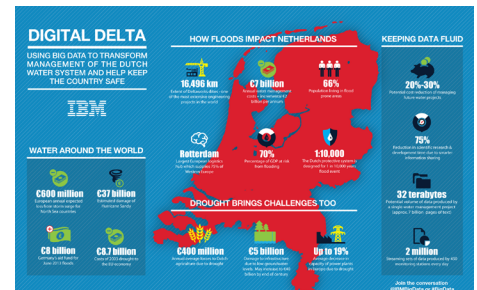
Digital Delta—The Netherlands

With 55 percent of the Dutch population located in areas prone to large-scale flooding, the Netherlands has vast experience in flood prevention and water management. Every water-related event is critical and can impact businesses, agriculture, and citizens' daily lives.

While the Netherlands has one of the best-monitored water systems in the world and collects large amounts of data, relevant data can be difficult to find, and the data quality can be uncertain. Since the data is also in many different formats, integrating it is challenging and costly for water managing authorities and hinders the development of complex decision support capabilities.

Digital Delta, a solution developed by IBM in collaboration with the Dutch Ministry for Water (Rijkswaterstaat), the local Water Authority Delfland, Deltares Science Institute and the University of Delft, is harnessing insights from big data to transform flood control and management of the entire Dutch water system.

This new management system is helping address far-reaching concerns ranging from the quality of drinking water and the increasing frequency and impact of extreme weather-related events, to the risk not only of floods but also droughts. By modeling weather events, the Netherlands can determine the best course of action, including storing water, diverting it from low-lying areas, and avoiding salt-water intrusion into drinking water, sewage overflows, and water contamination. The initiative is providing water experts with a real-time intelligent dashboard to harness information so it can be shared immediately across organizations and agencies.



Digital Delta is harnessing big data insights to transform flood control and management in the Netherlands. [Click for larger version.](#)

As water stress, droughts, flooding, and failing infrastructure strain economies and quality of life in many regions of the world, the Digital Delta solution offers a smart model that is now being replicated for better water management in other areas of the world.

Water distribution systems—Bangalore, India

The World Bank estimates that global costs from leaky water pipes total \$14 billion annually. Our water infrastructure, in service for upwards of 100 years in many regions, is under pressure, to say the least.

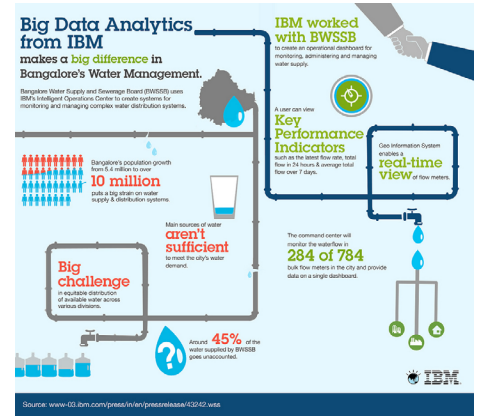
Along with these “aging pipe” challenges, developing economies like India are facing a serious water crisis associated with its rapid urban population growth and economic development.

Last year, IBM began collaborating with Bangalore Water Supply and Sewerage Board (BWSSB), which supplies water across nearly 800 square kilometers of the city, to create systems for monitoring and managing increasingly complex water distribution systems. Bangalore’s massive population growth—from 5.4 million in 2000 to over 10 million and counting has put tremendous strain on the city’s water supply and distribution systems.

IBM worked closely with BWSSB to create a water management system with operational dashboards and analytical tools to serve as a central command center for monitoring, administering and managing the city’s water supply networks. By setting and adjusting thresholds at key points, engineers can ensure that supply meets their expected goals.

Implementing this solution helps minimize water loss by:

- Detecting large changes in water flow through real-time monitoring
- Enabling engineers to assess real-time water supply at the click of a mouse
- Bringing a degree of predictability and real-time controllability of water supply across the city and population



The Bangalore water authority is using analytics to monitor and manage its complex water distribution system. [Click for larger version.](#)

Agriculture & food

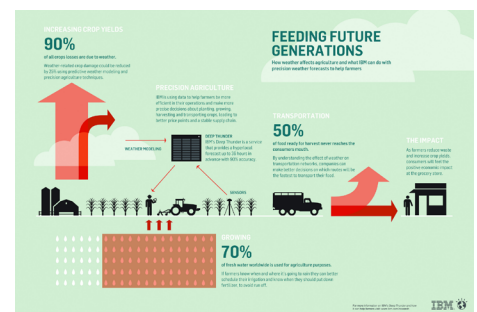
The land and water we use for our food supply are both limited and at risk. At the same time, it is estimated that, by 2050, our planet will need to feed more than 9.2 billion people, 34 percent higher than today. Exacerbating this huge challenge are failing water infrastructures and changing weather patterns resulting in floods and droughts. Fortunately, there is a wealth of one resource that we can use to be more efficient—information. Using big data and analytics, we are creating smarter food systems across the value chain. Two examples:

Flint River Partnership—Georgia, United States

Data-driven precision agriculture is the focus of a collaboration in which IBM and the Flint River Partnership (which includes the Flint River Soil and Water Conservation District, the US Department of Agriculture’s Natural Resources Conservation Service, and The Nature Conservancy), together with the University of Georgia, are helping farmers in the Lower Flint River Basin of Georgia conserve water, improve crop yields and mitigate the impact of future droughts.

Building upon a successful irrigation model and other water conservation measures already in place, the Flint River Partnership is using IBM’s Deep Thunder™ precision weather forecasting to help farmers make more informed irrigation scheduling decisions. Because the forecasts will be available on mobile devices, farmers will have 24-hour access to critical weather information in conjunction with other relevant field data.

The Partnership is also leveraging IBM SoftLayer® to manage data flows and automate irrigation recommendations, allowing farmers to determine how much water a specific crop needs at various stages of its life cycle.



Deep Thunder weather forecasting technology is helping farmers in Georgia to conserve water and improve crop yields. [Click for larger version.](#)

“Our job is to help farmers conserve water. Irrigation scheduling based on highly accurate weather forecasts and real-time field data will optimize decision making and consequently reduce resource use. Having access to such forecasts and field data on a mobile platform makes the data relevant, so that we can make proactive irrigation scheduling decisions on the fly.”

Marty McLendon, chairman, *Flint River Soil and Water Conservation District*

The integration of complex data streams generated by GPS-enabled farm equipment and in-field sensors with IBM's Deep Thunder weather forecasting technology delivered to mobile devices will provide 72 hours' advance notice of weather in the Flint region, allowing farmers to be more prepared to make decisions on when to irrigate, plant, fertilize, and deploy labor resources.

“Farming operations are highly sensitive to weather. In the United States, that sensitivity is about \$15 billion per year. For example, the USDA estimates that 90 percent of crop losses are due to weather. In addition, improving efficiency in irrigation will reduce the impact in areas with limited water supplies. By better understanding and then predicting these weather effects, we can help mitigate these impacts. Innovators like the Flint River Partnership are showing how they can leverage IBM's advanced modeling and analytics to increase crop yields. When we consider the need to increase food availability to a growing population, their leadership is helping to create a more sustainable approach to agriculture.”

Lloyd Treinish, distinguished engineer & chief scientist, *IBM Research*

Food safety

In China, pork is a major pillar of the economy in the Shandong Province, one of the country's most important agricultural regions. To limit the impact of porcine diseases and prevent tainted pork from being sold to consumers, experts from IBM China Development Lab and China's National Engineering Research Center for Agricultural Products Logistics have created a pork monitoring and tracking system. It can extract and store information from millions of interconnected sensors. The system brings an unprecedented level of accountability and efficiency to every stage of the pork production process, from production to distribution to retailer.

IBM is also focused on helping address food-related crises after they occur. These situations have the potential to affect thousands of people, leading to significant healthcare costs, loss of revenue for food companies, and—in the worst cases—death. According to the US Department of Health, in the United States alone, one in six people are affected by food-borne diseases each year, resulting in 128,000 hospitalizations, 3,000 deaths, and a nearly \$80 billion economic burden.

IBM scientists have built a system that automatically identifies, contextualizes, and displays data from multiple sources to reduce the time to identify the most likely contaminated sources by a factor of days or weeks. It integrates pre-computed retail data with geo-coded public health data to allow investigators to see the distribution of suspect foods and, selecting an area of the map, view public health case reports and lab reports from clinical encounters. The algorithm effectively learns from every new report and re-calculates the probability of each food that might be causing the illness.

Energy

Smarter energy use is critical for a sustainable energy future. Smarter energy ranges from providing the intelligence that enables us to manage our consumption of energy from any source to the use of renewable energy sources such as wind and solar.

Smart grids

IBM is helping utilities in mature and emerging markets around the world add a layer of digital intelligence to their grids. These smart grids use sensors, meters, digital controls and analytic tools to automate, monitor and control the two-way flow of energy across operations—from power plant to plug. With this intelligence, power companies can optimize grid performance, prevent outages, restore outages faster and allow consumers to manage energy usage right down to the individual networked appliance. IBM is actively engaged in this area as a founding member of the Intelligent Utility Network Coalition and through our own research and solutions.

Advancing the efficiency and availability of renewable energy

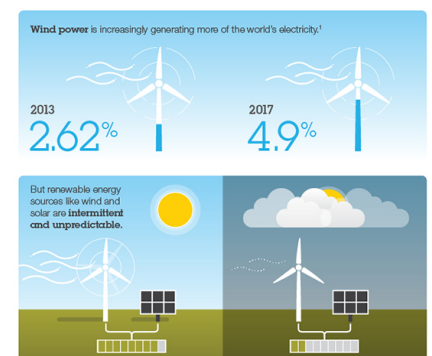
IBM's Hybrid Renewable Energy Forecasting (HyREF) solution is an advanced power and weather modeling technology to help utilities increase the integration into and reliability of renewable energy resources on the electric grid.

The solution combines weather prediction and analytics to accurately forecast the availability of wind power and solar energy. Using weather modeling, advanced cloud imaging, and turbine and solar photovoltaic sensors combined with analytics, it can provide accurate estimates of 15-minute to one-month energy output projections. Experience with the system has reduced forecast errors from 25 percent to 8 percent; increased the quantity of intermittent generation dispatched to the grid by 10 percent; and improved the planning for and matching of conventional output with renewable-generation sources.

