2014 Corporate Responsibility Report

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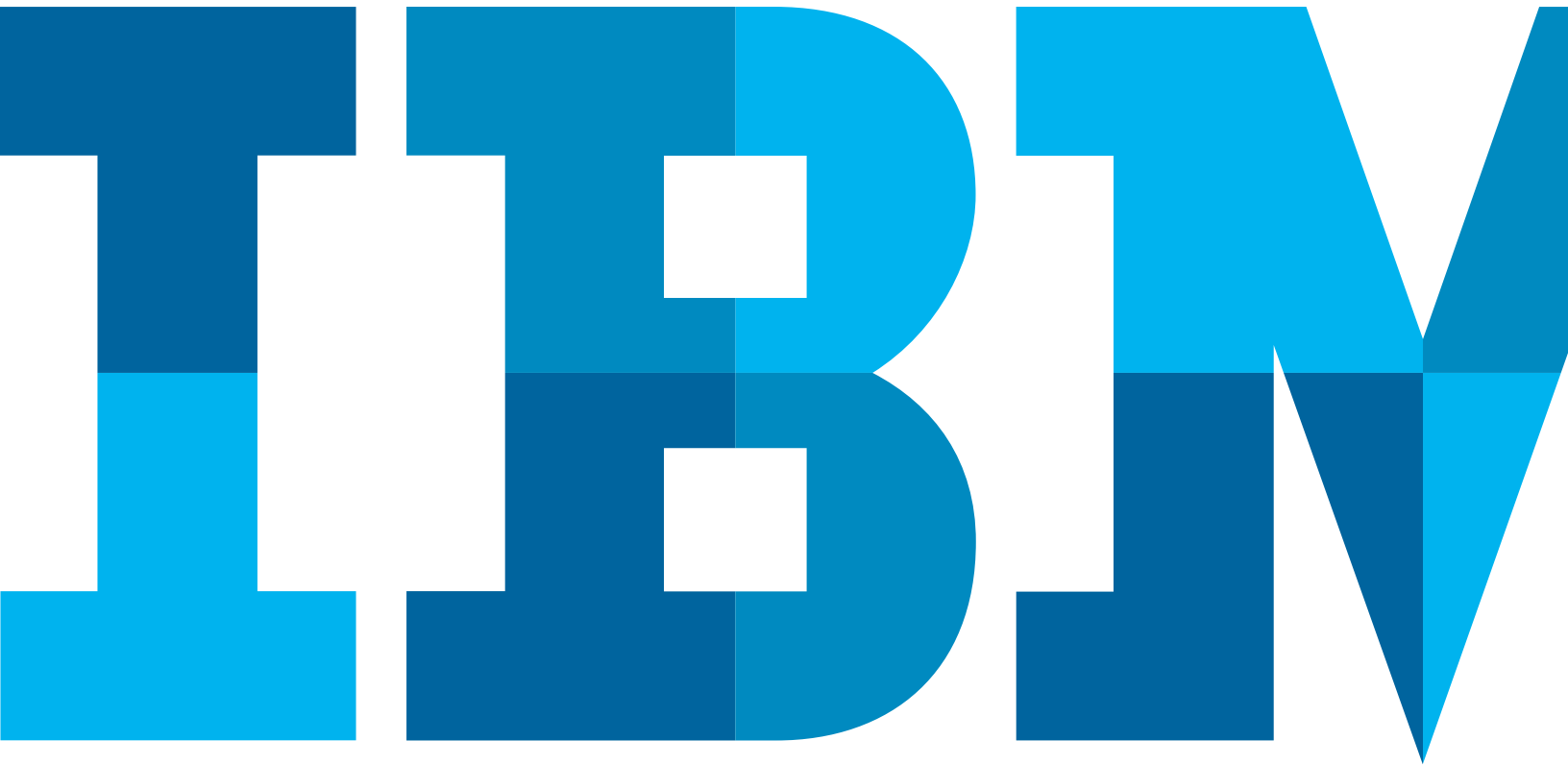
IBM

About this report

IBM's Corporate Responsibility report for each year is published during the second quarter of the subsequent calendar year. This report covers our performance in 2014 and some notable activities during the first half of 2015.

In selecting the content for inclusion in our 2014 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 G4 Sustainability Guidelines, 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 2014 Annual Report. IBM did not employ an external agency or organization to audit the 2014 Corporate Responsibility report.

At IBM, we regularly review our strategy and approach to corporate responsibility to help us identify and prioritize the issues of relevance to our business and our stakeholders. In 2014 we engaged Business for Social Responsibility, a global nonprofit business network and consultancy dedicated to sustainability, to conduct a materiality analysis. That analysis maps corporate responsibility priorities to IBM's business strategy, stakeholders, and impact on global society. This process was completed in 2014 and the results have been considered in the approach and content of this report.

Transforming business, technology and society

No enterprise thrives for a century if it does not do two things supremely well. It must have a clear sense of its enduring purpose and values. And it must continuously transform everything else about itself.

At IBM, of course, we transform technology. We have been a leader in every era of computing in the modern age — from tabulating, to programming, to the new age of cognitive computing, pioneered by IBM's breakthrough Watson system. We have not waited for others to disrupt us. For 104 years, we have disrupted ourselves.

But it doesn't stop there. IBM became the iconic modern corporation by innovating everything from equal employment and diversity to environmental stewardship and privacy policy.

Most broadly, we have helped shape modern industry and society. IBM created the information infrastructure for finance, air travel, education, security, energy, and beyond. We enabled Social Security. We helped create the field of computer science. We helped put a man on the moon. Today, with Watson, we are helping transform healthcare.

Purpose-driven transformation is in our DNA. IBMers have always taken this on as a personal goal. It's why people come here — the chance to reinvent not just technology and business, but the world.

In this report, you will see what this looks like in practice — how we integrate both our citizenship and business strategies, driving systemic societal transformation across every

dimension of our engagement with civil society. And you will see it not just in programs, but in the passion and innovation of individuals.

For example:

Transforming school. This June, the first class of students at Pathways in Technology Early College High School in Brooklyn, New York, graduated. P-TECH is not just a new program — it is a new model of education, providing a high school diploma, a cost-free associate degree and a pathway to the jobs of the future. Since its launch in 2011, P-TECH has expanded rapidly, with expectations of reaching nearly 100,000 students in 100 schools in the United States and Australia by 2016. Students in the inaugural P-TECH class started taking college-level courses in 10th grade. Six of them graduated two years ahead of schedule, and three of those are coming to work at IBM. I couldn't be prouder of these kids, whose stories tell of lives transformed and an initiative that can transform education in America.

Transforming teacher support. In September 2014, IBM unveiled the proof of concept for a new way to improve teaching. Applying IBM's breakthrough cognitive computing system Watson, it provides just-in-time guidance and mentorship to teachers. In much the same way that Watson is helping doctors identify the best medical treatment, we will now help early-grade math teachers unlock their students' passion for math through personalized lessons and learning strategies. Free to all teachers, the pilot begins in New York State this Fall. More grades and subject areas will be added in years to come.
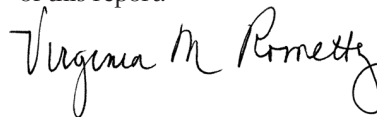
Transforming citizen diplomacy. Through more than a thousand teams across 35 countries, more than 3,000 IBMers have made Corporate Service Corps — IBM's pioneering program modeled on the Peace Corps — into a new model of citizen diplomacy, leadership development, and public-private collaboration. These high-performing IBMers have tackled issues ranging from the environment, to healthcare, to

economic growth. The US State Department said that CSC has reimagined the role of global business in the developing world. It has also given thousands of IBMers a life-changing growth experience.

Transforming cities. Through IBM's Smarter Cities Challenge,® the company's largest citizenship initiative, more than 700 IBMers have worked with leaders of 116 cities to reimagine their approach to long-standing problems — including neighborhood decline in Syracuse, New York, sustainable growth in Perth, Australia, and economic growth in Zapopan, Mexico. Cities around the world compete for Smarter Cities Challenge grants, with 16 new winners announced in May 2015. And more than 5,000 Impact Grants have enabled thousands of IBM pro bono consultants to help urban not-for-profits in more than 70 countries.

These and many other examples of societal transformation at scale are described in this report. You'll read about new approaches to disaster recovery, about more than 270,000 IBMers who have engaged in improving their communities through the On Demand Community, and more. These efforts are central to why we are confident about IBM enjoying a second century of success.

We aim to be essential to our clients and to the world. We are able to be so, thanks to a group of people united by a distinctive purpose, by shared values and by daily practices that make their values real. These are IBMers, who are the true authors of this report.

Virginia M. Rometty

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 has been in business for more than 100 years, a length of time that speaks to the sustainability of our business practices and to our ability to transform ourselves as markets and industries change. We have nearly 400,000 employees and do business in more than 170 countries. And we have a supply chain of more than 18,000 suppliers. Our definition of corporate responsibility includes such diverse aspects as environmental responsibility; social responsibility to our workforce, clients and business partners; innovation to address critical societal needs in the communities in which we operate; and a culture of ethics and integrity — guided by a rigorous system of corporate governance — that promotes transparency on a global basis.

IBM's large and complex operations involve a vast ecosystem of stakeholders, including shareholders, employees, suppliers, non-governmental organizations, public officials and community organizations. Exceeding the expectations of all of these varied interests is part of our corporate culture and integral to our business strategy. None of these stakeholders is considered secondary to another. They all are equally important, and we believe that all should benefit from IBM's operations. Thomas Watson Jr., IBM's second chairman and the son of its founder, put it this way: "Corporations prosper only to the extent that they satisfy human needs. Profit is only the scoring system. The end is better living for us all."

IBM is pioneering many of the technologies that are driving global business and societal progress, from cloud computing to mobile technologies, and from big data to analytics. Our research and development organization, IBM Research, spends nearly $6 billion each year to fund research on technologies that address urgent human needs. IBM has led the US list of patent recipients for 22 straight years and in 2014 set a record for earning the most patents ever in a single year (7,534).

"IBM's patent leadership over more than two decades demonstrates our enduring commitment to the kind of fundamental R&D that can solve the most daunting challenges facing our clients and the world," says IBM Chairman, President and CEO Ginni Rometty.

Guiding principles

We follow four guiding principles in our corporate responsibility efforts:

Alignment to values — A company must be true to its values in all of its activities — both internal and external. 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 relationships

Our senior management is ultimately responsible for our economic, environmental and societal performance, as well as compliance with laws, regulations and the corporate policies that govern our operations and practices worldwide. This responsibility begins with our CEO and includes the IBM Board of Directors and its committees that regularly review performance and compliance.

A Corporate Responsibility Steering Committee, made up of executives from all relevant global functions across IBM, coordinates our corporate responsibility activities. Chaired by the vice president of Corporate Citizenship and Corporate

Affairs, the Steering Committee includes members from human resources, employee well-being, corporate governance, environmental affairs, governmental programs, supply chain and corporate citizenship. Through all of our community efforts, as through our business pursuits, we seek to provide meaningful leadership in creating solutions, bringing them to scale and making them sustainable. We also believe that good corporate citizenship is good for business. For example, strong communities and strong schools go hand-in-hand with strong business enterprises, which are directly connected to jobs and economic growth. This is how our good corporate citizenship can produce real value for society and all of IBM's stakeholders.

"To build a smarter planet — and to run a smarter enterprise — it turns out that your business and citizenship strategies must be more than aligned. They must become one. This is a fairly novel way to look at business — and at corporate responsibility. It's very different from checkbook philanthropy or even traditional notions of 'giving back' or CSR. And speaking as an IBMer, I believe it comes from the core of our culture, values and purpose as an enterprise — to be essential to our clients and to the world," says Rometty.

Cross-sector collaboration — We work closely with the public and private sectors, including local, regional and national governments, nonprofit organizations and school systems. We engage with highly qualified public and civic entities that are deeply committed to solving problems, finding solutions and bringing them to scale.

Solving problems by leveraging the full range of our company resources — Finding and implementing solutions that can help attack problems at their roots requires full utilization of IBM's technologies and expertise. For this reason, we favor rolling up our sleeves and being intimately involved over just writing checks. We collaborate with people, companies and governments across sectors and silos to concentrate efforts on fewer, more comprehensive programs that can help address issues that no single entity can manage alone.

Impact and measurement — Whether it's taking on some of the unique and complex problems of the world's cities or developing schools that prepare students for 21st-century careers, we endeavor to affect widespread, measurable and sustainable change. We measure that change by developing a set of comprehensive desired outcomes and key performance indicators for each program we initiate. To maximize the impact of our investments, we plan for the longevity and sustainability of our solutions by ensuring that they are scalable and transferable.

Stakeholder engagement

At IBM, stakeholder engagement is integral with business engagement and collaboration — working shoulder-to-shoulder with communities, governments, investors, and the social sector. Here are a few examples:

In education, IBM has forged key partnerships with governments, school districts, postsecondary education institutions and corporate partners in an innovative initiative to close the skills gap and blaze a clear pathway from high school to college and career. We understand that collaborations and partnerships are essential to overcoming societal challenges that are too big for any single entity or industry sector to manage alone. That's why IBM works with a variety of education stakeholders — including teachers, labor leaders, corporations and nonprofit organizations — to help bring about transformative and sustainable change to benefit the greater society. As a former deputy chancellor of the New York City Public Schools, and recent appointee as a trustee of the State University of New York, IBM Corporate Citizenship and Corporate Affairs Vice President Stanley S. Litow brings a unique set of skills and deep personal commitment to our education initiatives. Corporate Citizenship Director Maura Banta — formerly chair of the Massachusetts Board of Education for Elementary and Secondary Education, now serving on the Massachusetts Board of Higher Education — also leverages her knowledge and expertise in the education sector on behalf of IBM's initiatives.

IBM collaborates with a select group of entities in efforts to improve population health. Dr. Kyu Rhee represents IBM on the board of the Robert Wood Johnson Foundation and has worked closely with the foundation to build a multi-stakeholder collaboration that focuses on public health in the communities where we live and work. Dr. Rhee also provides consultation to the Institute of Medicine on various health issues. Dr. Lydia Campbell is a member of the Centers for Disease Control and Prevention Foundation Corporate Roundtable, where she focuses on building strong public-private partnerships to tackle challenges such as responding to the Ebola crisis.