This capability enables utilities to integrate more renewable energy into the power grid, helping reduce carbon emissions while significantly improving clean energy output for consumers and businesses.

IBM is involved in more than 150 smart grid engagements around the world, in both mature and emerging markets.

Sophisticated weather forecasting and analytics matures renewable energy market



Deep Thunder weather forecasting technology is helping farmers in Georgia to conserve water and improve crop yields. [Click for larger version.](#)

Cities

The planet's urban population is expected to almost double by 2050—to 6.4 billion people—and account for 70 percent of the world's population. IBM is helping many cities leverage their data with analytics to address the challenge of meeting the needs of all these people effectively and sustainably. One example:

Accelerating data-driven cities: water, transport and emergency management

Cities are “systems of systems” —with separate but interconnected challenges. The cities of Minneapolis, Minnesota, and Montpellier, France, are working with IBM to make data-driven decisions to rapidly transform the way they provide water, transportation and emergency management.

Built in partnership with cities, these new Smarter Cities Management Centers for transportation, water and emergency management bring together IBM's portfolio of leading Intelligent Operations software, IBM Global Business Services expertise, and IBM's broad analytics capabilities. They provide cities repeatable models for urban development. The solutions are available via the cloud or on premise through a combination of hardware, software, services, and preconfigured analytics models for best practices in city management. Rather than complex, customized projects, cities can begin getting insight from their data in a little more than a week.

Transportation management provides city-wide traffic visibility to help alleviate congestion, improve traffic management, optimize road capacity, rapidly respond to incidents and deliver travel advisories to citizens. The solution has been proven to help some cities reduce congestion by 25 percent.

Water management provides the ability to use analytics and decision support to improve flood protection, water quality and integrated water resource management. It also helps forecast future demands on the water supply and helps city leaders coordinate responses to flood or drought. The solution has been proven to help some cities reduce leaks by 20 percent.

Emergency management offers geospatial intelligence and analytics to provide a central point of command for emergency management. Some cities using this solution have reduced response time by 25 percent.

These and other cities around the world are increasingly using data to make better decisions and allocate resources to sense and respond to challenges in city infrastructure. By improving traffic management, responding rapidly to incidents, using effective communication channels with citizens, and ensuring sustainable natural resources, data and analytics are providing new insight to create more effective cities.

Sustainable development

Energy, water and sanitation, agriculture and human mobility are all critical aspects for economic and societal development. One example is IBM's initiatives to help Africa tackle these challenges.

Africa, IBM Watson™ and “Project Lucy”

The last decade has been a period of tremendous growth for Africa—but the continent's challenges, stemming from an increasing population, water scarcity, disease, low agricultural yields, lacking infrastructure and other factors have impeded inclusive economic growth. IBM is actively working to help change that through two new initiatives.

In November 2013, IBM opened its 12th global research lab. Located in Nairobi, Kenya, it is the first commercial technology research facility in Africa. Supported by the Kenyan Information, Communication and Technology Authority and located at the Catholic University of Eastern Africa, it features one of Africa's most powerful cloud-enabled computing hubs. It is

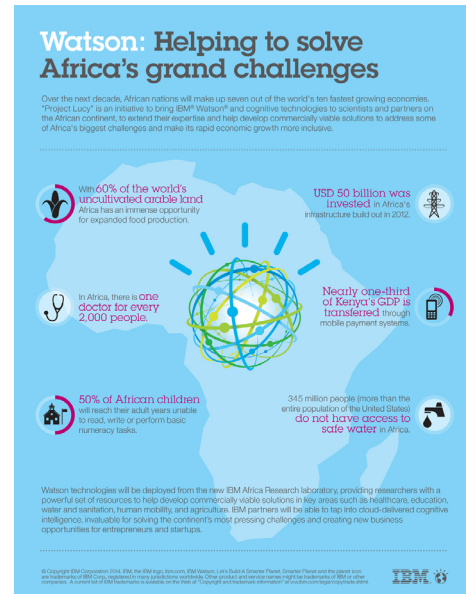
giving researchers the ability to analyze and draw insight from vast amounts of data to develop solutions for Africa's most pressing challenges ranging from energy and water to transportation, agriculture and healthcare.

In February 2014, IBM announced a 10-year, \$100 million initiative to bring IBM Watson—our cognitive computing technology—and other systems to Africa. Under “Project Lucy,” named after the earliest known human ancestor, IBM researchers in Africa, along with business and academic partners, will use Watson to leverage its cognitive technology to fuel development and spur business opportunities across the world’s fastest-growing continent.

Watson technologies will be deployed from IBM’s new Africa Research laboratory and provide researchers with a powerful set of resources to help develop commercially viable solutions in key areas such as:

- Water and sanitation
- Agriculture
- Human mobility
- Infrastructure
- Healthcare

In addition, to further leverage Watson’s capabilities and help fuel the cognitive computing market, IBM is also establishing a new pan-African Center of Excellence for Data-Driven Development. We are recruiting research partners such as universities, development agencies, start-ups and clients in Africa and around the world to participate in this initiative. By joining, these partners will be able to tap into IBM’s unparalleled expertise in cognitive computing across our 12 research labs and our new Watson business unit. This access will be invaluable for solving the continent’s most pressing challenges, creating new business opportunities and assisting in development that is more sustainable.



Deep Thunder weather forecasting technology is helping farmers in Georgia to conserve water and improve crop yields. [Click for larger version.](#)

Environmental Requirements in the Supply Chain

IBM has a long-standing commitment to protect the environment and to pursue environmental leadership across all of our business activities. As a part of this commitment, it is IBM's desire to do business with suppliers who are environmentally and socially responsible and to encourage environmental and social awareness with these suppliers. Further, there is increasing interest from customers and governments for information about the environmental attributes of IBM's products, and in many cases, the source for this type of information is IBM's suppliers.

Program objectives

The objectives of our requirements for suppliers and our supplier evaluation programs include:

- Preventing the transfer of responsibility for environmentally sensitive operations to any company lacking the commitment or capability to manage them properly
- Reducing environmental and workplace health and safety risks
- Protecting IBM, to the greatest extent possible, from potential long-term environmental liabilities or potential adverse publicity

While examples of this commitment have been highlighted in other relevant sections of this report, the following graphic provides key milestones of this leadership over the past four decades.

IBM's environmental evaluations of suppliers

Environmental evaluations of suppliers—key milestones

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 to require 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

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

Established a requirement that all of IBM's first-tier suppliers establish a management system to address their social and environmental responsibilities—and that they cascade this requirement to their suppliers

IBM's environmental requirements for its suppliers are set forth in a corporate directive that governs the contracts by which we:

- Specify and/or furnish chemicals, process equipment or contaminated equipment involved in production for decontamination or cleaning
- Procure materials, parts and products for use in hardware applications
- Procure hazardous waste and non-hazardous special waste treatment and/or disposal services
- Procure product end-of-life management services
- Use extended producer responsibility systems

In accordance with IBM's global procurement management system, specific environmental requirements are documented in our contracts with suppliers conducting certain types of activities anywhere in the world. These may include requirements related to chemical content, chemical management, waste management, spill prevention, health and safety, and reporting, to mention some of the most relevant ones.

For hazardous waste and product end-of-life management suppliers, IBM conducts a supplier evaluation that may include an on-site review of the supplier facility's environmental, health, safety and industrial hygiene management programs; its medical screening and monitoring programs; and a review of its environmental, health, and safety audits for the previous three years. We evaluate these suppliers prior to entering into a contract with them and then again approximately every three years thereafter to ensure their operations and commitment to workplace safety and sound environmental practices continue to meet our requirements. The evaluations are conducted by IBM's Corporate Environmental Affairs staff or by environmental professionals under the direction of this staff or by third-party environmental professionals.

IBM's hazardous waste and product end-of-life management supplier evaluations are comprehensive in the scope of the environmental aspects they address. The following provides a summary of the scope of the environmental aspects covered under these evaluations:

- Facility operational activities, capabilities, capacities and services:
 - Waste management services, treatment, recycling or final disposal methods, processing capacity and facility construction design (floors, docks, secondary containment)
 - Treatment and recycling methods for the hazardous and nonhazardous special wastes generated by supplier's operations
 - Environmental, health and industrial safety and hygiene management plans, training programs, emergency response plan and fire and safety equipment, personal protective equipment, chemicals used, safety data sheets and hazards communication program, evacuation plans, first aid, medical screening and monitoring programs, etc.

- Corporate environmental and social responsibility:
 - Supplier's compliance to IBM's Supply Chain Social and Environmental Management System requirements

- Applicable legal requirements and compliance:
 - Permits, licenses and other applicable regulatory requirements, regulatory agencies and contacts
 - Compliance history (notices of violation, government citations, public complaints and summary of inspections and findings)

- Environmental programs including:
 - Air emissions, water (consumption and discharges), chemical management, waste management, supplier evaluations, incident prevention and reporting, energy management, soil and groundwater, etc.
 - Underground storage tanks and piping systems
 - Spill prevention, containment and response
 - Environmental liabilities, closure and post-closure care cost funding and plans and insurance coverage

IBM also requires its hazardous waste and product end-of-life management suppliers to track the shipment and processing of any hazardous materials they handle for IBM down to the final treatment, recycling, or disposal location and to report that information to us.

Global requirements for waste processing (treatment, recycling, or disposal) and product end-of-life management

As we do with all of our environmental programs, IBM manages its hazardous waste and product end-of-life management programs to the same high standards no matter where in the world we operate. Doing so can be particularly challenging in some countries where processing infrastructure (treatment, recycling and/or disposal) that meets IBM's requirements is lacking or nonexistent.

Under IBM's waste management program, hazardous and nonhazardous special wastes are treated, recycled, or disposed of at IBM-approved facilities within the country where they are generated, whenever possible. IBM does not export hazardous and nonhazardous special wastes from the United States or any other country when suitable processing facilities are available within the country.

If there are no suppliers in a country that meet IBM's environmental and safety requirements for hazardous waste or product processing, the waste generated by IBM's operations is shipped to facilities in other countries where those requirements can be met.

This shipping is done in compliance with country laws and regulations and in accord with international treaties such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

Though rare, there are sometimes situations in which local processing of waste is not possible and shipping to IBM-approved suppliers in other countries is not allowed due to legal requirements. In these situations, IBM stores the wastes and product end-of-life materials in properly contained and managed storage facilities as allowed by law and until suitable processing facilities are available.

IBM's social and environmental management system requirement for all its suppliers

In 2010, IBM instituted 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 in the areas of waste, energy and greenhouse gas emissions
- Publicly disclose results associated with these voluntary environmental goals and other environmental aspects of their management systems
- As part of their management system, conduct self-assessments and audits as well as management reviews of their system
- Cascade these requirements to their suppliers who perform work that is material to the products, parts and/or services supplied to IBM

More information on these new supplier requirements may be found on IBM's [Supply Chain Environmental Responsibility website](#).

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 2,656 monitoring wells and 107 extraction wells.

In 2013, approximately 15,500 pounds of solvents from past contamination were extracted while remediating, controlling and containing groundwater at six currently operating IBM locations and 12 former IBM locations in three countries. At six of these locations, an additional 2,500 pounds of solvents were removed by soil vapor extraction or other methods. IBM also has financial responsibility for remediation at two additional former locations.

As a result of the US Superfund law, IBM is involved in cleanup operations at some non-IBM sites in the United States. The Superfund law creates retroactive responsibility for certain past actions, even though those actions may have been technically acceptable and legally compliant at the time. As of year-end 2013, IBM had received notification (through federal, state or private party) of its potential liability at 114 sites, since the beginning of the Superfund program in 1980. Of these, 63 are on the US National Priority List. At the majority of the 114 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 2013.

When investigation and/or remediation at an IBM current or former location or a non-IBM 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 a facility is made. As of December 31, 2013, the total accrual amount was \$245 million.

Audits & Compliance

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

Every year, and more frequently for some, IBM's manufacturing, hardware development and research locations and organizations—such as Product Development, Global Real Estate Operations, Global Asset Recovery Services, Global Logistics, Global Services Environmental Compliance and Integrated Supply Chain—complete a comprehensive self-assessment. In addition, IBM's Corporate Internal Audit staff may conduct environmental, health and safety audits. Audit and self-assessment 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 locations are audited by the external ISO 14001 registrar every 18-30 months.

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 2013, a total of 11 accidental releases of substances to the environment related to IBM operations were reported through EIRS. Of these, two were to air, seven were to land, one to water, and one to both land and water.

- Emissions to the air included two releases of refrigerants.
- Releases to land included two releases of fuel oil and one each of treated industrial waste water, water solution, chilled water, contaminated groundwater, and hydraulic fluid.
- The release to water was chilled water.
- The release to both land and water was a release of water used in a fire suppression system.

The root cause was investigated for all releases and corrective actions were taken as appropriate. None of the releases was 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 2013, IBM was the subject of 86 successful environmental regulatory agency inspections and visits worldwide, with no fines being assessed.

Over the past five years, IBM has paid five fines for a total amount of \$104,814.

Fines and penalties Worldwide

(\$ in thousands)

	2009	2010	2011	2012	2013
Number	2	0	0	3	0
Fines	\$30	\$0	\$0	\$74.8	\$0

Supply Chain

Social and environmental responsibility is an important part of our business relationships with suppliers, and we work closely with them to encourage transformation throughout our global supply chain. In this section you will find examples of how IBM has established requirements for the companies we do business with, collaborate with industry groups and stakeholders, and grow the global diversity of our supply base.

Our Supply Chain	129
Supplier Assessment & Improvement Plans	132
Industry Collaboration	140
Conflict Minerals	142
Supplier Diversity	144

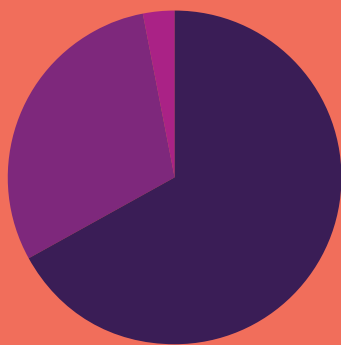
Our Supply Chain

With more than 18,000 suppliers located in close to 100 countries, social and environmental responsibility is a major component of our corporate responsibility efforts and is incorporated into our business relationships with valued suppliers.

IBM's supply chain is a strategic asset that enables us to deliver consistently high-quality goods and services to our customers on a local and global level. We are very aware of the importance that comes with having a supply chain of this scale and have crafted our social responsibility efforts in unison with our providers to promote sustainable performance as a shared objective. And to this end, in light of the increased interest many stakeholders have in our global supply chain, we continue to enhance our initiatives described here.

Supplier spending: \$32.8 billion total in 2013

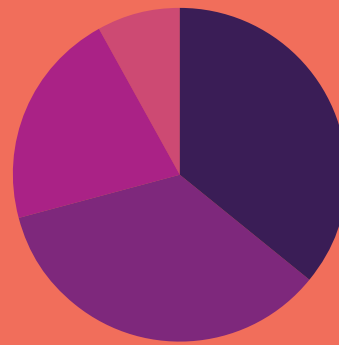
2013 Supplier Spending by Category



\$32.8 billion

- 67% Services & General Procurement (\$22.1 billion)
- 30% Production Procurement (\$9.7 billion)
- 3% Logistics Procurement (\$1.0 billion)

2013 Supplier Spending by Location



\$32.8 billion

- 36% North America (\$11.8 billion)
- 35% Asia Pacific (\$11.4 billion)
- 21% Europe, Middle East, Africa (\$7.0 billion)
- 8% Latin America (\$2.6 billion)

As in prior years, we are providing the following lists of suppliers that represent a significant portion of our expenditures. Feedback we have received from stakeholders indicates this is useful information, as it expands their understanding of IBM's extended supply chain. In the spirit of further enhancing the dialog on the transformational aspects of our joint efforts, we are including links to our suppliers' own Corporate Responsibility Reports and/or related websites. We encourage all of our suppliers to create and publish these reports as they serve to enrich our collective knowledge of the many successful endeavors taking place to improve social and environmental performance in the extended supply chain.

In 2013, 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
- Altis Semiconductor
- Amkor Technology
- Applied Materials
- Avnet
- Benchmark Electronics
- Brocade
- Celestica
- Cisco Systems
- Compro Business Services
- Dai Nippon Printing
- Delta Electronics
- Emerson Network Power
- Emulex
- Flextronics
- Fuji Electric
- Fujifilm
- Fusion-IO
- Geodis
- GLOBALFOUNDRIES
- Hitachi
- Hon Hai
- Intel
- Jabil Circuits
- Kingston Technology
- KLA-Tencor
- Kyocera
- Lam Research
- Lenovo
- Maxim Integrated Products
- Mellanox Technologies
- Micron Technology
- NEC
- NetApp
- QLogic
- Quantum
- Samsung
- Seagate
- Shin-Etsu Handotai
- SK hynix
- Smart Modular Technologies
- Soitec
- The Karrie Group
- Tokyo Electron
- Toshiba
- Universal Scientific Industrial
- Venture
- Western Digital
- Wistron
- Xyratex

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
- American Airlines
- Anixter
- Artech Information Systems
- AT&T
- Bilfinger
- BMC Software
- Camelot Information Systems
- CA Technologies
- CBRE Group
- CDI
- Cisco Systems
- Collabera
- CTG
- CVS Caremark
- Deloitte Touche Tohmatsu
- Delta Air Lines
- EMC
- Fluor
- Fujitsu
- George P. Johnson
- Hays plc
- Hewlett-Packard
- Hitachi
- Infinite Computer Systems
- Insa
- Internet Initiative Japan
- Johnson Controls
- Jones Lang LaSalle
- Juniper Networks
- LeasePlan
- Lenovo
- Manpower
- Microsoft
- Mitsubishi
- Nippon Systems Development
- Oracle
- Pomeroy IT Solutions
- Randstad
- Red Hat
- Ricoh
- Rocket Software
- SAP
- SDI International
- SHI International
- Sumitomo Corporation
- The Employment Solution
- Verizon
- WPP
- ZeroChaos

Supplier Assessment & Improvement Plans

In today's socially connected world, the pace of information availability and exchange continues to rise to levels never before experienced. Along with this velocity comes greater expression towards companies to continue investing in and improving their social responsibility—as they are considered the vanguards of change.

Within the field of supply chain management, companies with a public brand presence are held to high expectations for their supply chain stewardship by their many stakeholders. Against this backdrop, IBM continues developing and refining its supply chain initiatives that support our beliefs and those of our stakeholders.

The following examples highlight a number of these activities that we engage in with our many suppliers as we work and encourage continuous improvement in order to meet these heightened expectations.

Global Supply Social and Environmental Management System

Three years ago, IBM Global Procurement introduced its Social & Environmental Management System (S&EMS) program to its vast network of existing and newly on-boarded suppliers. The S&EMS program requirements 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.
- Encourage first-tier suppliers to cascade these requirements to their own suppliers.

In November 2013, IBM's S&EMS successfully completed its second ISO 14001 surveillance audit conducted by Bureau Veritas, which has resulted in IBM's continued ISO certification.

During 2013, IBM's S&EMS program received the following internal and external recognition:

- IBM's Integrated Supply Chain (ISC) organization received the 2013 Chairman's Environmental Award from IBM Chairman Ginni Rometty. The award was won based upon the demonstration of ISC's environmental programs supporting products and solutions. (S&EMS played a prominent role in this award.)
- IBM's ISC was "highly commended" at the European Supply Chain Excellence Awards in the category of Environmental Improvement for Packaging Engineering Center of Competence Project.
- ISC's S&EMS was short-listed in the Chartered Institute of Purchasing and Supply (CIPS), in the category of Best Contribution to Corporate Responsibility.

Supply Chain Social Responsibility

IBM's dedication to Supply Chain Social Responsibility (SCSR) has been part of our corporate and procurement strategy since 2004. Year by year, we have assessed an ever larger footprint of our supply chain in the developing world and we believe this has driven upstream improvements in conditions for thousands of people employed in the extended supply chain.