IBM has continued its collaboration and partnership with the Nature Conservancy (TNC) in several ways, including partnering with it to develop and refine a technology system aimed at helping to preserve the Amazon rainforest. IBM also participates in the Latin American Conservation Council (LACC), which works with TNC to develop strategies for the design and implementation of projects aimed at addressing water security, sustainable food security and smart infrastructure. IBM Chairman, President and CEO Ginni Rometty is a member of the LACC of the Nature Conservancy.

Each year, IBM meets with representatives of the socially responsible investment community to discuss our corporate responsibility report. IBM's vice president of Corporate Citizenship and Corporate Affairs leads the discussion, which highlights IBM's service programs on specific societal issues, including the environment, community economic development, education, health, literacy, language, and culture. Mr. Litow also serves as president of the IBM International Foundation, a private foundation wholly owned and funded by IBM that is charged with developing and funding educational, cultural, and other initiatives on a global level.

IBM actively seeks to work with organizations that take similar approaches to local, national and global corporate citizenship and sustainability. We often play a leadership role in these organizations, which in turn influence our approach to corporate responsibility. Some of the organizations we work with are listed below:

- Business for Social Responsibility
- Carnegie Endowment for International Peace
- Committee Encouraging Corporate Philanthropy
- Center for Climate and Energy Solutions
- Corporate Responsibility Association
- Council on Foreign Relations
- CSR Asia
- CSR Europe
- Electronic Industry Citizenship Coalition
- European Academy of Business in Society
- Meridian International Center
- Points of Light Institute Corporate Council
- The Conference Board
- The Conservation Fund
- The Environmental Law Institute
- The Nature Conservancy
- US Chamber Foundation Center for Corporate Citizenship
- US Chamber of Commerce
- United Way
- Wildlife Habitat Council
- World Environmental Center

Year in review

At IBM, corporate responsibility isn't about generating flattering headlines or checking off items on a list. It's about demonstrating what we believe in through the actions we take, the examples we set and the priorities that guide us. When high standards of corporate responsibility are achieved, they benefit not only the company, but also our employees, our clients and the communities around us. Our commitment is evident in the business we pursue, the partnerships we establish, the relationships we build with all of our stakeholders, and the achievements we've attained. Each year, we strive to evolve our corporate responsibility goals as the world around us transforms; 2014 was no exception.

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

1. The ability of IBM to positively affect societal progress in communities
2. The support of our employees and communities
3. The impact of IBM's products and operations on the environment
4. The management of our global supply chain
5. The governance, ethics and integrity of our company

This section highlights our activity in 2014 in these five key areas of corporate responsibility. For more detailed information, please visit our corporate responsibility website.

Communities

In 2014, IBM expanded and deepened efforts to help governments, nonprofits, educators and communities transform themselves by helping to manage their toughest challenges. We leveraged our technologies, our expertise and our employees' commitment to service across a broad spectrum of engagements around the world.

Below are selected examples of IBM's corporate responsibility efforts in 2014:

Launched in 2011, IBM's innovative Pathways in Technology Early College High School (P-TECH) grades 9-14 School Model shifted into high gear in 2014. The P-TECH network grew to 27 IBM- and partner-affiliated schools across urban, suburban and rural areas in three states. Forty P-TECH schools — affiliated either with IBM or with one of the nearly 100 companies that has joined the P-TECH revolution — are expected to be operational for the 2015-16 school year, and we expect 100 P-TECH model schools across five states and two countries to serve tens of thousands of students by fall 2016.

Taking the P-TECH model to scale would be meaningless without results, and P-TECH schools have delivered on that promise. Attendance rates are significantly higher than those of other schools. Students from historically underserved commnities are making honor rolls for the first time, meeting the standards for timely promotion and graduation, taking and passing significant numbers of full-credit college courses while in high school, and positioning themselves to earn their high school diplomas and college degrees on accelerated schedules. Six young scholars from Brooklyn P-TECH's inaugural class began the 2014-15 school year as high school students but finished it as college graduates — earning their degrees two years ahead of schedule. All six received job offers from IBM, and three will be attending four-year colleges and universities with scholarships.

P-TECH remains an adaptable model that works within existing public school budgets and admits students without "cherry picking" or testing. As nearly 100 corporations from global enterprises to regional businesses partner with school districts and community colleges to provide young people with educations that are rigorous and relevant, P-TECH is helping a generation bridge the skills gap, redefine its potential and reshape its destiny.

IBM's Corporate Service Corps (CSC) provides pro bono consulting to community organizations and governments in developing economies to underpin our commitment to citizen diplomacy. The IBM Smarter Cities Challenge grant program deploys teams of IBM's top talent who deliver pro bono expertise to cities and regions faced with the unique challenges of urban environments. In 2014, we broadened the reach of these programs by forging essential cross-sector partnerships and expanding the number of cities and communities that benefitted.

CSC forged new partnerships with clients, government entities and nonprofits on significant projects focused on protecting women's health and preserving the environment. In Ghana, a CSC team collaborated with the Ghana Health Service and researchers from the Yale School of Medicine on an initiative to reduce mother-to-child HIV transmission. In Peru, the CSC worked with Becton Dickinson & Co. and the nonprofit CerviCusco clinic to expand outreach and cervical cancer testing to a larger population of women from under-served and often impoverished rural areas. And in the Amazon rainforest of Brazil, CSC partnered with The Nature Conse vancy and local governments on a project to broaden the use of an online environmental portal to track land ownership and develop environmental management strategies that allow for economic growth.

IBM's largest philanthropic initiative, the Smarter Cities Challenge, has delivered pro bono consulting valued at more than $50 million since 2010. During that time, we deployed 700 IBM experts in teams to work with 116 cities and regions around the world. Of particular note in 2014: Syracuse, New York, where a Smarter Cities Challenge team helped develop strategies that led to a 69 percent year-to-year increase in the collection of delinquent property taxes and fees (which was recognized by the 2014 Secretaries' Award for Public-Private Partnerships — awarded by the Department of Housing and Urban Development, the Department of Agriculture, and the Council on Foundations); Perth, Australia, where a Smarter Cities Challenge team helped city officials develop a roadmap for improving the essential services infrastructure while reducing costs; Zapopan, Mexico, seeking to increase its role as a leading food and beverage producer by linking researchers and large and small producers across the production chain more effectively; and Dublin, Ireland, where an IBM team that included financial experts from HSBC developed an assessment of the business potential for municipally owned and distributed solar energy.

IBM Impact Grants enable pro bono skills-based volunteerism through delivery of IBM's advanced capabilities in cloud, analytics, mobile, social and security to nonprofits and schools in local communities in more than 70 countries around the world. In 2014, IBM delivered more than 500 Impact Grants. In China, an Impact Grant helped the One Foundation develop a strategic plan to improve fundraising and operate more efficiently. In Japan, an Impact Grant including IBM SPSS Predictive Analytics software enabled us to provide data-driven insights to combat youth unemployment. An Impact Grant to the American Red Cross International Services department helped them evaluate strategies for using cloud-based tools for information management following disasters and other crises. Enabled by an Impact Grant, a five-day training session for more than 450 Egyptian government ministry managers helped them improve their leadership, social media and project management skills. A small-business resource marketing grant helped Nigeria's National Associa-

tion of Women Entrepreneurs provide business planning training to its constituency. And in the United States and United Kingdom, IBM and our partners Corporate America Supports You and the Military Spouse Corporate Career Network launched the Veterans Employment Initiative to provide data analyst training and job placement assistance for post-9/11 era veterans.

The IBMer

Throughout 2014, IBM launched or furthered a number of initiatives designed to give our employees the tools they needed to develop, learn and transform. We started the Watson Ambassador Program to train IBMers in telling the story of our cognitive technology that helps people make better and more informed decisions. Last year, thousands of IBMers voluntarily participated in the training course, and many became committed Watson Ambassadors. We also trained IBM HR professionals worldwide in the use of big data and analytics to enhance their effectiveness as their profession transforms.

We strive to help our employees adapt to the changing world around them by encouraging them to examine not just their individual health, but the overall health of the communities they live in. In 2014, we supported this initiative during the Ebola outbreak in West Africa. In response, IBM launched a social media platform to centralize global workforce communications, workplace infection control management, travel guidance and hardship considerations for employees in affected communities. In addition, IBM provided a number of social tools to help employees become better-informed consumers of their healthcare benefits.

In 2014, IBM continued support for our constituent groups. We received prestigious awards for Lesbian, Gay, Bisexual, Transgender workplace equality and the advancement of women. We furthered our support for people with disabilities by creating a learning framework for access to technical and leadership development opportunities. And we leveraged the Global IBMers Community on our internal website during our

annual Cultural Adaptability Awareness Week to encourage IBMers to explore, learn about, and share their cultural experiences with others.

IBM's leadership development efforts in 2014 focused on meeting today's changing business needs with agility and foresight. We launched the Faculty Academy to advance the culture and practice of leader-led employee development. We created the IBM Manager Journey program to support leadership development at all levels of management. And our Growth and Transformation Team worked to create a more agile IBM through eight experiments across three geographies, culminating in the development of the Agile Toolkit and the IBM Agile Academy.

Environment

This report marks a quarter century of IBM's sustained, annual, voluntary corporate environmental reporting. 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 conservation and climate protection programs are highlighted here because of the global interest in this topic. In 2014, we achieved outstanding operational results in this area and continued to leverage our research, technologies and solutions to help clients and the world advance in ways that are more energy-efficient and protective of the planet.

Energy conservation across the enterprise

In 2014, IBM's energy conservation projects across the company delivered savings equal to 6.7 percent of our total energy use, surpassing our annual goal of 3.5 percent. These projects saved and avoided the consumption of 325,500 megawatt-hours (MWh) of electricity and 267,200 million British thermal units (MMBtu) of fuel oil and natural gas, avoiding 142,000 metric tons of carbon dioxide (CO_2) emissions. Our 2014 conservation measures also saved $37.4 million in energy expenses. Between 1990 and 2014, IBM saved 6.8 million MWh of electricity consumption, avoided 4.2

million metric tons of CO_2 emissions (equal to 61 percent of the company's 1990 global CO_2 emissions), and saved $550 million through annual energy conservation actions.

New renewable electricity procurement goal
In February 2015, IBM established a new goal to procure 20 percent of its annual electricity consumption from renewable sources by 2020. To achieve this goal, IBM plans to contract for over 800,000 MWh per year of renewable electricity — enough to power a city of 100,000 people. IBM works with its electricity providers to directly procure renewable electricity to supply IBM's facilities, making a clear connection by matching purchases to consumption as opposed to purchasing renewable energy certificates as offsets.

New third-generation CO_2 emissions reduction goal
IBM has aggressively reduced greenhouse gas emissions since 1990 and has had an annual worldwide energy conservation goal since 1996. From 1990 to 2005, IBM's conservation actions helped us avoid three million metric tons of CO_2 emissions — an amount equal to 40 percent of our 1990 emissions. We then exceeded our second-generation CO_2 emissions reduction goal to reduce operational CO_2 emissions by 12 percent from 2005 to 2012, achieving a further reduction in CO_2 emissions of 15.7 percent. Building on this accomplishment, IBM established its third-generation goal in February 2015 to reduce CO_2 emissions associated with IBM's energy consumption 35 percent by year-end 2020 against a base year of 2005, adjusted for acquisitions and divestitures. This represents an additional 20 percent reduction, from year-end 2012 to year-end 2020, over the reductions achieved from 2005 to 2012 under IBM's second-generation goal.

Leveraging analytics for further efficiencies
We use IT-based monitoring and management systems to optimize our operations and reduce the use of energy. We have implemented real-time monitoring and energy management for systems controlling more than one-third of our building energy use and 60 percent of our data center and IT lab energy use. IBM has achieved an average of 10 percent reduction in

annual energy use since 2011 for the buildings and systems monitored and managed by our TRIRIGA® Real Estate Environmental Sustainability Manager (TREES) solution. In 2014, the 28 sites monitored and managed by TREES achieved savings of 30,500 MWh and $1.6 million. We make this and other energy management solutions available to our clients to help them achieve greater operational efficiencies.

Energy solutions for a more sustainable future
IBM is applying its research and technologies to help the world use energy more efficiently and to improve renewable energy systems. For example, IBM's energy and utility offerings combine data from available sensors and sources, then apply analytics and advanced weather forecasting to that data. The resulting information enables enhanced control of energy distribution that integrates conventional and renewable electricity generation sources with non-conventional storage assets to help deliver electricity reliably to commercial and residential consumers. Working with a range of leading partners, IBM's solutions for energy management can help to power a more environmentally sustainable future.

Supply Chain
IBM buys from suppliers from nearly 100 countries and has infused social and environmental responsibility into the fabric of our business relationships. We work diligently with our suppliers to encourage them to achieve improvements within their operations and to cascade this mindset throughout their upstream supply chain, across various aspects of corporate responsibility. The scope of our work spans the 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, to measure performance, and to report publicly in order to increase the transparency of our supply chain.

In 2014, we continued our decade-long supply chain assessment activities by collaborating with our suppliers on 107 full-scope audits and 69 re-audits in 21 countries. These third-party audits measured compliance to the EICC Code, version 4.0.

During 2014, IBM and other members of the Conflict-Free Sourcing Initiative (CFSI) continued to leverage our collective resources and made significant progress toward achieving a supply chain with socially responsible sources of tin, tantalum, tungsten and gold. CFSI frequently updated its web-based listing of conflict-free smelters, highlighting companies that successfully completed their rigorous assessment. Last year also saw an incremental update of the CFSI Conflict Minerals Reporting Template (CMRT) and dashboard. This survey provides companies operating in multiple sectors with a common format for their upstream suppliers to identify the four focus materials, the smelters used and, if known, the country of origin of the raw materials. IBM has used successive versions of the CMRT to account for its use of the focus materials. In 2014, our efforts focused on harnessing the work of the past four years in preparing the reporting documentation filed on June 1, 2015, with the US Securities and Exchange Commission as required by the Dodd-Frank Wall Street Reform and Consumer Protection Act, section 1502; specifically, the Specialized Declaration Form and related Conflict Minerals Report. At the end of 2014, nearly 50 percent of IBM's upstream smelter network was determined conflict-free by means of the CFSI's third-party assessment protocol — a significant increase from the prior year.

IBM also continued its long-term commitment to developing a base of diverse suppliers, with global purchases totaling $2.9 billion, inclusive of first-tier and second-tier companies. To help our diverse suppliers, we maintained our support of and engagement with organizations worldwide that are dedicated to the nurturing and development of this valuable element of our global supply chain.

Governance

Our efforts to govern the conduct of the company, manage risk and contribute to public discourse in 2014 included a number of new and enhanced initiatives. Among these were online courses in ethics and integrity education for new employees, IBMers promoted to management positions, and those taking assignments in emerging markets. More than 45,000 employees took our survey on integrity at IBM, and the insights gleaned from their responses will inform our global ethics and integrity programs. In 2014, we also partnered with US universities to support the Young African Leaders Initiative fellows program, hosting 500 young African leaders for six weeks of networking and skills-building exercises in business, entrepreneurship and public policy.

Our enterprise risk management activities in 2014 included a new structured assessment approach for risk scenario planning, designed to better prepare IBM to adapt to society's changing needs. We furthered our use of big-data automation to help gain end-to-end views of emerging risk and held risk workshops with teams in Latin America and Europe.

IBM's public policy efforts in 2014 were highlighted with the announcement of a $100 million investment in South Africa, to be made over a period of 10 years. The Equity Equivalency Investment Program is one of our contributions to Broad-Based Black Economic Empowerment, an initiative of the South African government aimed at promoting economic transformation to enable meaningful participation of disadvantaged people in the economy.

Awards and recognition

Every year, IBM is rated and recognized by publications, advocacy groups, governments and non-governmental organizations. Here we are proud to share highlights of our recognition, just some of the many awards we received in 2014 from local, regional, national and international organizations.

- *Fortune* — Most Admired Companies
- *Fortune* — The Most Powerful Women in Business, Ginni Rometty
- *Forbes* — World's Most Valuable Brands
- Interbrand — Best Global Brands
- Thomson Reuters — Top 100 Global Innovators

Corporate responsibility
- *CR Magazine* — 100 Best Corporate Citizens
- Included in the Dow Jones Sustainability Index, North America
- EcoVadis — Gold-level CSR rating
- International Association for Volunteer Effort — Global Corporate Volunteering Program Winner
- HUD/USDA — Secretaries' Award for Public-Philanthropic Partnerships to Smarter Cities Challenge

HR/diversity
- *DiversityInc.* — Top 10 Companies for Global Diversity
- *DiversityInc.* — Top 10 Companies for People with Disabilities
- *DiversityInc.* — Top 10 Companies for LGBT Employees
- *Working Mother* — 100 Best Companies
- *Working Mother* — Top 10 Companies for Multicultural Women
- *The Times* — Top 50 Employers for Women 2014
- Workplace Pride Foundation — World's Most LGBT-inclusive Company

Environment
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 attaining our ambitious greenhouse gas (GHG) emissions reduction goal. IBM received the Climate Leadership Award for three consecutive years, 2012-14.

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.

US EPA Environmental Merit Award
IBM Burlington, Vermont, was recognized with a 2015
Environmental Merit Award from the EPA for the site's efforts
in reducing GHG emissions by more than 30 percent from
2010, while increasing semiconductor production. The
projects that contributed to those reductions included modifi-
cations to semiconductor process equipment to significantly
reduce the process gas flow, heat transfer fluid replacement and
substituting gases with lower GHG potential into semiconduc-
tor chamber clean operations.

Vermont Governor's Award
IBM Burlington, Vermont, received two 2015 Vermont
Governor's Awards for Environmental Excellence. One award
was for the site's GHG emissions reduction efforts, and the
second recognized the site's resource optimization at the
industrial wastewater treatment plant. The optimization
allowed significant reductions of electricity to run the plant,
while improving process reliability and performance. IBM is
the only entity in Vermont to receive the governor's recogni-
tion every year since the award program was established in
1993 — 22 consecutive years.

Most Valuable Pollution Prevention Award
IBM's Burlington, Vermont, site received a 2014 Most Valu-
able Pollution Prevention (MVP2) Award from the National
Pollution Prevention Roundtable for resource optimization in
our industrial waste water treatment plant, which resulted in
reduced energy and chemical usage while maintaining water
quality. This was the seventh time the IBM Burlington site has
been recognized with an MVP2 Award.

Environment Achievement Award
IBM Rochester, Minnesota, received an Environmental
Achievement Award from Olmsted County and Rochester
Public Utilities for the site's outstanding promotion of conser-
vation. The award recognized IBM Rochester's work on chiller
optimization and Smarter Buildings.

Hong Kong
**Platinum Rating in Certificate of Energy Performance
Recognition Scheme**
IBM China/Hong Kong was recognized for achieving a
platinum rating in the Certificate of Energy Performance
Recognition Scheme for office occupants in multi-tenant office
buildings from the Hong Kong Green Building
Council Limited.

Class of Excellence Wastewi$e Label
IBM Hong Kong received the "Class of Excellence"
Wastewi$e label for our commitment to environmental
protection and waste reduction in the Hong Kong Awards for
Environmental Excellence.

India
Golden Peacock Award for Sustainability
IBM India received the Golden Peacock Award for Sustainabil-
ity in 2014 from the Institute of Directors, India. The award
recognized IBM for integrating sustainable development into
its business strategy and operations, and for applying our
expertise, research and technology to develop solutions that
help our company, our clients, and the world to address
environmental challenges and operate in ways that are more
efficient and sustainable.

Japan

Reduce, Reuse and Recycle Award

IBM Japan received a Reduce, Reuse, and Recycle (3Rs) Award for sustainable IT management practices from the 3Rs Promotion Council in Japan. The award recognized IBM Japan's reuse and recycling of end-of-life IT equipment and comprehensive contributions to resource and energy conservation.

Mexico

Environmental Excellence Award

In June 2015, IBM Mexico was recognized with the Environmental Excellence Award from the Mexican Federal Environmental Protection and Enforcement Agency (PROFEPA) for our outstanding commitment to environmental protection, preservation and social responsibility, and for our continuous improvements in environmental performance. IBM's implementation of EPA's SmartWay program for all our shipments of goods in Mexico, and the development and execution of two Smarter City projects, were among the programs and projects recognized by the award. IBM Mexico has been certified under PROFEPA's Clean Industry Program since 2005.

Philippines

Outstanding Energy Award

IBM Philippines received an Outstanding Energy Award from the Philippine Department of Energy in the 2014 Don Emilio Abello Energy Efficiency Awards for their energy savings and carbon dioxide (CO_2) avoidance.

Supply chain

- Women's Business Development Center — Corporation of the Year
- Women's Business Enterprise National Council — One of America's Top Corporations
- WE USA — 100 Corporations of the Year, Who's Who in Supplier Diversity Development
- *Professional Woman's Magazine* — Top Diversity Employers; Top Supplier Diversity Programs for Women; Top Lesbian, Gay, Bi-Sexual, Transgender-Friendly Companies; and Top Disability Friendly Companies
- US Agency for International Development — Excellence in Mentoring
- US General Services Agency — Mentor Protege of the Year
- European Diversity Awards — Supplier Diversity Programme of the Year
- UK Employers Network for Equality and Inclusion — Flexible/Agile Working and Inclusive Procurement awards
- DiversityBusiness.com — One of America's Top 50 Organizations for Multicultural Business Opportunities
- *Black Equal Opportunity Employment Journal* — One of Top Disability-Friendly Companies, and LGBT-Friendly Companies
- *Minority Business News* — One of America's Most Admired Corporations for Supplier Diversity, and Leader in Supplier Diversity Development
- United States Hispanic Chamber of Commerce — Million Dollar Club
- *Asian Enterprise* — Corporation of the Year

Performance summary

IBM relies on a series of metrics to measure our corporate responsibility efforts every year. 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.

KPI Denotes Key Performance Indicator

Employees

Learning

We encourage IBMers to flourish by providing guidance and opportunities for career and expertise growth, with the intention of helping both the company and our employees succeed in this rapidly changing world. IBM blends traditional, virtual and work-enabling learning and development activities to accomplish this. This strategy allows us to provide timely, comprehensive and targeted learning through efficient, effective learning delivery mechanisms.

	2010	2011	2012	2013	2014
Learning investments worldwide ($M) **KPI**	547	466	477	525	482*
Learning hours worldwide (M)	28.6	27.4	33	40	25.8
Learning hours per employee **KPI**	67	63	78	82	62.5

* IBM invested more than $482M in 2014, and employees spent more than 25 million hours on personal development. The per-capita spending on learning increased approximately 4.5% in 2014 over 2013.

Women in the workforce

For more than 100 years, IBM has been dedicated to addressing the specific needs of women in our workforce and to creating work-life and career development programs that address needs. We are committed to the progress and leadership development of women in our workforce and to providing opportunities across the more than 170 countries where we do business.

Women in the workforce % **KPI**	2010	2011	2012	2013	2014
Global workforce	28.1	28.1	30.0	30.1	31.1
Global executives	21.4	21.5	22.3	23.2	23.9
Managers	24.8	24.6	25.6	26.0	26.5

Global illness/injury rate

Global illness/injury rate	2010	2011	2012	2013	2014
Total number (per 100 employees)	0.27	0.33	0.29	0.30	0.42

Volunteering

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

Retiree and employee volunteer tours (K)	2010	2011	2012	2013	2014
Asia Pacific	111	663	116	117	121
Europe, Middle East, Africa	198	430	216	201	212
Latin America	44	152	39	48	67
North America	1,110	1,956	1,210	1,130	1,132

* 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 measureable 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 2014 met these goals.

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 2014, 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 measureable 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.

Global corporate contributions by type ($M) KPI	2010	2011	2012	2013	2014
Cash	39.3	46.9	42.6	41.4	36.8
Technology	105.3	91.3	99.2	100.2	104.4
Services	44.6	57.9	55.3	66.3	69.2
Total	189.2	196.1	197.1	207.9	210.4

Global corporate contributions by geography ($M) KPI	2010	2011	2012	2013	2014
United States	75.8	70.8	69.9	75.7	77.8
Asia Pacific	34.8	36.3	35.9	37.5	40.3
Canada	6.8	6.8	7.1	7.8	6.9
Europe, Middle East, Africa	54.3	60.2	64.4	65.7	64.8
Latin America	17.5	22.0	19.8	21.2	20.6
Total	189.2	196.1	197.1	207.9	210.4

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 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.

Global corporate contributions by issue ($M) KPI	2010	2011	2012	2013	2014
Education	151.5	141.8	143.0	147.1	149.2
Culture	3.2	3.8	3.7	3.0	3.6
Human Services	7.7	17.9	16.9	17.3	20.1
Health	4.3	4.5	3.5	3.5	3.7
Other	16.1	22.7	24.8	32.0	30.7
Environment	6.4	5.4	5.2	5.0	3.1
Total	189.2	196.1	197.1	207.9	210.4

Energy conservation `KPI`

IBM's goal is to achieve annual energy conservation savings equal to 3.5 percent of IBM's total energy use. In 2014 IBM again achieved this goal, attaining a 6.7 percent savings from its energy conservation projects.

Energy conservation	2010	2011	2012	2013	2014
As % of total electricity use	5.7	7.4	6.5	6.7	6.7

Product energy efficiency `KPI`

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. Please see the product stewardship goals and performance table on page 71.

Recycled plastics

In 2014, 17.1 percent of the plastic resins procured by IBM and its suppliers through IBM's corporate contracts for use in IBM's products were resins that contained 50-100 percent recycled content. Comparing only the weight of the recycled fraction of these resins to the total weight of plastics (virgin and recycled) purchased, 12.1 percent of IBM's total plastic purchases in 2014 were recycled plastic versus the corporate goal of 5 percent.

Recycled plastics	2010	2011	2012	2013	2014
% of total plastics procured through IBM contracts for use in its products that have been recycled	11.5	12.4	12.6	10.8	12.1

Product end-of-life management

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

In 2014, IBM's PELM operations sent only 0.5 percent of the total processed to landfill or incineration facilities for treatment.

Product end-of-life management `KPI`	2010	2011	2012	2013	2014
% of total processed sent by IBM's PELM operations to landfill or incineration for treatment	0.6	0.4	0.3	0.3	0.5

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 decreased by 1.7 percent in 2014. The primary factor for this decrease was a reduction in sludge containing fluoride and heavy metals from wastewater treatment at one manufacturing site.

Hazardous waste management	2010	2011	2012	2013	2014
% change in hazardous waste generated from manufacturing operations indexed to output	-21.6	-3.5	+2.9	+4.2	-1.7

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 2014, we recovered and recycled 86 percent of our nonhazardous waste.

Nonhazardous waste recycling	2010	2011	2012	2013	2014
% recycled of total generated	79	78	87	86	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 2014, new water conservation and ongoing reuse and recycling initiatives in IBM's microelectronics operations achieved an annual 3.3 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	2010	2011	2012	2013	2014
% annual water savings in microelectronics manufacturing based on previous year usage and measured as an average over a rolling five-year period	2.8	2.6	2.2	2.3	2.3

Supply chain

2014 global supplier spend was down $2.5 billion, affected by decreased revenue across IBM's product and services lines, the completed divestiture of our System x server business to Lenovo 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. Diverse supplier spend declined on account of the divestiture of System x business to Lenovo and by a change in classification of a major supplier when its diversity ownership changed.

Supplier spending by category	2010	2011	2012	2013	2014
Services and general procurement (%)	64	64	64	67	71
Production procurement (%)	33	33	33	30	26
Logistics procurement (%)	3	3	3	3	3
Services and general procurement ($B)	22.1	23.4	22.8	22.1	21.6
Production procurement ($B)	11.6	12	11.5	9.7	7.8
Logistics procurement ($B)	1	1.1	1	1	0.9

Supplier spending by locaton	2010	2011	2012	2013	2014
North America (%)	35	34	35	36	37
Asia Pacific (%)	35	34	35	35	33
Europe, Middle East, Africa (%)	22	23	21	21	23
Latin America (%)	8	9	9	8	7
North America ($B)	12.3	12.5	12.4	11.8	11.2
Asia Pacific ($B)	12.2	12.5	12.4	11.4	9.9
Europe, Middle East, Africa ($B)	7.5	8.3	7.4	7.0	6.9
Latin America ($B)	2.7	3.2	3.1	2.6	23

IBM's supplier social responsibility assessment practice 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 completed and accepted 2014 Corrective Action Plans was the result of the scheduling of 2014 full audits — the majority of which took place in 4Q14. The CAPs for many of these audits were not received until 1Q/2Q 2015, thus are not included in the 2014 figures and will be accounted for in the 2015 calendar year CAP tally.