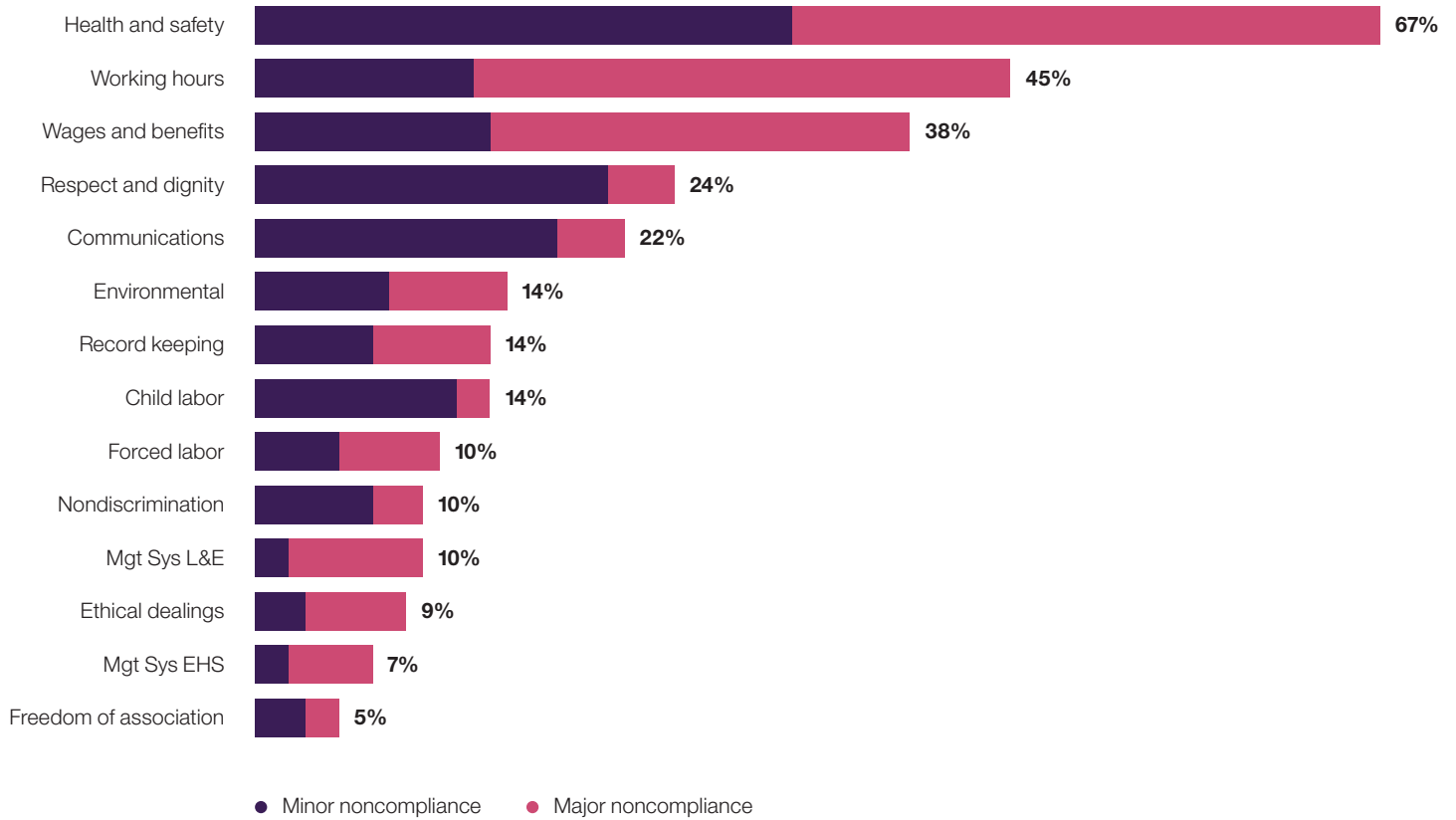
2013 represented a transition year in our SCSR evolution with three significant changes occurring sequentially over the twelve-month period. During the first quarter we introduced the Electronic Industry Citizenship Coalition (EICC) Code of Conduct to our Services and General Procurement suppliers and retired the IBM Supplier Conduct Principles for this segment of suppliers. The transition to the EICC Code (for Service and General Procurement suppliers) matched the change we made with our Production Procurement suppliers in 2010 and allowed us to standardize on a single code for all of IBM's suppliers worldwide. In the second quarter we migrated to the EICC's Validated Audit protocol for our Services and General Procurement—again matching the use of the EICC audits we had with our production suppliers since June 2010. This dual implementation of EICC audits continued to build upon IBM's longstanding endorsement of the industry standard social audit, and further solidified our leadership position in using this protocol as our exclusive means to assess suppliers' compliance to the EICC Code. In the third quarter, we provided a longer-range outlook to suppliers on the sites for which we would be requesting EICC audits, in order to give them the time to plan and contract with the EICC for these assessments, as part of their ongoing social responsibility activities.

In 2013, the total number of full-scope audits across the nine-year span reached 1,683, with cumulative results illustrated in the chart below. These assessments measured supplier compliance to the Electronic Industry Citizenship Coalition (EICC) or the IBM Code of Conduct (prior to 2010 and 2013, as described in the paragraph above.) IBM is a major user of the EICC's Validated Audit Process, directing all hardware supplier assessments (and for Services and General procurement suppliers from second quarter 2013) through this collaboratively developed approach that provides a common process for sharing results and eliminating costly duplicate assessments. In 2013 we included in this cumulative total second-, third-, and fourth-cycle full-scope audits (versus only initial full-scope audits) as a reflection of IBM's practice of including social assessment as part of its ongoing business engagement with its supplier base. Assessments have engaged suppliers in 34 growth market countries as listed at the bottom of the following chart.

1,683

full scope audits measuring supplier compliance from 2004 through 2013

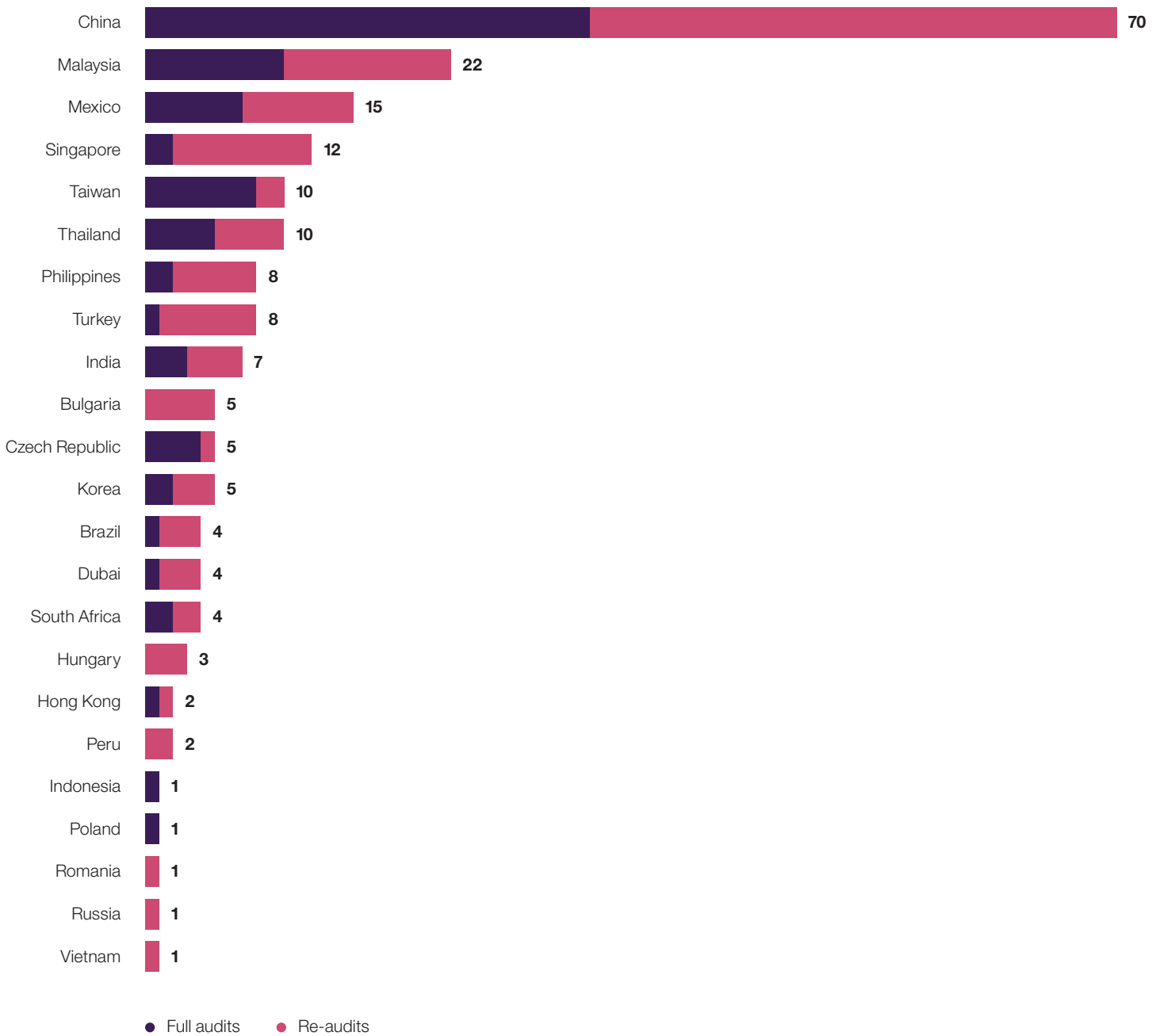
Supplier Full Audit Results-Global Cumulative (2004–2013)
 (% non compliant to IBM/EICC code (base=1,638 assessments))



Audits were performed in the following countries or territories: Argentina, Brazil, Bulgaria, Chile, China, Colombia, Costa Rica, Czech Republic, Dubai, Hong Kong, Hungary, India, Indonesia, Kenya, Korea, Madagascar, Malaysia, Mauritius, Mexico, Nigeria, Peru, Philippines, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, Taiwan, Tanzania, Thailand, Turkey, and Vietnam.

In 2013, IBM engaged its suppliers in 83 full-scope audits and 118 re-audits for a total of 201 assessments in 23 countries or territories. China was the most active for audits and re-audits, followed by Malaysia, Mexico, Singapore, Taiwan, and Thailand. Almost every country in 2013 had re-audit activity, continuing a trend from prior years as we ensure re-audits follow any full-scope audits with noncompliance.