Corrective action plans KPI	2010	2011	2012	2013	2014
Supplier corrective action plans completed and accepted	316	473	311	175	141

Communities

IBM's technology and talent have the power to help transform governments, institutions, communities and the quality of life for people around the world. Whether it's improving education, revitalizing cities, addressing the challenges of economic growth and job creation, developing sustainable strategies for energy use and environmental protection, or establishing foundations for growth such as public health, environmental and economic sustainability, IBM and IBMers contribute innovative solutions to the world's toughest societal challenges. Along the way, we recognize that no single company, entity or industry sector can address the planet's biggest problems alone. In response, IBM seeks out and forges the essential partnerships required to affect positive, transformative change.

In this section, you will discover how IBM's corporate citizenship programs align with our company's overall business strategy to help bring about transformative and sustainable change in nearly every part of our world.

Education in communities

Quality education: The engine of economic growth

Nothing is more fundamental to economic growth than building 21st-century skills. IBM's longstanding commitment to education has evolved over the years to anticipate the needs of a changing world. We have addressed issues of childhood and adult literacy, early childhood exposure to math and science concepts, and the shortage of qualified math and science teachers. In 2014 we witnessed a dramatic expansion of our grades 9-14 schools program, which we designed to forge stronger, more meaningful, and more sustainable connections between school and career. 2014 also marked the beginning of a new era in the application of cognitive computing technology to the teaching profession, as IBM demonstrated the proof of concept for a no-cost, interactive, cognitive computing mentor available anytime to help teachers improve their teaching.

P-TECH 9-14 school model

Among the company's most significant education initiatives is IBM P-TECH (Pathways in Technology Early College High School) grades 9-14 model that transforms the structure of schooling as it connects secondary education directly to college and career. Developed in response to the global skills gap in science, technology, engineering and mathematics (STEM), each P-TECH model school is a public-private partnership among a public school district, a community college and a corporate partner that helps create a curriculum that tracks directly to the 21st-century labor market.

Recognizing that today's high-school curricula need to be rigorous and relevant enough to prepare graduates for college and career, P-TECH provides an integrated approach to learning that embeds workplace skills into a strong academic curriculum. IBM-sponsored P-TECH school programs include in-person and online mentoring through IBM Mentor-Place,® instruction in problem-solving and workplace skills, paid internships and the potential to be "first in line" for jobs

upon graduation. All P-TECH programs extend through grade 14 and confer both the high-school diploma and a no-cost associate degree from each school's community college partner.

"We want to expand STEM education that builds the skills employers are looking for now and in the future. Schools like P-TECH in New York offer one example of powerful new models that are already emerging."
US Secretary of Education Arne Duncan

P-TECH schools are open admissions (no admissions testing) public schools that work within existing district budgets and admit students of all abilities based on their expression of interest and desire to succeed. The program launched in 2011 with an inaugural school in Brooklyn, New York, expanded to 27 schools by 2014, and is expected to serve nearly 100,000 students through 100 schools in the United States and Australia by 2016. To facilitate that expansion, IBM created the PTECH.org website in 2014 to provide a structured and repeatable recipe for forging the public-private partnerships essential to launching a P-TECH school.

"I was delighted to visit P-TECH while in New York. I believe this is an innovative and valuable education model for us to consider in Australia."
Hon. Tony Abbott, prime minister of Australia

In June 2015, six students from the first P-TECH school in Brooklyn completed their program two years early — earning their high-school diplomas and college associate degrees in just four years. Five of the six were the first in their families to graduate college and all six were offered positions with IBM; three will continue their educations with scholarships at four-year colleges and universities.

P-TECH's first graduating class includes Cletus Andoh, headed to Syracuse University; Kiambu Gall, who will join IBM; Rahat Mahmud, who will enter the Macaulay Honors College at Queens College in New York City; Michelle Nguyen, who will attend Long Island University as the first in her family to graduate high school or college; Gabriel Rosa, who has accepted a position with IBM; and Radcliffe Sadler, who introduced President Obama during his visit to P-TECH and will be joining IBM.

6
Graduates

90%
Attendance Rate

72%
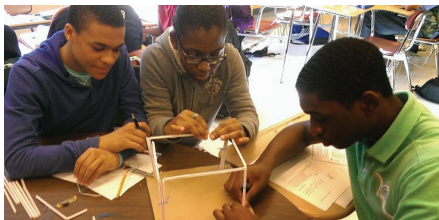of fourth-year students have met both college readiness benchmarks

204
Students

67%
of those eligible, enrolled in at least one college course

70%
P-TECH students earned a grade of C or better in 70% of all courses taken

Like most P-TECH students around the country, these young scholars came from socioeconomically disadvantaged backgrounds and underserved neighborhoods where residents typically lack access to quality education and subsequent employment. After expansion in Connecticut, the city of Chicago and across New York State, other areas — including Colorado and Rhode Island — are launching P-TECH schools.

"Growing Rhode Island's economy begins with strengthening our schools. By making a college degree or professional certification more affordable and accessible, we can help students build the skills they need to be successful and compete in the 21st-century economy. That's why we're pursuing the P-TECH model in Rhode Island."

Rhode Island Governor Gina M. Raimondo

Highlights from other P-TECH schools include:

Sarah E. Goode STEM Academy — Chicago, Illinois
- Opened in fall 2012.
- 93 percent year-to-date attendance, above the district high school average of 90 percent.

Members of the P-TECH class of 2015 with Founding Principal Rashid Ferrod Davis

- Nearly 40 percent of third-year students enrolled in college courses in spring 2015.
- Students enrolled in college courses have earned an average of 13 college credits.
- 17 third-year students have already earned between 26 and 30 credits and will be eligible to earn an associate degree by the spring of 2017.

Excelsior Academy — Newburgh, New York
- Opened in fall 2014.
- 98 percent attendance rate through first marking period, surpassing the district high school average of 93 percent.
- 66 percent of all students made the honor roll during first quarter.

Norwalk Early College Academy — Norwalk, Connecticut
- Opened in fall 2014.
- 98 percent attendance rate.
- 42 percent of students made the honor roll.

"We are seeing great results at Norwalk Early College Academy (NECA), our first P-TECH school in Connecticut. With three new schools in the works, and with 16 NECA scholars currently on track to graduate with their associate's degree in four years — and ready to fill jobs at companies like IBM — we are creating a new paradigm for education in our state."

Connecticut Governor Dannel P. Malloy

It is expected that, by 2016, 100 corporations will have joined IBM in supporting P-TECH schools and expanding the P-TECH network. Together, we are strengthening the connection between high school, college and career, and providing a clear pathway to the middle class for historically underserved young people. With the help of dedicated teachers, IBM and our corporate partners, P-TECH students are defying the expectations of place as they transform themselves, the workplace and the world of education.

Codename: Watson Teacher Advisor

Quality teaching is critical to effective education. Yet, teachers often lack the opportunities and resources for professional development to improve their classroom skills. That's why IBM is applying innovative technology to the challenge of improving teacher quality. The IBM Watson™ cognitive computing system is built to mirror the human learning process — observing, interpreting and evaluating information to make informed decisions. Watson is transforming data-intensive industries such as healthcare, where new information becomes available at speeds and in volumes far too great for humans to maintain up-to-the-minute expertise.

In September 2014, IBM unveiled the proof of concept for Codename: Watson Teacher Advisor — an application of IBM Watson to the profession of teaching — before an audience of 100 education thought leaders, policy makers and funders.

This breakthrough application of technology harnesses the power of IBM Watson cognitive computing to provide just-in-time guidance and mentorship to help teachers improve their teaching. The session included a panel discussion among education leaders and teachers about how the new system could be a game changer for educators. The response was overwhelmingly positive, confirming that the vision and general direction for the development of the technology was on course. When grounded in research and developed in conjunction with experts in the field, Codename: Watson Teacher Advisor holds great promise in strengthening teaching across the United States, with potential applications in other areas of the world.

"Imagine teachers having high-quality, vetted lesson plans and pedagogical resources at their fingertips. That is what Watson technology promises to do. The initial focus on math in grades three through five is important — teaching the concepts of math becomes more complicated in these grades, with fractions being the gateway for further learning."

Mitchell Chester, commissioner of elementary and secondary education, Commonwealth of Massachusetts

Watson Teacher Advisor will be the world's first advanced cognitive computing tool focused exclusively on supporting and strengthening the ability of teachers to improve instruction and student achievement. Confidential, non-judgmental, enabled for mobile users, and totally free of charge, Codename: Watson Teacher Advisor is being supported by philanthropic funders including the Ford Foundation, the IBM International Foundation, and the Stavros Niarchos Foundation. With an initial focus on grade-three mathematics, we expect to launch a pilot in the fall of 2015, and make it available to all teachers in North America by 2016.

Education stakeholders and master teachers assembled at the Roosevelt House Public Policy Institute at Hunter College in New York City to witness a pre-production version of the new technology.

Teachers TryScience

IBM's Teachers TryScience program expands and reinforces teacher competency, initially focused on math and science. The program makes available, free of charge, 471 lessons and 73 pedagogical strategies in 13 languages. Program achievements in 2014 include:

- Collaborating with the National House of Science in Denmark to promote partnerships between educators and employers. This partnership has positioned IBM as an industry leader driving the STEM agenda in Denmark, and highlights the importance of public-private engagement in addressing the skills gap.

- Joining with the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA) to provide STEM training for teachers in Ghana, Kenya, Nigeria and South Africa. CEMASTEA is the STEM teacher professional development agency of Kenya's Ministry of Education.

- Partnering with the South African Association of Science and Technology Educators (SAASTE), a nonprofit that works with teachers to enhance their effectiveness in STEM education. Together, Teachers TryScience and SAASTE representatives conducted a STEM education workshop for senior Department of Education officials. This work complemented an IBM Corporate Service Corps engagement to map Teachers TryScience content to South Africa's national curriculum.

In the United States in 2015, Teachers TryScience will offer more than 20 lessons mapped to next-generation science standards through a partnership with Achieve Inc. and the New York Hall of Science. Educators and administrators of education-focused nonprofits from around the world have praised Teachers TryScience for the ease with which it helps teachers and others improve their instructional effectiveness in critical STEM subjects.

University relations

Higher learning is essential to the transformation of communities, industries, and economies. IBM takes an active role in working with institutions of higher learning to improve and extend their curricula so that students are equipped with the knowledge and skills they need for today's job market. Our focus over the past few years has been to engage 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, cybersecurity, mobile computing, digital commerce and cognitive computing. IBM does this by offering a rich set of resources through academic initiatives that provide faculty with no-cost access to software, course materials, videos and experts — as well as opportunities to engage in real-world challenges. We have worked with more than 1,000 universities to enhance their academic programs.

Among the highlights in 2014:

The Jefferson Project at Lake George

In 2014, IBM provided a Shared University Research Award to the Jefferson Project at Lake George, a multi-year collaboration among IBM, Rensselaer Polytechnic Institute (RPI) and The Fund for Lake George that aims to make the 32-mile New York lake a global model for ecosystem understanding and protection.

A recent 30-year longitudinal study of Lake George has suggested that road salt incursion and invasive species are contributing to the degradation of the lake's overall health. Begun in 2013, the Jefferson Project focuses on advancing the understanding of Lake George's ecosystem through research, using advanced cyber-physical systems and coupled modeling of the ecosystem. The research involves a complex, intelligent, distributed cyber-infrastructure with numerous sensor platforms in and around the lake to measure physical, chemical and biological parameters. This observational platform is linked to a computer modeling system that includes weather, hydrological (runoff), hydrodynamical (circulation) and biological (food web) models. The goal of the project is to reveal scientific findings that will help address natural ecosystem management of the lake in areas such as water quality.

Specifically, IBM is contributing our Deep Thunder™ weather forecasting technology, as well as a water circulation model of the lake developed by the IBM Research lab in Dublin, Ireland, and a precipitation run-off model created by IBM Research labs in São Paulo and Rio de Janeiro, Brazil, and Austin, Texas. RPI is contributing a biological model of the lake. Together, the project participants hope to create an essential point of contact for integrating models built with different time and space scales and for developing assets for an environmental monitoring, management and risk platform.

Africa Skills Initiative
According to a McKinsey Global Institute report, Africa will have the largest workforce on the planet — larger than China's or India's — by 2040. Yet skills development on the continent is a serious challenge that is expected to impact Africa's growth. In response, businesses, governments, universities and entrepreneurs are joining together to create a vibrant innovation ecosystem in Africa.

Launched in February 2014, IBM's Africa Skills Initiative provides a multi-pronged approach to technical skills development in areas that include mobile, cyber-security, business analytics and big data. The components of this initiative include:

• Middle East Africa University Program for Africa — provides free IBM software and course curricula in a private cloud environment for faculty and students at universities across Africa to study the subject areas mentioned above. In 2014, universities in six countries enrolled in the program to gain access to the software.

Making Lake George the "Smartest Lake" in the World

The Jefferson Project at Lake George is a multi-million dollar collaboration between Rensselaer Polytechnic Institute, IBM, and The FUND for Lake George. Its goal is to understand and manage complex factors—from road salt, storm water runoff and invasive species—threatening one of the world's most pristine natural ecosystems and an economic cornerstone of the New York tourism industry.

Lake Basics

• Lake George is **32 miles long,** 2.5 miles wide at its widest point and has a maximum depth of 200 feet.

• It has 145 tributaries and

• The land surrounding the lake remains **95% natural forestland.**

• The lake is responsible for about **$1** billion **in tourism** activity in the surrounding region.

Click to see the complete infographic

Dr. Shirley Ann Jackson
President
Rensselaer Polytechnic Institute

Highlights of the Jefferson Project at Lake George's achievements

- IBM's Africa Technical Academy — offers IBM customers, business partners and developers professional training and certification to enhance their technical depth. In 2014, Africa Technical Academy hosted events in six countries with more than 800 participants.

- IBM's LEADing to Africa program — develops early professional talent around the world by providing global IBM internship experiences to students interested in careers in Africa. Last year more than 200 interns participated in the program, representing at least 30 countries worldwide.

In 2015, IBM intends to expand the Africa Skills Initiative to include academic tracks on cloud computing and to reach new universities, students, faculty, business partners and clients across the continent. With this initiative, IBM is committed to assist Africa in its transformation by helping to develop skills needed for the 21st century and creating a viable innovation ecosystem for Africa, our business and the world.

Using predictive analytics to improve care for at-risk expectant mothers

In early 2015, IBM announced a project with the Irish Centre for Fetal and Neonatal Translational Research (INFANT) at University College Cork Maternity Hospital to help improve early detection and treatment of hypertension and pre-eclampsia in pregnant women. The vision for the Learning to Evaluate Blood Pressure at Home (LEANBH) project is to manage hypertension and pre-eclampsia in at-risk, expectant mothers in their own homes using remote monitoring of medical data. The program aims to reduce the number of unnecessary follow-up hospital visits, lowering the additional stress and cost of visits to the patients and on the healthcare system.

Teaming with IBM to complement its own expertise, the INFANT Centre is creating a patient-centric perinatal system that combines real-time remote monitoring technology via mobile devices with web-based advanced analytics and care management. Remote monitoring will be combined with predictive analytics to enable faster responses and a higher quality of care through automated alerts to doctors. It also aims to help improve data sharing among the healthcare team members and offers the ability to integrate with electronic healthcare records.

"I congratulate both IBM and the INFANT Centre for collaborating on LEANBH. The project demonstrates the value of collaboration between industry and academia. LEANBH has the potential to have a global impact on the medical care offered to expectant mothers."

Ireland An Taoiseach (Prime Minister) Enda Kenny

Dr. Anthony Morrissey, INFANT Centre manager; Prof. Louise Kenny, consultant obstetrician and director of INFANT; An Taoiseach Enda Kenny; Robert McCarthy, business development manager, IBM; Prof. Mark Ferguson, director general of Science Foundation Ireland and chief scientific adviser to the Government of Ireland.

Advanced technologies help China meet ambitious environmental goals

Launched in July 2014, IBM's Green Horizon initiative aims to leverage advanced technologies such as cognitive computing, big data analysis, and the Internet of Things (IoT) to help China's economy grow with balance. The goal of the 10-year initiative is to protect the environment, improve public health and ultimately achieve sustainable development in China. Enterprise energy conservation and transformation of the energy and utility industry are the main goals of the program; other important components include emissions reduction, prevention and control of atmospheric pollution, and renewable energy utilization.

IBM China Research Lab is collaborating with the Institute of Environmental Science and Engineering at Tsinghua University to launch joint research projects. These projects aim to develop a digital energy management platform based on IoT, big data analytics and cloud technologies to provide comprehensive analytics of energy optimization management and decision support for government and enterprises. IBM and Tsinghua University will share resources to develop industry solutions, help the latest academic achievements go to market effectively, and cultivate a talent pipeline to meet the industry demands.

"The key to tackling environmental problems is not only monitoring emissions, but adopting a comprehensive approach to air quality management and addressing the issues at their roots. Initiatives like IBM's Green Horizon can help by fostering joint innovation across the entire energy value chain."

Dr. Lu Qiang, professor at Tsinghua University and fellow of the Chinese Academy of Sciences

Building big data skills in China

In July 2014, IBM embarked on a project with universities in China to help address the burgeoning big data and analytics skills opportunity. Dubbed IBM U-100, the program will feature an IBM donation of big data and analytics software worth $100 million and provide expertise to help 100 universities in China create the next generation of data scientists. The effort seeks to prepare 40,000 students per year for a career in big data and analytics.

IBM will provide technology, skills training and campus lectures to accelerate program development, and will also help work with universities to develop new undergraduate and graduate degree programs for the data scientist and chief data officer roles, with a focus on applying analytics to solve challenges in industries.

The IBM U-100 program will work with kaikeba.com, a Chinese IT online education platform, to launch a series of online courses focused on big data and analytics technologies and skills for university students and IT professionals. By the end of 2014, 22 universities had joined the U-100 program, including Peking University, Fudan University, Xian Jiaotong University, Huazhong University of Science and Technology, South China University of Technology, and Nankai University.

Problem solving in communities

Leveraging IBM's technology and expertise to help the world work smarter

No single commercial or nonprofit entity or industry sector can solve the world's biggest challenges alone. It is only through essential partnerships that businesses, governments and nonprofit organizations are able to develop the perspectives they need to address the complexities of our changing world. Interrelated issues of environmental sustainability and resource management, global health and healthcare delivery, and education and economic development — to name a few — make "going it alone" ineffective in the pursuit of positive change. That is why IBM works with nations, cities and nonprofit organizations as a trusted partner. With global problem-solving expertise and the innovative technologies required to manage rapidly expanding volumes of data, IBM is uniquely positioned to help make the world a smarter place.

- Inspired by the Peace Corps, IBM's Corporate Service Corps anchors our commitment to citizen diplomacy — deploying global teams of experts to work with governments and nonprofit organizations in emerging economies to solve their toughest problems.

- By focusing the talents of 700 IBM experts to help 116 cities around the world since 2010, the IBM Smarter Cities Challenge employs a global problem-solving perspective to help cities and urban regions regroup, revitalize and become better places for people to live, work and visit.

- Enhancing the capabilities of nonprofit and educational organizations to serve their constituencies with greater agility and effectiveness, IBM Impact Grants facilitate delivery of our global operational expertise and innovative cloud, analytics, mobile, social and security technologies in more than 70 countries.

Corporate Service Corps: Creating leaders through citizen diplomacy

Launched in 2008, IBM's Corporate Service Corps (CSC) works with clients, partners, communities, and nations in emerging economies on projects that solve critical problems while providing employees of IBM and our partners with unique leadership development opportunities. Inspired by the Peace Corps, CSC delivers a triple benefit — communities have their problems solved, IBMers receive leadership training and development, and IBM develops new markets and global leaders. More than just fly-in/fly-out engagements, CSC projects embed global teams in-country for 30 days. During that time, expert consultants develop a deep appreciation for our nonprofit clients' challenges and deliver solutions that are relevant and sustainable. The CSC experience also is a significant career milestone for participants — the overwhelming majority of whom rate it as among their best professional experiences, recommend it to their peers, and cite it as a factor in electing to continue their careers at IBM.

"IBM has been a leader in demonstrating the impact that the private sector can [have] in contributing talent and expertise to our communities. IBM invited us to join one [of] their Corporate Service Corps projects so that we could learn from their model, and the experience inspired us to create a similar program in Detroit. We've had great feedback from our nonprofit partners and our employees."

Peter Scher, executive vice president and head of corporate responsibility, JPMorgan Chase & Co.

In 2014, CSC garnered external recognition for its outstanding work from coverage in the Boston Globe, Guardian (United Kingdom), Huffington Post, Washington Post and local media in more than a dozen countries. The program also was honored with an AmeriCorps Corporate Champions Award in 2014, and was praised by authors Nicholas Kristof and Sheryl WuDunn in their book A Path Appears: Transforming Lives, Creating Opportunities.

Examples of 2014 CSC team projects include:

Protecting women's health
Good health is essential to all human progress. Women's health is a global issue because simply being female puts one's health in jeopardy in many parts of the developing world. Sociocultural biases and unequal power relationships subject women to discriminations and exclusions that drive increased morbidity and mortality among them and their children. Inadequate access to quality health services — either alone or in combination with the effects of poverty, violence, and lack of control over sexual and reproductive health — condemns many women and their children to lives of unnecessary misery and brevity.

- **Ghana** — Although as many as 80 percent of pregnant women in Ghana seek prenatal care, HIV testing often is deferred because of lack of public awareness, limited access to diagnostic tests, and cultural stigma. As a result, the HIV transmission rate from affected pregnant women to their newborns is as high as 15 percent. IBM is working with the Ghana Health Service and the Yale School of Medicine to help reduce Ghana's mother-to-child HIV transmission rate to less than 1 percent by 2020. Using IBM data analytics and cloud solutions, this cross-sector partnership has developed advanced models to help Ghana predict and prioritize the best interventions to reduce and eventually eliminate mother-to-child HIV transmission. The next stage of the project will be to utilize IBM mobile solutions to share the advanced clinical practices developed by the Ghana Health Service and the Yale School of Medicine with hospitals and community care providers throughout the country.

"As [head of] a government that puts people first, I am confident that predictive analytics, cloud technology and mobile solutions can be of tremendous value as we collaborate with IBM towards the elimination of transmission of HIV from mother to child."

Hon. John Dramani Mahama, president of Ghana

- **Peru** — Women in rural Peru often must travel half a day — sometimes on foot — to get the medical care they need. Despite this and other hardships, they persevere as their lives may depend on it. Awaiting them in the rural village of Cusco is the CerviCusco women's clinic, which has treated more than 35,000 patients and performed hundreds of surgeries. Women in remote Andean villages learn by radio about how CerviCusco can help them manage their health. Then, when they can get time away from farming and other labors, these women make what for some proves to be a life-saving journey to the clinic.

Daron Ferris, MD, founded and runs the clinic, and in 2014 received pro bono consulting services from a CSC team of experts and our partner Becton, Dickinson and Company (BD). The goal of the CSC/CerviCusco project was to develop a three- to five-year sequential plan for Dr. Ferris's organization to expand its clinical reach to 75,000 women. In addition to IBM's strategic plan for greater outreach, BD worked with CerviCusco to incorporate BD's advanced diagnostic technology into patient care.

IBM CSC teams with Becton, Dickinson and Company to address cervical cancer screening for women in Peru.

Working with partners to protect the environment

With its warm, wet climate and vast expanse of 2.7 million square miles of land, the Amazon river basin has the potential to become one of the world's most productive agricultural regions. The basin, which is about the size of the United States and touches eight countries, harbors one-third of the planet's biodiversity, produces one-fourth of its fresh water, and plays a key role in warding off the worst effects of climate change. The Nature Conservancy (TNC) — the world's largest environmental organization — reports that no other place on Earth is more critical to human survival.

Disturbingly, the Amazon rainforest has lost nearly 20 percent of its flora over the past 40 years. And the Brazilian government reports that deforestation continues. That's why TNC launched programs aimed at preserving the rainforest and promoting sustainable agricultural practices, and why IBM's CSC helped TNC with one of its most critical projects — an effort to facilitate establishing land ownership records, monitoring land use, and potentially stopping illegal deforestation.

A handful of Brazilian municipalities in the Amazon have piloted TNC's Municipal Environmental Portal (PAM) to track land ownership. TNC sought to broaden the PAM user base to more than 100 cities and towns and collaborated with a CSC team to help advance PAM technology and develop a

A team of 10 IBMers from seven countries spent four weeks in Belem, Brazil, helping the Nature Conservancy further develop a technology system aimed at helping to preserve the rainforest.

plan for its adoption throughout the region. The partnership with TNC provided an opportunity for IBM to exert environmental leadership on the ground that will balance the need for economic growth with the need to provide sustainable performance in the environmental space.

"Saving nature is one of the smartest investments a company can make. And collaborating with businesses like IBM is a smart strategy for environmentalists. Working together, we can get more done for nature. At the Nature Conservancy, we are learning a lot from IBM. Information technology is a powerful asset for the environmental movement, and we are collaboratively discovering great ways to put IBM's technological expertise to work for conservation. Companies like IBM are a great source of innovative ideas to accelerate and scale up environmental progress."

Mark Tercek, president and CEO, The Nature Conservancy

During the project, IBM and TNC took the unusual step of inviting public suggestions through an online forum to help improve PAM and make it more useful and compelling for municipalities, landowners, farmers, loggers and environmental groups. The public also was invited to contribute suggestions for preserving the rainforest, improving the economy of the Amazon region, and making agriculture more sustainable there.

"We can't solve these big problems unless we have governments working with business, working with NGOs. It takes all three to be successful."

Henry M. Paulson Jr., former US Treasury secretary and co-chairman of the Latin American Conservation Council, which works with TNC to help design and fund its programs.

Smarter Cities Challenge: Revitalizing cities

The Smarter Cities Challenge (SCC) deploys top IBM experts to help cities around the world address their most critical challenges. We do this by putting teams on the ground, working closely with city leaders to deliver recommendations on how to make a city smarter and more effective. SCC is IBM's largest philanthropic initiative, with contributions to date valued at more than $50 million. Since 2010, IBM has deployed 700 top experts to help 116 cities around the world.

Among 2014's SCC highlights:

Reversing neighborhood decline in Syracuse

One year after an SCC team worked with the city of Syracuse, New York, to understand, analyze, predict and help prevent increases in vacant residential properties, Mayor Stephanie Miner announced that the city 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 SCC for helping the city make transformative changes. The positive impact of IBM's partnership with the city of Syracuse was recognized by the 2014 Secretary's Award for Public-Private Partnerships, awarded by the Department of Housing and Urban Development, the Department of Agriculture, and the Council on Foundations.

Helping Perth plan for sustainable growth

The city of Perth, Australia, faced increasing logistics challenges presented by a growing need for accessible, integrated and coordinated information about the real-time use, demand, capacity, location, age and ownership of essential city infrastructure. As the state and greater city grows and the capital develops to drive and support the state's economy, the need for timely and efficient design, implementation and management of key and essential infrastructure (supporting transport, water and energy delivery) will only increase. In 2014, IBM was asked to help the city "future proof" itself and to develop a roadmap for an integrated system for implementing and managing essential services infrastructure to reduce risk, improve service delivery and enhance infrastructure reliability and usability while reducing costs.

Transforming Zapopan into a global industrial player

The food and beverage industry is an important growth engine that accounts for more than 30 percent of manufacturing jobs in Jalisco, Mexico. The city is the second-largest food and

Smarter Cities Challenge 2014 cities

Abuja, Nigeria	Dublin, Ireland	Suffolk County, New York
Ballarat, Australia	Durban, South Africa	Tainan, Taiwan
Baton Rouge, Louisiana	Jinan, China	Vilnius, Lithuania
Birmingham, Alabama	Mombasa County, Kenya	Zapopan, Mexico
Brussels Capital Region, Belgium	Niigata, Japan	
Dallas, Texas	Perth, Australia	

The program continued into 2015 with the announcement of 16 additional grant recipients.