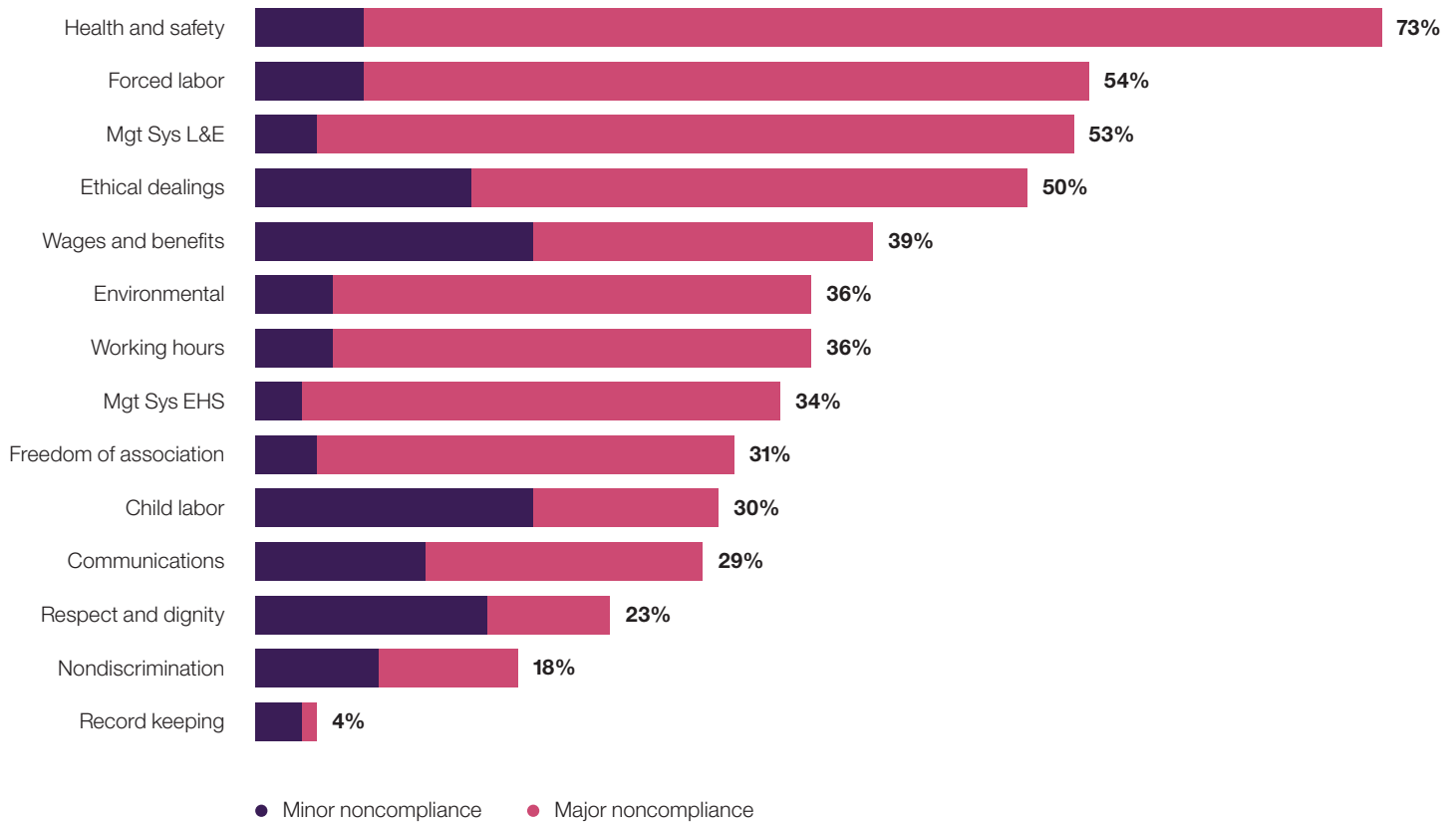
2013 IBM SCSR Completed Audits by Country
201 assessments conducted



Of the 83 full-scope audits IBM managed with its suppliers in 2013, at year-end, reports were in hand for 74 audits. The results of the 74 full-scope audits are illustrated in the following chart. In comparison with the cumulative data (2004-13), the 2013 full scope audit results had a comparatively higher degree of noncompliance than the historical data. This is primarily a result of the change in assessment protocol for our Service and General Procurement suppliers to the EICC audit protocol as described in the opening paragraphs. The EICC code and the associated audit protocol have a larger number of questions and therefore was a

deeper assessment. The Service and General Procurement audits comprised approximately a third of the 74 full-scope audits conducted in 2013. For each noncompliance found in the audit, the EICC audit report provides not only a description of the finding, but also, very importantly, a cross-reference to the specific aspect of the EICC code and/or the local regulation that it pertains to. This proves to be very effective in enabling the supplier to isolate the root cause of any noncompliance and to work on effective improvements. Many of the audit findings were related to proper establishment of policies and practices, such as in forced labor (having an implemented and communicated policy on human trafficking, for example) or in management systems (having documented goals, objectives, metrics, periodic reviews, and tracked actions). The major findings in the child labor provision were associated with noncompliance to policies and practices to fully investigate pre-employment age documentation. In no instances were underage workers found in these audits during 2013. In the category of working hours, the 2013 assessments continued to illustrate the steady progress suppliers are making toward full compliance with the EICC code. Overall, IBM's efforts in communicating code compliance begin at the initial stages of supplier engagement and are part of regular business reviews at the functional and executive levels. This ongoing and frequent focus on social responsibility and the commitment of our suppliers has helped lead to many improvements. Audits continue to play a valuable role in providing our suppliers with objective, third-party evidence to determine if their operations are still compliant or in need of further improvement.

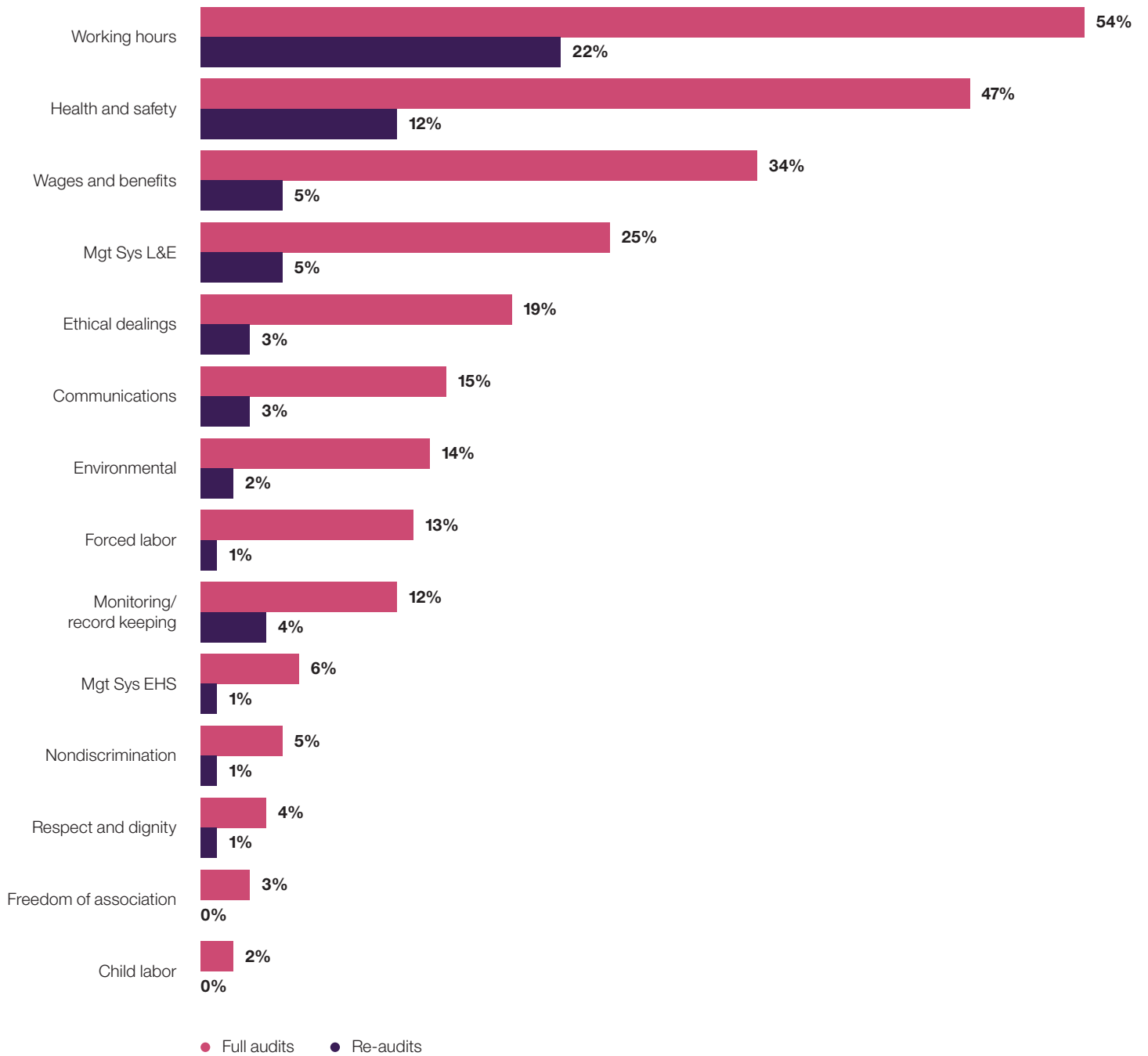
Supplier Full Scope Audit Results (2013)-PP and S&GP
 (% non compliant to IBM/EICC code (base=74 assessments))



IBM's supplier assessment activity follows the prescribed methodology of the EICC, whereby audited suppliers create and submit a Corrective Action Plan (CAP) for all incidents of noncompliance discovered in the full scope audit. The CAP links noncompliance back to its root cause and enables the supplier to create meaningful targeted improvements, and ultimately test their effectiveness by means of a closure or re-audit. During 2013, 175 supplier CAPs were reviewed and accepted within 90 days of submission.

The effectiveness of our audit/CAP/re-audit practice is illustrated by comparing the "before and after" results of suppliers experiencing a complete cycle, as shown by the chart below. Re-audits conducted during 2013 at 112 Production and Services and General Procurement suppliers are compared with their full-scope audits (conducted over the 2011–12 timeframe). For ease of reading and comparison, only major noncompliance results are depicted in the chart.