76	**12,540**	**$50M**
Number of IBM experts who participated in SCC engagements in 2014 (620 since program inception)	Number of hours of pro bono consulting contributed in 2014 (102,300 since program inception)	Monetary value of the SCC program since inception, including $7 million in 2014

beverage producer in Mexico, and the number one industry employer in the country. The municipality of Zapopan, in the Guadalajara metropolitan area, sought to support the growth of this dynamic sector by linking producers, small businesses, researchers and large corporations across the food production chain more effectively. Mayor Dr. Héctor Robles Peiro requested IBM's assistance in developing a strategic plan for a food industry cluster that would spur the development of innovative research and production methods, create opportunities for small businesses to add value, support job creation and training and promote growth in distribution channels across the region, the country and the world.

"We've always recognized and admired the strength of IBM, but the Smarter Cities Challenge revealed to us the amazing possibility of joining public and private forces in matters that are so important to our city. Every city shares the challenge of developing employment, competitiveness and collaboration in a sustainable way. IBM is pioneering the way international corporations can drive economic development in partnership with government and civil society."

Dr. Héctor Robles Peiro, mayor of Zapopan, Mexico

IBM works with the City of Dublin on renewable energy issues, with a focus on solar panel installations.

Assessing the business potential for solar energy in Dublin
Dublin, Ireland, has a significant amount of municipally and nationally owned roof space and real estate that together have great potential as locations for solar technologies. Ireland already is a world leader in the production of wind energy, having heavily invested in offshore capacity. Dublin is now serious about solar, and the city's chief executive officer, Owen Keegan, asked IBM to assess the business potential for municipally owned and distributed solar energy. The project team — which included two HSBC staff members who brought financial expertise to complement IBM's technical and marketing skills — examined optimal ways to integrate this new energy source into the existing power grid.

Impact Grants:
Delivering service capabilities to nonprofits
Innovative, advanced technologies are the foundation of IBM's citizenship initiatives. Data analytics, IBM Connections, and mobile technologies are among the richest and fastest-growing components of IBM's vast portfolio of services. In the same way that these transformative offerings are helping for-profit enterprises reimagine and achieve their commercial potential, they also enable IBM to deliver previously unheard-of breakthroughs in service to nonprofit organizations.

We're already seeing results as data analytics are enabling cities in both mature and emerging markets to predict and control vehicular traffic congestion that — if left unmanaged — could thwart growth and stifle economic development. Data analytics also serves as the backbone of IBM's initiatives to track the spread of diseases such as Ebola, or implement timely and effective disaster recovery. IBM deploys data analytics in tandem with secure, scalable, and "always on" IBM Smart-Cloud® and mobile technologies that are unaffected by local conditions such as inadequate or compromised communications infrastructures. These innovative technologies enable us to effect a quantum leap in disaster recovery and project implementation capability.

Any meaningful practice of corporate citizenship acknowledges that the world's major challenges are larger than any single entity or sector can manage alone. It is only by working together — through contributions of time, technology, expertise, and financial support — that we can help bring about positive transformations in the quality of people's lives. Through IBM Impact Grants, we share our capabilities and expertise with nonprofit organizations to help them operate and serve their constituencies more effectively.

IBM helps advance the service efforts of educational and nonprofit organizations through grants of software and consulting expertise. By so doing, the IBM Impact Grants program allows us to be more agile and responsive to the evolving needs of the nonprofit sector. IBM has delivered more than 1,500 Impact Grants worldwide since 2010, with more than 500 grants delivered in 2014. IBM Impact Grants are structured to benefit recipients in the following ways:

• Capacity building offerings — We help nonprofit organizations build capacity for future growth by providing access to IBM technology, software and expert business consultants.
• Strategic growth offerings — We tailor strategic growth solutions for organizations in the nonprofit and education sectors, helping them succeed through executable strategies and deliver value through technology-enabled transformation.
• Business analytics offerings — We provide predictive analytics to help organizations forecast with confidence what will happen next, so that they can make smarter decisions, solve problems and improve outcomes.

Among the highlights of our 2014 activity:

Strategic growth assessment for China's One Foundation
Among China's most prominent nonprofit organizations, the One Foundation works primarily in the areas of disaster relief, children's welfare and the training of public welfare professionals. One Foundation needed assistance with developing a strategic plan to transform itself for greater efficiency and effectiveness, and to improve its fundraising efforts.

"The IBM Impact Grant has been very effective. The IBM team demonstrated a profound insight into One Foundation's strategic imperatives and weaknesses, i.e., fundraising, donor relationship management, and strategy management and implementation. All of IBM's six recommendations were valid, and will play essential roles in the future of our organization."

Ma Weiha, chairman of the board of the directors, One Foundation

Predictive analytics insights to combat youth unemployment in Japan
Since the beginning of Japan's recession in the early 1990s, the youth unemployment rate has increased both in size and in the intractability of its underpinnings. For example, an increasing number of Japan's youth are disengaged from employment, education or training. The nonprofit organization Sodateage Net — with the mission to help young Japanese people attain economic independence — asked IBM to help analyze youth-needs-related data and provide insights into serving this constituency more effectively. Using IBM SPSS® Predictive Analytics software over the course of a 10-week IBM Assessment Grant engagement, our consultants provided Sodateage Net with data-driven insights into education and training, and

501
Number of Impact Grants delivered worldwide in 2014

1,500
Number of Impact Grants delivered worldwide since 2010

$14M
Market value of 2014 Impact Grants

$45M
Market value of Impact Grants since 2010

support for employment opportunities available to underserved Japanese youth. Sodateage Net already has capitalized on these insights to help reduce unemployment in communities throughout Japan.

Speeding disaster relief with cloud-based management tools
In 2014, IBM awarded a grant of consulting services to the American Red Cross International Services department, which was involved in supporting Typhoon Haiyan response activities in the Philippines. The grant helped the Red Cross evaluate strategies for using cloud-based tools for disaster information management following international crises, and built IBM's long-term relationship with them. That relationship dates back to 2009, and has included services to design and develop an online disaster services course, a grant to optimize transportation processes for the American Red Cross's Biomedical Services division, and extensive engagement of IBM volunteers with Red Cross and Red Crescent chapters and societies worldwide.

"The IBM Impact Grant to our international services department was an essential component of our effort to understand the latest approaches to scalable and adaptable cloud and social media technologies to support our responses to global crises. When these disasters occur, the immediate availability of systems can transform our abilities to manage a response. We believe that scalable cloud-based technologies enable more agile and effective response in those critical hours after disaster strikes."

Gail J. McGovern, president and CEO, American Red Cross

Sharing leadership and operations skills with Egypt's government ministries
In partnership with Egypt's Ministry of Education, Ministry of Culture, and Ministry of Antiquities, IBM launched a series of five-day training workshops for mid-level and senior government managers focused on leadership, social media and project management competencies. More than 450 managers attended the training, and the ministries have requested further support.

These Impact Grants leveraged wide visibility with key government officials, and IBM was recognized for the program.

Strengthening women entrepreneurs in Nigeria
In Nigeria, IBM delivered a Small Business Resource Marketing grant to the National Association of Women Entrepreneurs — an arm of the Ekiti State Chamber of Commerce. Key government staff and more than 70 female small business entrepreneurs attended the workshop, which provided training in business planning and access to the rich repository of best practices in the IBM SME Toolkit.

"A big 'thank you' to IBM — our women entrepreneurs are now more knowledgeable about how to better manage their businesses and how they can use SME Toolkit in future. They also have been encouraged to seek out more training to learn the skills to use the Internet and email to enhance their businesses."

Chief Kola Akosile, chairman of the Ekiti State Chamber of Commerce

Providing free software training and job placement for military veterans
In 2014, IBM and lead partners Corporate America Supports You and the Military Spouse Corporate Career Network launched the Veterans Employment Initiative to help returning veterans transition successfully to civilian careers as data analysts. The program includes software training and job placement assistance by connecting IBM software trainers with qualified participants for five days of instruction on IBM's i2® Analyst's Notebook data analysis environment. After their instruction, participants may take an exam to become certified as advanced data analysts. IBM is partnering with other corporations such as Citi and JPMorgan Chase & Co. to secure jobs for the certified graduates. Employers are expected to fill nearly 200,000 jobs over the next few years with those holding credentials like those provided by the Veterans Employment Initiative, which currently operates across the United States and United Kingdom.

World Community Grid:
A "virtual supercomputer" for humanitarian research

IBM's World Community Grid® is a virtual supercomputer that aggregates donated, unused computing power from desktop and mobile devices and makes that power available to researchers seeking solutions to such critical global issues as finding cures for disease, developing technologies for energy sustainability and seeking ways to protect the world's water supply. World Community Grid processed nearly 480 million calculations in 2014 — the equivalent of more than 200,000 years of computer runtime. Since its inception in 2004, World Community Grid members have contributed the equivalent of more than one million years of computing time to research projects that otherwise would not have had access to such massive computing power.

In 2014, World Community Grid played an essential role in the Chiba Cancer Center's breakthrough in childhood cancer research, enabling researchers to isolate seven new drug candidates from a field of three million. World Community Grid's partnership with the Harvard Clean Energy Project on carbon-based solar cell research was named the number one catalyst for revolutionizing 2014 by USA Today. President Obama's Climate Change Initiative for using big data to support climate change research featured World Community Grid. And in the fight against the Ebola virus, World Community Grid joined the Outsmart Ebola Together partnership and was the computing power behind the Scripps Research Institute's accelerated search for a cure.

270,000

Since the program's inception, nearly 270,000 IBMers worldwide have registered with On Demand Community and have logged nearly 18 million volunteer hours.

"In the search for a cure for Ebola, IBM's World Community Grid is letting us do in weeks what would otherwise take us hundreds of years to do — calculating which drugs will do the best job of targeting and destroying the virus."

Dr. Erica Ollmann Saphire, Scripps Institute professor
and founder and director of the Viral Hemorrhagic Fever
Immunotherapeutic Consortium

New hope in the fight against childhood cancer

Though 80 percent of children diagnosed with cancer are cured, those afflicted with neuroblastoma — the most common form of cancer diagnosed in infants, and a disease that affects one in 8,000 children in the United States and Japan — have only a 30 percent survival rate. In the search for the cure, researchers at the Chiba Cancer Center in Japan used the World Community Grid virtual supercomputer to screen three million drug candidate molecules in just two years. This process would have taken more than 55,000 years using a single computer. As a result, the researchers discovered seven new drug candidates that could potentially be used in new

487M

WCG completed 487,564,975 research tasks in 2014 (2.2 billion since program inception), using 200,609 years of donated CPU runtime (over 1 million since inception).

3M

Nearly 3 million desktop and mobile devices have been enrolled in WCG (including 428,263 in 2014) by 684,467 registered members, with 45,168 members joining in 2014.

466

Number of World Community Grid partner organizations, including four new organizations added in 2014.

medicines to fight childhood neuroblastoma. The investigators published their results in the peer-reviewed journal Cancer Medicine, and currently are seeking a pharmaceutical partner to collaborate on the further development and testing needed to produce an approved medicine.

Answering the call to help mitigate the effects of climate change

In response to President Obama's Climate Data Initiative — a call to private and philanthropic organizations to develop data-driven tools to plan for and mitigate the effects of climate change — IBM expanded the World Community Grid program to support scientists studying these issues. World Community Grid will provide free access to virtual supercomputing resources and a platform for public engagement to humanitarian researchers investigating such issues as the resilience of staple food crops and watershed management. Each research project will have access to up to 100,000 years of computing time — a value of $60 million in today's costs.

Supplier Connection: Helping small businesses grow

Supplier Connection helps America's small businesses gain access to large companies' supply chain spending, so they can grow and create new jobs. This free service offering small businesses "one stop shopping" is powered by IBM and streamlines the procurement process for both buyers and suppliers. More than 1,000 small companies already are connected to nearly 30 large-company buyers through Supplier Connection. In 2014 alone, participating corporations spent more than $2 billion with small businesses registered on Supplier Connection — up nearly 30 percent over the previous year.

"IBM has stepped up. Rather than view small firms as competitors, IBM embraces them as partners. You have done it because you believe in corporate citizenship, and because you understand that stronger supply chains are good for America and good for the bottom line."

Maria Contreras-Sweet, administrator,
US Small Business Administration

Dr. Akira Nakagawara (right) and a colleague review study results enabled by IBM World Community Grid.

SafetyNet with Nonprofits:
Focusing IBM technology on helping the vulnerable

When fully operable, the IBM SafetyNet with Nonprofits will make use of the IBM Curam solution to help settlement houses, community organizations and other providers of social services to be more effective in assisting society's most vulnerable. Specifically, SafetyNet will enable service providers to:

- Develop and analyze demographic data of beneficiaries
- Track progress and results online, make real-time improvements in service, and develop the data needed for continued or acquired government contracts and funding
- Reduce data production time from weeks to days

"With the deployment of SafetyNet, The Jacob Riis Settlement House has improved its ability to respond to funders requesting information, compete for new funding, manage government contracts, and manage client and family progress through multiple programs. The results are tangible time and cost savings for the organization, with more effective and efficient services delivered to clients."

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

Employee engagement in communities

IBMers in action:
Contributing time and talent to the global community

Service and volunteering have always been essential elements of what it means to be an IBMer. In addition to facilitating employee cash donations in some parts of the world, IBM supports and enables structured volunteering that leverages our industry-leading technologies and the unique expertise of one of the world's most accomplished and sophisticated workforces.

On Demand Community: Skills-based volunteerism

With the launch of On Demand Community® in November 2003, IBM reinvented its support of employees and retirees whose volunteer work enriches the communities where we live and work. This innovative global program reflects IBM's strategy to help the world work better, making a wide range of knowledge and expertise available to volunteers online. On Demand Community builds on award-winning IBM corporate citizenship programs and extends a long tradition of community engagement by IBMers worldwide by providing them with resources to facilitate engagement with community organizations and expand the value of volunteer efforts. Each year, nearly 270,000 active IBMers and retirees use On Demand Community to contribute their time and talent, and to find opportunities to connect with others in volunteering efforts that improve their communities. Since the program's inception, current and retired IBMers have donated nearly 18 million volunteer hours to help bring about the positive transformation of communities around the world.

Volunteer Excellence awards

Each year, through the Volunteer Excellence awards, IBM recognizes those individuals or teams who best personify our culture of service. IBM CEO Ginni Rometty presents this highly competitive award to winners from among our volunteers. The award underscores our commitment to the communities in which we live and work, and recognizes volunteers whose dedication, innovation and personal commitment to

service play an essential role in enabling the transformation of our nonprofit and education clients.