Comparison of 112 Re-Audit vs. Full Scope Audit Compliance
 (% non compliant, major non compliance levels illustrated)



With regard to a number of code provisions, the re-audits that indicated major noncompliance were completely remediated in freedom of association and child labor. In all other code areas, substantial reductions in noncompliance were achieved, including a 60 percent improvement in working hours compliance, a 75 percent improvement in health and safety compliance, an 80 percent improvement in management systems (labor and ethics), an 84 percent improvement in ethics, and an 85 percent improvement in wages and benefits compliance.

At the conclusion of the re-audits, working hours remained the largest area of noncompliance. While this is unsatisfactory, it is consistent with our knowledge of the challenges associated with full resolution on a global basis, especially in developing markets. In particular, China poses the greatest hurdle for complete compliance in working hours—however, we believe that much progress has been made by our suppliers in China with substantial reductions in total hours worked and greater adherence to rest day requirements.

Overall, 63 percent of re-audited suppliers (in 2013) resolved all major noncompliance issues after completion of one cycle—a significant achievement. IBM Global Procurement has contingency plans for its suppliers that remain noncompliant after a re-audit, and each is handled with great attention. Our leadership team tracks and reviews the results of all supplier assessments (full-scope and re-audits) on an ongoing basis. Reports are compiled and reviewed on a monthly basis with executives and on a quarterly basis with IBM's Chief Procurement Officer.

2013 Center of Excellence for Product Environmental Compliance

IBM's global Center of Excellence (CoE) for Product Environmental Compliance has 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 an active member of industry and regulatory bodies around the world. Year over year, environmental regulations continue to increase in number and complexity.

The types of product regulations that IBM's Center of Excellence for Product Environmental Compliance addresses include prohibited substances, restricted chemicals, nanomaterial, product take-back, batteries, power, and energy programs. In 2013, IBM successfully executed its highest number of year-on-year regulations (approximately 120). In 2013, the CoE kicked off an activity in support of the expiring European Union Restriction of Hazardous Substance exemptions designed to restrict the use of hazardous substances in electrical and electronic equipment. The CoE members continue to participate in industry consortia and advisory committees to assist, where possible, in pending regulatory or technology developments. The CoE continues to develop new and innovative ways to work with the industry to deliver product-compliant products. To this end, the CoE has developed various software solutions to track and collect product data, and it utilizes those tools to rapidly optimize data availability, streamline inquiries, and drive data accuracy. Ongoing, the CoE works in conjunction with an extended matrix of IBM professionals around the world to best deliver the right technology on time to meet the ever-increasing number of regulations. As of January 1, 2014, all IBM servers, storage and microelectronics products shipped globally were compliant with the applicable product environmental regulations in the countries IBM does business in.

Industry Collaboration

At IBM, we understand the importance of working together with other parties who share our vision of making sustained improvements to transform the extended supply chain.

In 2013, IBM's involvement with the Electronic Industry Citizenship Coalition (EICC) continued to expand in terms of support, participation, and utilization of the organization's numerous resources. Founded in 2004 and incorporated in 2007 as a nonprofit industry group, the EICC continues to make strides toward its ultimate goal of creating a sector that consistently operates in a socially and environmentally responsible fashion. As a founding member, IBM encourages its suppliers of products and services to join the group and participate in the development and deployment of resources aimed at driving improvements in social responsibility. At the end of 2013, the EICC added more than 10 new members to grow to nearly 90 total member companies across retail, electronics, software, logistics, and communication industries, representing five distinct tiers of the extended supply chain. Last year IBM completed its two terms of volunteer service as chair of the EICC board of directors, and expanded its representation in a number of working groups including Learning and Capability Building, Conflict Minerals, Asia Program Outreach, Governance Taskforce, Finance Committee, and the Executive Committee.

Through the collective efforts of its members and support partners, the EICC attained the following notable accomplishments in 2013:

- Conducted a week-long membership, stakeholder, and board of directors meeting in Taiwan that featured local social responsibility events
- Enhanced its Capability Building Tools and Resources portfolio for members and their suppliers to include 10 topical areas related to supply-chain social responsibility
- Expanded the geographic coverage of the Validated Audit Process to 19 countries and developed audit protocols for service suppliers and labor agencies
- Upgraded the EICC-On secure database for supply-chain interchange of EICC Self-Assessment Questionnaires and Validated Audit Reports
- Established a dedicated website and governance structure for the EICC/Global e-Sustainability Initiative Conflict Free Sourcing Initiative (CFSI) and grew membership to 150 organizations representing seven different industries focused on creating a conflict-free supply chain
- Published updated rosters of conflict-free smelters for tantalum and gold; released the first roster of certified conflict-free tin smelters
- Established a permanent office in Alexandria, Virginia, and hired seven staff members to assist the organization in reaching its goals and objectives

IBM has also actively engaged with local and regional organizations that share a common interest in facilitating improvements in supply-chain social responsibility. Our most robust example of this is in Mexico, where we work with three regional organizations in the Guadalajara/Jalisco region. Jalisco's electronic cluster plays a key role in Mexico's economic development and contributes significantly to Mexico's gross domestic product. IBM engages in diverse collaboration mechanisms, such as industry chambers, and in common projects to help increase the social responsibility of the sector in Mexico. For three consecutive years, IBM has collaborated with Red ACTIVO Sustentable, a Mexican nonprofit organization dedicated to helping small and medium enterprises develop socially responsible capabilities to drive economic, environmental, and sustainable growth. IBM has developed training materials and learning methodologies for workshops, as part of our longstanding commitment to corporate social responsibility. During 2013, more than 200 companies from different industry sectors located in the Jalisco region attended workshops on corporate social responsibility.

“As a leader in CSR, IBM has contributed to ACTIVO by developing a model for implementation of socially responsible practices in Jalisco’s industry. IBM has demonstrated a great commitment and strong belief by leading the agenda of this project. IBM’s participation has been determinate for the success of our project.”

Carolina Zatarain, director, *ACTIVO*

IBM also maintains a long-term collaborative relationship with Centro de Reflexión y Acción Laboral, a nongovernmental organization located in Mexico. Through frequent meetings and open communication, we are addressing in a constructive manner areas of mutual concern regarding working conditions in our regional IBM supply chain.

Conflict Minerals

In 2013, IBM and other members of the Electronic Industry Citizenship Coalition (EICC), in conjunction with the Global e-Sustainability Initiative (GeSI) Supply Chain Work Group and companies from other sectors outside electronics, continued working to achieve a supply chain free of Democratic Republic of Congo conflict region-originated minerals. Together, EICC and GeSI have formed the Conflict Free Sourcing Initiative (CFSI) to consolidate our joint efforts and to welcome other participants with an interest in working to resolve challenges associated with this issue.

By convention, four minerals (tin, tantalum, tungsten, and gold) are considered conflict minerals, although these materials are often found in other parts of the world and from legitimate sources within the DRC that are not conflict related. This adds to the complexity of the task at hand, as care needs to be taken to allow legitimate sources of supply from within the DRC to participate in the compliant supply chain. IBM itself is not a direct purchaser of conflict minerals and is several tiers downstream from the smelters or refiners of such minerals. As a result, we rely on processes developed by the CFSI and on information received from our suppliers relating to sources of supply.

The following products designed and manufactured by our Systems and Technology Group are within the scope of our conflict minerals work:

- Systems: computer servers designed and optimized for business, public, and scientific computing needs: System z, Power Systems, and System x
- Storage: disk, tape, and flash storage systems and software
- Microelectronics: semiconductors designed and manufactured primarily for use in IBM systems and storage products, and for external clients

In 2013, our efforts focused on harnessing the work of the past three years preparing the reporting documentation required to be filed by June 2, 2014, for the US Security and Exchange Commission's Dodd-Frank Wall Street Reform and Consumer Protection Act, section 1502; specifically, the Specialized Declaration Form (Form SD) and related Conflict Minerals Report (CMR).

The highlights of our work to date can be summarized into four categories: Establishing a supply chain standard for conflict minerals; performing a Reasonable Country of Origin Inquiry (RCOI) regarding the potential sources of conflict minerals in our products; surveying our direct suppliers using the CFSI Conflict Mineral Reporting Template to ascertain the smelters or refiners present in the supply chain, and working with those smelters and refiners to gain their engagement in the Conflict Free Smelter Program (CFSP).

IBM's [conflict minerals standard](#) outlines our recognition of the importance of this issue and our plans to take definitive steps to keep these materials out of our extended supply chain. This standard is posted on our [Global Procurement website](#) and has been brought to the attention of our upstream suppliers.

We conducted an RCOI regarding potential sources of conflict minerals and concluded that, in the absence of complete visibility to the sources of these materials within our extended supply chain, IBM would need to conduct due diligence of the supply chain to better understand the sources of these four materials.

To perform due diligence, IBM has used the CFSI Conflict Minerals Reporting Template and dashboard. This survey and consolidation software was developed to provide companies with a common 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. IBM deployed this survey to 40 direct suppliers to our Microelectronics group and 290 suppliers to our Systems and Storage products, representing 90 percent of our total supply chain expenditures for these three product groups. From this work, we learned the identities of 189 upstream tantalum, tin, and tungsten smelters and gold refiners, located in 34 countries, currently used by our direct suppliers. Within our CMR, Eili we have provided the entire list of upstream smelters and refiners identified by our due diligence work. IBM has shared a consolidated report of our due diligence results with more than 70 customers of our Systems Technology Group in support of their work on this topic.

IBM and members of CFSI are extending various actions to identify, vet, engage with, and lead the entire portfolio of member identified-smelters and refiners to participate in the CFSP. The CFSP was created for smelters and refiners that play a crucial role in the extended supply chain, as they are the point at which concentrated ores are refined into the higher level materials that cascade into technology products. During 2013, CFSI updated its web-based list of certified smelters and at the end of the year included 40 gold refiners, 25 tantalum smelters, and 10 tin smelters in total. The CFSP is a growing list, so interested parties are encouraged to access this website on a frequent basis for the latest information.

By comparing the IBM-identified smelters and refiners to the CFSP list, we determined at the end of 2013 that 33 percent of all the smelters and refiners identified by our upstream suppliers are conflict free, with 88 percent of the tantalum smelters, 42 percent of the gold refiners, and 17 percent of the tin smelters in IBM's supply chain conflict free. While we are encouraged by these results, we believe we have much further to go and thus plan to increase the engagement of smelters and refiners in 2014.

One means of expanding engagement is by direct interaction with smelters and trade groups that are associated with the processing of these materials. In December 2013, IBM and three other member companies of CFSI met in Indonesia for a multi-day engagement to discuss aspects of our conflict free work. This included government officials, trade representatives, and tin smelters. As a result of this session and the concerted work of the CFSI, smelters in Indonesia agreed to participate in the CFSP. We look forward to similar interactions in China in 2014.

For more details on our overall conflict minerals work and plans to further our efforts, please see our [Conflict Minerals report](#).

Supplier Diversity

IBM is committed to diversity in all parts of its business, and has been for more than 100 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 creation of the National Minority Supplier Development Council (NMSDC) and 29 years before the Women’s Business Enterprise National Council (WBENC) was founded. We were 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 and flexibility throughout our supply chain and promotes economic growth in local communities.

\$3.3 billion

of business with first- and second-tier diverse suppliers in 2013

\$916 million

of purchasing with first-tier, non-US diverse suppliers in 2013

Amount of IBM Business Conducted With First-Tier Diverse Suppliers
(\$ in billions)



In 2013, IBM conducted \$3.3 billion of global business with first- and second-tier diverse suppliers. Of that, \$2.7 billion was contracted with first-tier suppliers, up from \$2.6 billion in 2012. And of that, we did \$916 million, first tier, in business with diverse suppliers external to the United States.

For these and other accomplishments in 2013, IBM was named the NMSDC’s Corporation of the Year and selected for the 10th consecutive year as one of WBENC’s top corporations. In addition to these awards, Michael Robinson, IBM’s program director of global supplier diversity, was named one of *Minority Business News* magazine’s top 75 Leading Men in Corporate Supplier Diversity and one of WBENC USA’s Outstanding Men of 2013. Robinson also received the 2013 Corporate Advocate Award by *Asian Entrepreneur Magazine*.

In addition to being a founding member of NMSDC, IBM is a founding member of WBENC, WEConnect International, the National Gay and Lesbian Chamber of Commerce and the US Business Leadership Network’s Disability Supplier Diversity Program.

IBM also participates in international organizations focused on supplier diversity, such as the Canadian Aboriginal and Minority Supplier Council, the Minority Supplier Development United Kingdom, the Minority Supplier Development China, South African Minority Supplier Development, and Supply Nation.

Looking forward, IBM intends to continue to foster the diversity of its global supply chain as our business needs evolve. IBM works with many potential diverse suppliers to clearly define its requirements in both direct and indirect supply areas. And we continue this work with diverse suppliers—especially our second- and third-tier suppliers—to help them grow their capacity.

Governance

In order to help transform the world around us, we must also be able to transform as a company. This means continuously striving to evolve our culture, firmly based on ethics and integrity, to reflect current issues, challenges, and opportunities. This culture is guided by 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.

- Governance at IBM**..... 147
- Privacy & Security**..... 150
- Enterprise Risk Management**..... 152
- Public Policy**..... 155

Governance at IBM

IBM senior management is ultimately responsible for our economic, environmental, and social performance, as well as our adherence to 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 and corporate affairs. 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 and 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, investors, and the social sector.

Here are a few examples:

- We use a variety of social media to help us more deeply engage with our community and the extended IBM workforce. This includes our corporate citizenship blog [Citizen IBM](#), which publishes articles and promotes discussion on corporate responsibility issues. Over the past year, Citizen IBM has published more than 150 articles from nonprofit, government, and corporate leaders, educators, and public policy makers, and those who have volunteered their time and expertise through organized programs and individual contributions. The blog reaches an audience of more than 85,000 readers in 166 countries, and has featured articles in Brazilian Portuguese, Mandarin Chinese, German, Japanese, Korean, Russian, Spanish, and Turkish, in addition to English. We complement the Citizen IBM blog with the [@citizenIBM](#) Twitter handle, which has an audience that has grown 400 percent in the last two years. We also connect to our extended workforce community, including our retirees, through On Demand Community, our online system of community engagement.
- Each year IBM discusses our Corporate Responsibility Report with representatives of the socially responsible investment community. The discussion is led by IBM's vice president of Corporate Citizenship and Corporate Affairs, who also serves as president of the IBM International Foundation, a private foundation wholly owned and funded by IBM that is chartered with developing and funding educational, cultural, and other

initiatives on a global level. The discussion highlights IBM's service programs on specific societal issues, including the environment, community economic development, education, health, literacy, language, and culture.

IBM also actively seeks to work with organizations that are taking similarly innovative, global, open, and collaborative approaches to corporate citizenship and sustainability. Our memberships include—but aren't limited to—the following organizations that IBM is involved with and often serves as a leader. These organizations are also stakeholders who influence our corporate responsibility approach:

Academy of Business in Society	Corporate Responsibility Officers Association	International Electronics Manufacturing Initiative
Admical	Council on Foundations	Jet-Net
AmCham—Czech Republic CSR Committee	CSR Asia (IBM is a member of its Community Investment Round Table)	JINC
AmCham—Egypt CSR Committee	CSR Europe (IBM is the current chair)	Kauri
AmCham—Poland CSR Committee	CSR Sweden	Leaders for Nature IUCN
American Chamber of Commerce in India—CSR Committee	CSR Turkey	Lime Connect
American Malaysian Chamber of Commerce	Eco-Patent Commons	Maala
Australian Sustainability Leaders Forum	ECP—Platform voor InformatieSamenleving/Platform for Information Society	MVO Nederland
Bundesnetzwerk Bürgerschaftliches Engagement	Electronic Industry Citizenship Coalition (IBM holds chair emeritus position)	NASSCOM Foundation, India
Business Civic Leadership Center	Environmental Law Institute	National Council of Voluntary Organizations
Business for Social Responsibility	European Academy of Business in Society (IBM is a board member)	Ozel Sektör Gönüllüleri Dernegi / Corporate Volunteers Association
Business for Society Platform	Finnish Business Society	Points of Light Institute Corporate Council
Business in the Community Ireland	Fondazione Sodalitas	respACT
Business in the Community UK	Forética	South Africa United Way
Canadian Council for Aboriginal Business (patron)	Fundación Seres	US Chamber Foundation Center for Corporate Citizenship
Carnegie Global Council	Grupo de Institutos, Fundações e Empresas	Universciences Partenaires
Center for Climate and Energy Solutions	Grupo de Reflexão e Apoio à Cidadania Empresarial	VHTO—Dutch National Expert Organization on Girls/Women and Science/Technology
Chilean United Way	Instituto Argentino de Responsabilidad Social Empresaria	Wirtschaft für Integration
Confederation of Indian Industry National Committee on CSR	Institute for Supply Management	Wirtschaft. Initiative. Engagement.
Conference Board		World Environment Center
Corporate Responsibility Group UK		World Wildlife Fund Climate Savers Program

Codes of Conduct and Ethics Training

IBM's [Business Conduct Guidelines](#) (BCG), including the [Government Client Guidelines](#) supplement, reflect our longstanding commitment to ethical conduct and decision-making. Serving as our global code of conduct for IBM employees everywhere we do business, the BCG is available in 25 languages and is deployed in 106 countries. Each year, IBM employees are required to certify to the BCG and complete online, interactive training. The BCG course is refreshed annually to include timely and relevant business scenarios that employees may face when conducting IBM's business. The BCG course is available in 14 languages.

In addition to the global online BCG training, on an ongoing basis, IBM Trust and Compliance Officers, IBM lawyers, and management provide compliance and ethics training to employees around the world in targeted group sessions. IBM also provides targeted ethics training across the organization, including managers and non-managers across business units and internal functions. New employees—whether joining IBM individually or through

acquisitions—are required to complete the BCG course and receive new employee orientation that includes compliance and ethics content. Sales and marketing employees from newly acquired companies also receive live, mandatory ethics training shortly after the close of an acquisition.

IBM's culture of ethics and integrity is strengthened by its business leaders' unwavering emphasis on these principles in their communications to employees. From country general managers to business unit leaders, IBM management sets the tone for the vital importance of ethical and lawful conduct. IBM's local business leaders hold events and meetings with employees that contain a series of discussions and workshops on integrity-related topics.

Working with third parties continues to be an integral part of IBM's business in meeting the needs of our clients. IBM's [Business Partner Code of Conduct](#) and the Electronic Industry Citizenship Code of Conduct describe the standards of business conduct and practices we expect from our business partners and suppliers. As appropriate, IBM provides business partners and suppliers with online education on ethics and integrity, and also conducts live ethics and integrity training of business partners and suppliers in many instances.

IBM provides communications channels for employees, suppliers, business partners, and others to report concerns or suspected violations to the company, including ways for submitting anonymous reports. IBM does not tolerate threats or acts of retaliation against any employee for reporting a concern or suspected violation.

Privacy & 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 possible benefits 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

2012

Recognized as one of the top 10 companies "Most Trusted for Privacy" by US consumers for the seventh consecutive year

2013

First company in the world to be certified under Asia Pacific Economic Cooperation (APEC) Cross Border Privacy Rules

In 2013, IBM continued its work to promote privacy and security in the realm of public policy.

Promoting trusted flows of data around the world

As nations around the world adopt privacy laws, moving data across borders has become an important issue. That's why IBM has been working with APEC for years on its Cross Border

Privacy Rules system. Under this system, a third party “accountability agent” examines a company’s privacy policies and practices in order to certify that they match strong principles articulated by APEC. Having become the first company to receive this stringent certification last year, we regard it as tangible evidence of our commitment to privacy, a way to put ourselves in the best possible position to serve populations in this vibrant region, and a concrete step toward true global interoperability.

Privacy by design

In 2013, IBM continued its extensive work to build a globally recognized enterprise privacy program that follows privacy-by-design practices. Our software tools for performing global privacy assessments on IBM’s collection and use of data for our own enterprise have been updated to reflect changes in the law and the environment and to improve risk management and usability.

Cybersecurity

Security is an important critical aspect of the lifecycle of a system, from design and architecture through implementation, testing, deployment, maintenance, and retirement. Today, organizations and individuals are confronting heightened risks as cybersecurity threats continue to grow and evolve.

At IBM, we carefully consider cybersecurity challenges when conceiving, developing, and marketing our technology solutions. We also recognize the importance of collaborating 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.