From governments and NGOs to communities in developing markets to children and young people just beginning to build their lives, all of our partners receive the best of our skills, expertise and technology through more than $4 million in local Community Grants each year. Three of our Volunteer Excellence award winners are highlighted below:

- In Shanghai, En Chang (Anson) Zhou mentored fellow people with disabilities, providing them with a role model, tangible job-training skills and potential career opportunities at IBM. Two IBM Community Grants helped Anson and the Shanghai Wanbang Care and Service Center host a unique entrepreneur competition for young people with disabilities, and with a site visit to meet other IBMers with disabilities and learn about accessibility technology.

- In India, Naveen Prathapaneni tirelessly shared his expertise, passion and commitment to make essential contributions that have included helping a foundation use technology to achieve a 25 percent increase in service delivery efficiency, leveraging IBM Community Grants to improve help-line operations supporting rural education and thousands of students, setting up science labs and digital classrooms in schools and more. Naveen also has mentored nearly 400 students — 60 percent of them female.

- In Ireland, IBMers Niambh Scullion, Brendan Murray, Sean Callanan and Lorenzo Cipriani led an international team that is helping children and teens learn how to code. The students develop websites, apps, programs, games, and explore technology through the CoderDojo Foundation — a global network of volunteer-led programming clubs for young people. A CoderDojo mentor since the organization's founding in 2012, Niambh also founded CoderDojoGirls to encourage more girls and young women to pursue programming. In addition to serving as volunteer mentors and growing the program throughout Ireland, the IBM team created "Start Dojo" — a process documentation protocol that simplifies establishing new clubs and has been credited for growing the number of clubs from 250 to 580 in the last year. IBM has backed the CoderDojo initiative by granting licenses of IBM Sametime® communications software to the CoderDojo Foundation and developing tutorials for the IBM Bluemix™ development platform within the Kids Code! IBM Activity Kit. The kit was accessed more than 900 times in its first week.

Employee donations and programs

IBM supports and reinforces employee contributions to charitable and nonprofit entities in their communities. Our community-level grant making — complemented with extensive and far-reaching volunteer programs — enables IBMers to contribute their skills, develop new skills, and grow as leaders as they contribute to the communities where they live and work.

Employee Charitable Contribution Campaign

In the United States and Canada, IBM's annual Employee Charitable Contribution Campaign (ECCC) provides employees and retirees with the opportunity to contribute directly to more than 10,000 community organizations. These entities provide a wide range of services in the environmental, cultural, health and human services, literacy, and disaster relief areas, to name just a few. In 2014, our US ECCC campaign generated more than $29 million. ECCC in Canada provided approximately Can$2.3 million in contributions to Canadian charitable organizations. IBM salutes our employees' generosity, and is proud to assist them in service to their communities.

IBM 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 at Chapel Hill and Yale University. In 2014, more than 6,400 organizations received grants with a total value of more than $11.5 million.

Disaster relief in communities

Agile responses, long-term commitments

For decades, IBM has responded to major disasters and significant crises in the communities in which we live, work and do business. Today, our responses integrate advanced technologies with the expertise of IBMers around the world who have the desire and training to serve. We deliver essential components of what it takes for affected areas and individuals to regroup, rebuild and recover — including solutions to gather and share data about affected populations, relief efforts and the deployment of technologies. IBMers also manage the rollout of technology solutions to help regions or even countries get back on track. And we remain engaged for months or years after an event to help with recovery.

Helping to battle Ebola

The visceral nature of how Ebola runs its course, and the practices that enabled its rapid spread across impoverished regions of sub-Saharan Africa, made the disease a source of daily terror among those directly affected and a larger-than-life threat in the consciousness of the global community. Inadequate health care infrastructure, lack of verifiable data and an extreme scarcity of medical personnel raised Ebola's mortality rate in sub-Saharan Africa to levels unimaginable in more affluent parts of the world. IBM responded to the crisis

November 2013
Typhoon Haiyan devastates the Philippines, a chain of **7,000** islands

Typhoon Haiyan: IBM Intelligent Operations Center for Emergency Management.
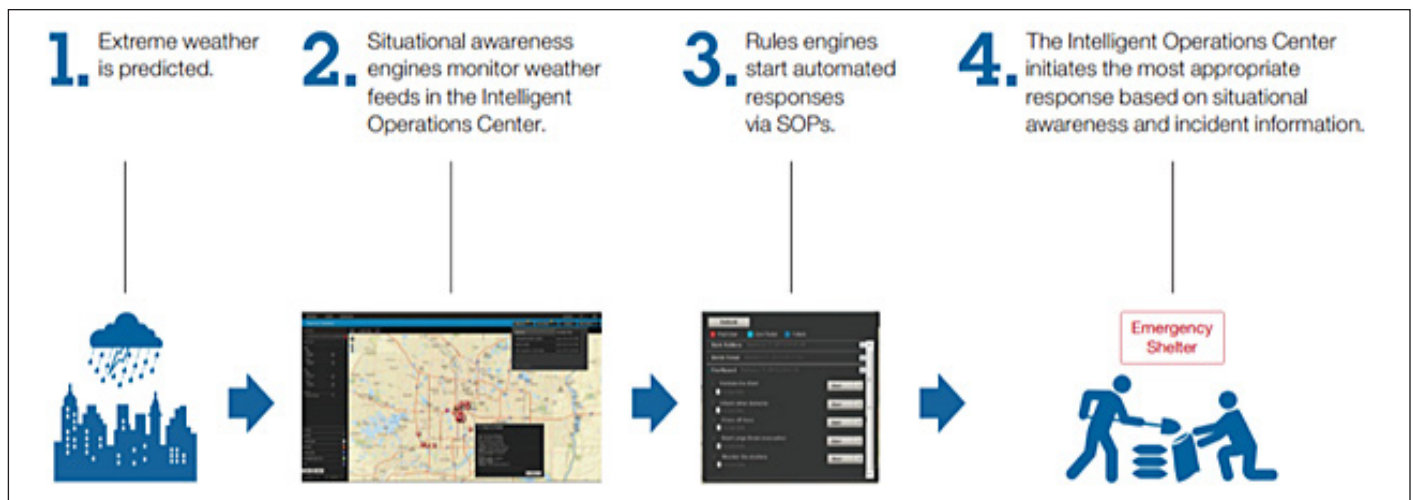
through an orchestration of partnerships, a deployment of advanced technologies and the acceleration of groundbreaking research to find a cure.

Working with Sierra Leone's Open Government Initiative, Cambridge University, Airtel, and Kenya's Echo Mobile, the IBM Research lab in Nairobi developed an SMS/toll-free communications channel to collect and share information and enable the creation of targeted communications. Meanwhile, IBMers around the world took, and continue to take, a leading role in the creation of an Ebola Open Data Repository, which uses IBM SoftLayer® cloud technology to host Ebola-relevant data sets with the aim of providing governments, aid agencies and researchers free and open access to globally contributed data related to the disease. These projects were enabled by an IBM Impact Grant, and facilitated by access to World Community Grid. At the time of the writing of this report, the government of Sierra Leone had leveraged the repository and launched its own Open Data Portal with IBM's help. Also hosted in IBM SoftLayer, Sierra Leone's Open Data Portal has an initial focus on Ebola-related data.

"After taking a proactive and aggressive position in the fight against Ebola, Nigeria was declared free of the disease. Essential to Lagos State's preparedness for future outbreaks is IBM's donation of Connections technology to the Lagos State Government. Our Ebola Operations Center coordinates disease containment efforts across the state, and with Connections we showed how this coordination is critical to our continued ability to manage and respond to new reported cases of Ebola. IBM Connections technology provides our health workers and administrators with a reliable and secure digital platform for collaboration and information sharing — including via mobile devices. This technology will play a key role in enabling us to keep Nigeria Ebola-free."

Dr. Jide Idris, commissioner for health, Lagos State, Nigeria

Nigeria led the region in deploying best practices in the fight against Ebola, and was declared free of the disease. Our donation of IBM Connections technology to Nigeria's Lagos State Government is supporting the country's preparedness against future outbreaks, while IBM's World Community Grid is aggregating donated unused computing power to drive the Scripps Research Institute's computation-intensive search for a cure.

1. Extreme weather is predicted.

2. Situational awareness engines monitor weather feeds in the Intelligent Operations Center.

3. Rules engines start automated responses via SOPs.

4. The Intelligent Operations Center initiates the most appropriate response based on situational awareness and incident information.

Emergency Shelter

Responding to overwhelming devastation

In November 2013, Typhoon Haiyan (also known as Typhoon Yolanda) slammed into the Philippines with record-breaking force. With sustained winds of 195 miles per hour, and 235-mph gusts, Haiyan was — and remains — the strongest storm ever recorded at landfall. In its wake, more than 670,000 Filipinos lost their homes or were displaced, and more than 6,300 lost their lives.

The Philippine government is among the world's most experienced in handling natural disasters, but the scale of Haiyan's extreme weather was too much for even it to manage alone. The government's emergency management efforts saved countless lives by acting quickly to move more than 500,000 people out of the path of the storm. But the surge after the storm destroyed infrastructure across vast areas. With nearly 12 percent of Filipinos directly affected by Haiyan, authorities were hobbled by the storm's after-effects as they sought to gather and act upon data from the field.

"Building on a trusted, long-term relationship between IBM and our national government, IBM acted quickly to mobilize and launch an Impact Grant with two critical solutions: an Intelligent Operations Center for Emergency Management, and an Integrated Communications System. IBM's grant comes with two years of support, including an IBM-led transition team. This 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 Montejo, secretary, Philippine Department of Science and Technology

Information technology can't stop the rain, but the intelligent collection and use of data can help governments and others plan proactively for disasters and mitigate their impact. The Philippine Department of Science and Technology began working with IBM in 2013 to launch an integrated disaster management solution, starting with the IBM Intelligent Operations Center platform for disaster management and augmented with RadioConnect for Sametime technology from UnifiedEdge, and Touch Assisted Command and Control System software from Priority 5 Holdings. This means that the various systems supplying data on extreme weather and emergency management efforts now can be integrated into a dashboard that lets responders analyze the information and deploy the right resources at the right time — keeping the Philippines' lifesaving disaster recovery efforts up and running.

Maintaining partnerships for the long haul

The devastating Great East Japan Earthquake, tsunami, and subsequent Fukushima Dai-ichi nuclear power plant disaster of 2011 may have faded from the headlines, but IBM's commitment to Japan's recovery remains strong. In the immediate aftermath of the crisis, IBM technology helped match aid supplies with demand and was essential to communications and local government management efforts. Four years later, IBM is still on the ground with Teachers TryScience education tools and indoor play initiatives, and support of private markets and food distribution in the workplace. In addition, a 2013 IBM Smarter Cities Challenge engagement in Date helped civic leaders develop strategies to rethink the future of an agricultural industry confronting real and perceived issues of radioactive contamination, and to plan for overall economic sustainability and growth. This work continued through 2014 and is ongoing.

The Nepal earthquake crisis

On April 25, 2015, a devastating earthquake struck Nepal and surrounding areas. As of June 2015, the disaster had killed more than 8,000 people, injured more than 14,000 and affected more than eight million. Subsequent tremors increased the destruction and death and injury tolls even further. Immediately following the initial earthquake, an IBM India team joined Indian government officials in Nepal to assess technical and support needs. The team worked with Indian and Nepalese officials to determine options and immediately implement technology and business process solutions to speed recovery.

The IBMer

At IBM, we understand the importance of hiring, supporting, training and retaining people who share our values. These people work tirelessly to bring about positive change for our clients and our communities. In this section, you will find examples of the ways in which we foster the personal and professional development of our employees.

Supporting IBMers

IBM is a company in continuous transformation. Our employees are willing to challenge their own thinking and reimagine themselves and their company to adapt to the ever-changing world around them.

IBMers start by listening. Then they actively engage. They ask thoughtful questions until they find the deeper need — they go beyond what is requested of them to ask, "What else is possible?" This requires a strong understanding of IBM's foundational, strategic building blocks — even as these building blocks are changing and new ones are being added. Every year IBM human resources (HR) spearheads programs to support our employees as they strive to make IBM the best company they believe it can be. And 2014 was no exception.

Watson Ambassador Program

In 2014 we launched the Watson Ambassador Program to equip everyone in IBM with the knowledge they need to properly tell the Watson story and help convey the Watson vision. Named after IBM's founder T.J. Watson Sr., Watson is a cognitive technology that processes information akin to how people think, representing a major shift in an organization's ability to quickly analyze, understand and respond to big data. Watson's ability to answer complex questions posed in natural language with speed, accuracy and confidence is transforming industries and professions. Thousands of IBMers voluntarily participated in the training course and many became committed Watson Ambassadors.

But it's not just telling the Watson story that matters, it's also important that we put the technology to work for us. Cognitive computing platforms such as Watson are becoming the basis for decision support systems that help HR practitioners make better decisions based on the best available information, whether that be to hire, pair, promote and/or train. In order to exploit these opportunities, IBM HR professionals worldwide

are being trained in the use of data and analytics. Our work-force analytics team takes on an increasing number of projects to determine what distinguishes performance, what makes managers effective and how best to retain key performers.

THINK40 summer learning challenge

In order to continuously build the skills our clients value most, we continued evolving our THINK40 program that supports IBMers as they work toward a common goal of at least 40 hours of professional development every year. In 2014 we invited employees to participate in the IBMer Challenge. More than 90,000 IBMers participated in this summer learning challenge, spending more than 281,000 hours testing their knowledge on topics including cloud, big data analytics, mobile, social and security.

Social business drives results

IBMers are actively embracing social business culture and systems, with 92 percent of employees using our internal social cloud platform to get work done. Since this adoption, IBM has identified advancements in innovation, agility, efficiency, employee engagement and the client experience. In addition, social IBMers have gained an increased sense of belonging, improved workflow and more opportunities for career progression through eminence. The results are measurable and concrete. The company's social inventors, for example, are 120 percent more likely to drive measurable innovation for IBM.

This innovation is evident in the 7,534 patents IBM was granted in 2014, marking the 22nd consecutive year that IBM topped the annual list of US patent recipients and the fourth year in a row that we were awarded more than 6,000 patents. Our security patents alone increased more than 40 percent from 2013 to 2014. More than 8,500 IBMers residing in 46 different US states and 43 countries contributed to this unprecedented patent tally, which now stands at over 80,000 since the streak began.