In 2013, IBM was an active participant in the development of the National Institute of Standards and Technology’s voluntary Framework for Improving Critical Infrastructure Cybersecurity. The framework arose out of President Obama’s Cybersecurity Executive Order and addresses key security issues for today’s critical infrastructure companies. Its risk-based, flexible approach allows it to be adapted by organizations of all types and sizes as a valuable and cost-effective tool to improve their cybersecurity posture. With the first version of the framework completed in early 2014, IBM is helping clients understand and incorporate it into their own cybersecurity risk-management programs.

Internally, IBM continues to reinforce a cybersecurity-awareness culture. Each of IBM’s 430,000-plus employees completes a mandatory, annual course on cybersecurity and privacy called Cybersecurity for Digital IBMers. Additional training and education programs are also provided for IBM privileged users, employees who administer applications, systems, or networks. And practical guidance on cybersecurity practices is provided throughout the year to employees and managers in various venues.

IBM also takes part in National Cybersecurity Awareness Month each October, led by the US Department of Homeland Security and the National Cyber Security Alliance. In 2013, IBM was a corporate champion of the event and chose the theme: “Think. Protect. Prevent.” For employees, we launched a redesigned IBM Cybersecurity intranet site and provided weekly articles and blog posts highlighting various aspects of secure computing. IBM also provided resources for employees so they can teach secure computing practices at home, in their neighborhoods, schools, and communities. To encourage clients and fellow IT security professionals to participate in Cybersecurity Awareness Month, IBM’s Chief Information Security Officer Joanne Martin published an article in IBM’s Security Intelligence blog.

We also recognize that our clients, employees, and other stakeholders may have questions about how government access to information impacts IBM. And so we have published an [open letter](#) to our clients to help address those questions.

Enterprise Risk Management

At IBM, we believe that innovation and leadership are difficult to achieve and maintain without taking risks. Since almost all business decisions contain elements of both risk and opportunity, they must be managed prudently.

IBM's business decisions affect our key stakeholders—shareholders, clients, business partners, and employees—and thus by extension can affect society and the communities where we do business. Senior management is responsible for assessing and managing the company's various exposures to risk on a day-to-day basis, including the creation of appropriate risk-management programs and policies. IBM has developed a consistent, systemic, and integrated approach to risk management to help determine how best to identify, manage, and mitigate significant risks throughout the company. In 2013, we continued to enhance our approach, including broader communication, increased education, and social collaboration.



Leadership

Senior management continued its collaborative process of identifying, evaluating, and managing enterprise-level risks in 2013. This included periodic reviews and interaction with the Audit Committee and Board, which oversees the company's enterprise risk management framework, program, and associated processes. A key aspect of senior management leadership in risk management is to identify and deploy a governance model and management system that fosters collaboration and transparency in managing risk across the entire enterprise. This enterprise purview enables risk-mitigating actions that are taken in one part of the business to be standardized and applied globally, across other units. Risk management is also an element of executive compensation plans, designed to motivate our leaders to deliver superior business performance without encouraging excessive risk-taking.

Programs and practices

Throughout the company, the approach to identify and manage risk is based on the ISO 31000 Enterprise Risk Management (ERM) standard. In deploying this standard, IBM considers and assesses potential financial, operational, regulatory, and other risks to our business, which could be driven by various factors such as where we do business, how we do business, and the nature of our offerings.

We conducted in-depth discussions with leading consultants on emerging risks and conducted a robust internal study that included a survey and extensive interviews to approximately 100 top executives. As a result, we updated our enterprise level risk map and increased senior management focus in early 2014.

In 2013, IBM introduced a structured assessment approach designed to improve our preparedness to address "black swan" disruptions, therefore better protecting ourselves, our stockholders, and our clients. The past few years have seen an increase in the frequency and severity of extreme events—known as black swans—that can affect business. The changing business context, including global expansion, integration, and associated interdependencies, has increased the risk landscape from such events. In response to these dynamics, our structured assessment approach can help us reduce vulnerability and impact through thoughtful planning in the form of improved preparedness, resiliency, and flexibility.

Enablement

One of the most effective ways to manage risk in a global enterprise is to transform into a culture of risk awareness, identification, analysis, and mitigation. IBM continued to expand its risk education and training in 2013. For example, following the risk workshops with teams in Africa in 2012, we held sessions in 2013 with teams in Asia and the Middle East designed to improve local risk practices. We are also leveraging IBM's social capabilities as a means to help ingrain risk management and risk consideration practices deeper into the fabric of the organization and build institutional knowledge, strengthening the risk culture. IBM is also focused on applying technology, tools, and analytics to support risk management. One example is the Country Financial Risk Scorecard, which combines Big Data automation to monitor trends and help develop intelligent and actionable insights. By leveraging IBM's analytics solutions, such as Cognos and SPSS, we were able to integrate more than 100 internal and external inputs to produce an integrated view of country-level risk on a near-real-time basis for over 160 countries.

“I think we are just scratching the surface. We consider analytics the next big frontier for risk management. If you can leverage analytics to identify risk and take actions ahead of your competition, you are essentially turning a hazard into an opportunity.”

Luis Custodio, chief risk officer, *IBM*

Additional internal capabilities have been developed to assist in managing other areas of risk using IBM's advanced risk solutions, such as OpenPages® for IT risk and Algorithmics for treasury risk.

Effectiveness

A risk management framework is most effective when it provides transparency, facilitates communication and monitoring of risks, and demonstrates it can mitigate enterprise-level risks. This level of effectiveness should ultimately lead to improved business performance and help the company protect its reputation while delivering on its social responsibilities. To measure the effectiveness of the risk management program and provide a guidepost to prioritization of activities, IBM expanded the evaluation of its ERM practices to include enterprise risk, including business unit and country representation in 2013.

External community engagement

IBM has engaged with academia, external risk-management thought leaders, and community organizations to help advance the risk management acumen of current and future business leaders. For example, we worked with a US university to enhance curricula in risk analytics, in order to help students develop advanced skills in the use of technology to solve complex business and financial risk problems. In another example, IBM hosted a program for CFOs of nonprofit organizations to coach and demonstrate how to leverage commercial risk management practices to address their community challenges.

10,000

the approximate number of IBMers who collaborate in an internal social community, engaging on key risk stories, news, and practices. The community also helps IBMers to identify and connect risk-management experts.

Public Policy

IBM is committed to helping improve the social, economic, and legislative systems that benefit society. We regularly contribute our expertise on public policy issues ranging from security and privacy in a digital world to growth strategies for a global economy. In doing this, we collaborate with lawmakers, regulators, public officials, and civic leaders around the world.

In 2013, we paid particular attention to an essential element in building a healthy global economy: patents. Patents are published descriptions of how to make and use inventions, and the inventors who obtain them receive limited, exclusive rights in exchange for teaching others about their inventions. This exchange enables the further advancement of technology by building on the innovations of others. Patent systems provide the protection needed so creative endeavors are not misappropriated by others who have not shouldered the same development expense, while promoting follow-on innovation by disseminating information.

The best patent systems attempt to strike a balance—if patents are too strong or too weak, the impact of the patent system is not optimized. Exclusive rights may reduce competition and raise prices in the short term, but increased innovation eventually enhances competition and benefits public well-being.

IBM is an innovation company, and inventions are critical to our success. IBM has set a new patent record, achieving 21 consecutive years of patent leadership with more than 6,800 US patents awarded in 2013. This accomplishment represents the company's unyielding commitment to research and innovation. IBM invests more than \$6 billion a year in research and development that helps to generate approximately \$100 billion of revenue annually by providing innovative products and services.

This investment also contributes to boosting economic growth and competitiveness because these inventions strive to meet our clients' demands and make the world a better place. They are designed to enable fundamental advancements across key technology domains, including Big Data and analytics, cloud, mobile, and software.

Recently, the patent system in the United States has come under attack, due to abusive litigation practices by entities unfairly asserting patents and leveraging the high cost of litigation to obtain settlements. Unfortunately, calls for patent reform to address this problem have highlighted only negative aspects of the patent system. Emboldened by news of the negative aspects, extremists have called for outright abolishment of the entire patent system. Others have made declarations that legitimate and highly innovative technologies such as software should not be patentable or should be treated with undue suspicion. Calls to discriminate against software inventions also have arisen in other countries, including Brazil, India, New Zealand, and Germany.

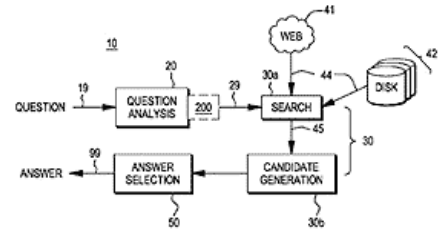
IBM strongly supports reforms that will curb abusive behavior, but we urge caution against weakening our patent system, especially measures that would devalue only those patents relating to specific technologies. The optimal approach strikes a balance that promotes innovation. And innovation is our economy. Failure to appropriately strike this balance risks crippling the most competitive industries, such as life sciences and information technology. Imagine life without cures for new diseases or advancements that lead to the next generation of computing. Without the jobs these industries provide, we risk hobbling a global economy and missing out on the benefits that innovation brings to people's lives, as well as the solutions needed to address society's problems.

Some examples of IBM's related work in 2013:

- Supported patent-litigation reform legislation in the United States designed to curb abusive patent behavior while preserving innovation
- Along with six other companies, founded the Partnership for American Innovation, a coalition dedicated to promoting the important role that technology-related intellectual property protection plays in America's ability to compete globally
- Continued efforts to increase the clarity of patent claims, such as advocating for the inclusion of glossaries for claim terms in patent applications
- Urged the US Patent and Trademark Office to require transparency of patent ownership information, for example listing the identity of the ultimate parent entity, without overly burdening patent owners. This would allow market participants to have more complete information, make more informed technology-licensing decisions, and avoid unnecessary patent litigation
- Expressed, through a friend-of-the-court brief to the US Supreme Court, the opinion that a rule allowing indirect infringement liability where no direct infringement liability has been established would increase uncertainty and litigation
- Defended software as a subject matter worthy of patent protection through a friend-of-the-court brief filed with the US Supreme Court
- Expressed concerns, as part of US and India trade associations, about computer-related-invention (CRI) patent examination guidelines in India that would have resulted in a lack of patent protection for CRIs, impeding innovation and growth

6,800+

the number of US patents awarded to IBM in 2013



US patent number 8,510,296 enables IBM Watson to more accurately assess questions posed in natural language and determine confidence in the accuracy of potential answers.

For the full 2013 Corporate Responsibility Report, go to
ibm.com/responsibility/2013



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