One example: Jamie García, a research chemist at IBM Research Almaden in San Jose, California, uncovered a brand-new kind of plastic so strong that it's easier to break the flask it was created in than to damage the plastic itself. This new type of thermoset polymer, nicknamed Titan, appears to be the first recyclable, industrial-strength thermoset of its kind and could eventually be used to make recyclable car and airplane parts, and could aid in 3D printing and adhesives.

Encouraging the creativity of IBMers is one way we are raising the bar in a range of critical job roles and helping IBMers to be essential — for our company, our clients and our communities.

Employee well-being

At IBM, we realize there is no greater resource than our people. That's why employee well-being is integrated into every aspect of our 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 and as a member of a larger community.

IBM's culture of health must evolve as our employees do, and so it is essential that we listen for need, envision the future and transform accordingly. Our culture must offer broad access to resources, be supported by trusted advisors, and deliver demonstrable value to our employees' lives. With this in mind

22 years of invention & patent leadership

In 2014, IBM patented more than 7,534 innovations that will position the company to lead in strategic areas such as **cloud computing**, **analytics**, **mobile**, **social** and **security**.

2014

7,534
Total US patents in 2014

More than
8,500
IBM inventors

Click to see the complete infographic

we consider 2014 a landmark year, thanks to our expanded delivery of options for employees and their families, enabling them to make well-being decisions that are transformative for themselves and for IBM.

A new perspective on health promotion

In 2014 IBM viewed health promotion in a new way — by considering both individuals and the world around them. Individuals make personal health decisions, but they live in families and communities made up of populations that share common elements. Some elements are healthy and support the opportunity to thrive, while others do not.

"Population health is no longer a strategy; it is a mandate that has the potential to trigger an epidemic of health and wellness."

David B. Nash, MD, MBA, founding dean of the Jefferson School of Population Health at Thomas Jefferson University and coauthor of the book *Population Health: Creating a Culture of Wellness*.

The result of this new perspective on health is a shift in our health-promotion framework that calls for global direction, measurement and process, with flexibility for local innovation and prioritization. IBM integrates individuals and populations into the design plan for health promotion and benefits, medical resources and safety considerations in order to yield greater value and improved impact.

One example of our focus on population health came with the Ebola outbreak in 2014. The unprecedented nature of the Ebola crisis created many challenges at the population and individual levels, both globally and locally in West Africa. Fortunately, IBM was able to quickly capitalize on its pandemic planning strategy and implemented a social media platform for centralizing global workforce communications, workplace infection control management, travel guidance and hardship considerations for employees in affected communities.

Social tools support US health benefits

In 2014 IBM's US employees had the opportunity to become fully informed consumers of their health care benefits through social tools. IBM's new approach was managed through an IBM Connections community with access to several resources including a video presentation (at right).

Inputs

+ Individual global health assessment & screening

Outputs

+ Cross-border health educations & awareness

+ Targeted support programs (high-tech & high-touch)

+ Healthy worksite environments

Driven by innovative engagement strategies

Country Risk Profile

Lifestyle: Physical inactivity, unhealthy eating, inadequate sleep, tobacco use, alcohol overuse

Well-being: Stress risk scale, weak social connections, financial concerns, lack of purpose, life dissatisfaction

Clinical: BMI, blood pressure, cholesterol, diabetes, depression

Disease Management: Heart disease, diabetes, depression, cancer, chronic back problems

Also included in the community are access to:

- A virtual benefits tool called Alex that provides guidance on the right health plan for employees and covered dependents
- A gateway to telemedicine services that provide a virtual visit with a physician or other medical professional via phone or computer
- A continuation of our incentive strategy that offers rebates for healthy behaviors like physical activity and nutrition education
- Tools such as Castlight, WellMatch and Optum that empower employees with information and transparency to drive greater consumerism
- A platform called CaféWell designed to drive comprehensive health integration and engagement

Wellness Advisor proves successful

In 2013 IBM launched its Wellness Advisor program to help employees overcome challenges in receiving high-quality mental health services, including treatment-decision support and condition management, and to create a less-stigmatized entry point. With the success of the pilot, four additional countries adopted this program in 2014: Austria, Nigeria, Kenya and Egypt. The complete program includes the following services, delivered by telephone:

- Employee assistance program 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
- Virtual learning in the new classroom

Engaging employees where they work through social options is essential in creating a culture of health at IBM. Following the success of the 2013 Virtual Health Fair, a new option for on-demand and live interactive learning about health and

safety topics was created in 2014. This Virtual Learning Environment (VLE) provides employees with round-the-clock access to health and safety webcasts in nine different languages. The inaugural offering on the new platform was a live webcast called "Know Your Numbers," produced by IBM medical staff. Physicians, nurses and health promotion and safety professionals interacted with employees via chat in multiple languages and offered recommendations for healthy lifestyle choices, methods to assess personal health metrics, and user-centered information on essential lab tests and screenings. By year-end, the VLE had more than 2,700 visitors.

German health vouchers extend access

In 2014 IBM launched a health-voucher program in Germany, funded by budget from a labor agreement. After a co-payment of €30, employees receive an additional health budget of €120 from IBM. A total of 2,110 employees signed up for vouchers that can be used at 14 IBM sites. Employees can also choose from a nationwide network of health-promotion providers and work with those most conveniently located.

Support for Union for International Cancer Control

IBM is working to be a strong voice among large employers in disease prevention, early detection and treatment of chronic diseases like cancer, and we endeavor to advance these standards globally. As part of these efforts we proudly support the
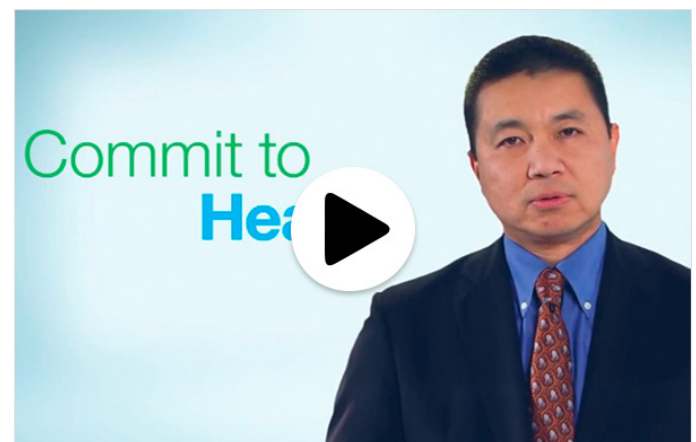
Dr. Rhee talks about IBM's Commit to Health strategy and the value of the tools promoted in 2014.

Union for International Cancer Control (UICC), a global organization representing the international community of cancer care and research focused on prevention and access to care globally. IBM's membership to UICC provides us with access to learning and advocacy for best practices in healthcare approaches and policies established at the most senior levels of the global cancer community. In addition to promoting better disease prevention, early detection and treatment of cancer in IBMers and their families, membership in the UICC also promotes IBM's business and research goals in healthcare and life sciences, areas in which we have deep existing relationships with leading organizations such as MD Anderson Cancer Center, Memorial Sloan Kettering Cancer Center and the New York Genome Center.

Innovations in global support for workplace safety
In order to help address gaps in building safety in the United Kingdom, we initiated in 2014 cross-geography collaboration between India and the United Kingdom via an international assignment. A member of IBM India's safety team joined the UK team for a three-month assignment to help address these gaps. Ten safety reviews were undertaken, with additional support provided for other safety projects.

Well-Being Management System
IBM's Well-Being Management System (WBMS) is the foundational architecture that provides our 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. In 2014 objectives were implemented in various areas, including building design and operations, acquisitions and outsourcing, mental and emotional well-being, learning and clinical services. The desired outcomes are to improve productivity, better manage costs and eliminate unnecessary expenses.

Continued external certification of IBM's WBMS 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.

Additionally, 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.

Awards
- Singapore's Workplace Safety and Health Council named IBM among its Performance Awards 2014 winners at the silver level.
- IBM was recognized by Austria's National Health Insurance for sustainable health promotion activities.
- The Association of Occupational Health Karnataka, in India, recognized IBM for the best scientific presentation.

Employee inclusion

At IBM, diversity is tightly integrated into our business strategy. As we innovate and transform as a company, we are guided by our core corporate values, of which diversity is an essential component. Our leaders strive to continually manage employees in line with our values and beliefs to enable them to develop their full potential. But we don't stop there — we also endeavor to engage governments, communities and other corporations in our efforts.

In 2014, IBM continued to demonstrate leadership in its support of constituent groups. Below are some examples.

LGBT (lesbian, gay, bisexual, transgender) workplace equality
IBM has a long history with 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.

In 2014 IBM was named the world's most LGBT-inclusive company by the Workplace Pride Foundation, based in Amsterdam. This announcement was the result of the Foundation's Global Benchmark survey that scored large international employers for their LGBT workplace inclusion policies and practices around the world.

In addition, for the 12th 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 was also named Global Employer of the Year in Stonewall's Global Equality Index 2014 for the second year in a row.

Advancement of women
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, demonstrating that IBM women do not have to choose between a career and motherhood.

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

As part of IBM's ongoing commitment to advancing women in the workplace, we invest in programs like Building Relationships and Influence for Women, designed for high-potential women leaders with experiential and action-centered learning to help participants develop skills in building, developing and maintaining business relationships and influence. In 2014 we launched a new leadership offering for mid-level women called "Creating Your Leadership Journey." The content for this

IBM's Claudia Brind-Woody, vice president and managing director, intellectual property and advanced technology licensing, discusses the work IBM has done over the past year in engaging with LGBT work globally.

course is based on the three themes that emerged from our recent Advancing Women at IBM study:

- Be visible
- Plan your career
- Integrate work and life

Our continued focus on building IBM's technical women leaders prompted Technologistas, a social media campaign that showcases many of IBM's talented innovators as role models in the industry.

People with disabilities

The 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. Through a training module and a recruitment guide, IBM helps 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 2014, we developed a learning framework for our employees with disabilities to ensure equal access to technical and leadership development opportunities.

Leadership in work-life flexibility

IBM is committed to creating 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 that can be adapted by each country as needed, based on legislation, local custom and other factors:

- The enterprise does not stop — Somewhere in the world, IBMers are working on solutions for our clients.
- Balancing needs — We provide flexibility to our employees while balancing the needs of our clients, our business and our teams' effectiveness.
- Trust and personal responsibility — Managers and employees are trusted to make decisions and demonstrate personal responsibility to ensure business commitments are met.
- Range of options — Flexible work options can be employee- or management-initiated and approved based upon the needs of the business, clients or individuals.
- Understanding differences — 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.
- Focus on results — We set goals and measure performance with an eye toward providing an outstanding experience for IBM clients and employees.

Cultural adaptability

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.

Every year IBM sponsors an annual Cultural Adaptability Awareness Week to increase the cultural adaptability of the entire organization — from the most senior executive to recent hires. The focus of the 2014 Cultural Adaptability Awareness Week was to encourage IBMers to explore, educate and share their expertise with others. Even beyond the designated week, IBM shared the programs, activities, resources and individual insights to help each other cultivate deeper cultural knowledge.

We asked all employees to join the Global IBMers Community hosted on our internal website and spend time participating in activities to broaden their understanding of cross-cultural collaboration — helping to improve the way we do business across borders. Some highlighted activities during this week were:

- **The Amazing Global Race** — a contest that gives participants an opportunity to learn and test their knowledge about other cultures
- **Postcard contest** — Global IBMers sent pictures from their worksite and highlighted specific events from their culture
- **Cultural webcast series** — focused on more than 11 countries
- **Language enrichment** — to learn a new language or become more proficient in one

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 45 countries supporting 14 different constituencies or focus areas:

- Asian
- Black
- Cross-generational
- Hispanics
- LGBT

- Men
- Multicultural women
- Natives
- New hires
- People with disabilities
- Veterans
- Women
- Work-life integration

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

Leadership development

IBM believes that leadership is for everyone, and so we are continuously transforming programs to meet changing business needs, skillset requirements and leadership philosophies.

We focus on creating signature experiences for team members, who in turn create signature experiences for clients, which speaks to IBMers' aspirations to have a purpose and be essential every day.

In 2014 IBM launched new programs and enhanced existing ones to support our leadership development goals. Below are some examples.

Faculty Academy

IBM launched the Faculty Academy to advance the culture and practice of leader-led employee development. The academy's mission is to identify, prepare and support distinguished leaders worldwide to act as faculty, delivering development programs for new executives, managers and sellers. The faculty is made up of non-executive and executive IBM leaders, including senior executives, who also have the opportunity to serve as Faculty Academy program sponsors. These sponsors offer input on the selection and appointment of faculty leaders and mentorship efforts, and are responsible for the oversight of program effectiveness.

To date, 630 IBM leaders from 44 countries have served as faculty, sharing their personal business experience, stimulating informed discussion, and giving invaluable feedback to more than 5,000 IBMers enrolled in the development offerings. Faculty consistently describe the academy experience as transformative for their own management and communication style. They also give the program high marks for the opportunity to interact with a wide cross-section of IBMers.

IBM Manager Journey

The role of the manager is constantly evolving at IBM. And so in 2014 we began placing new focus on the manager journey with programs designed to help our managers be better equipped and more celebrated than ever.

The Manager Journey program is designed to energize all levels of leadership with formal, transition-focused programs for different manager roles, complemented by continuous, informal learning programs. The goal of each program is to provide learners with a signature experience in a face-to-face or virtual classroom setting.

Enabling new first-line managers right out of the gate is an important design point in the creation of the Manager Journey, as they play a critical role in ensuring that employees understand the purpose of their jobs. Within 30 days of their appointment, first-line managers are invited to Management Development (MD) 101, a virtual, self-paced learning experience consisting of eight 20-minute modules on important topics including compensation, diversity and inclusion, recruiting, and performance management. MD 101 incorporates video-rich content, guidebooks and personalized spaces to record notes and ideas. There is also a two-hour module with an experienced human resources partner and a management development facilitator to give managers an opportunity to engage with each other and learn how to handle complex scenarios they may face.

MD 102 brings to life the role of the first-line manager with a face-to-face learning experience designed to cover the course of a year in three days. This is for managers who have been in the role for at least six months. The program focuses on what it means to be an essential first-line manager, from exploring the IBM strategy to practicing how to create signature moments of impact — such as a great first day for a new hire — or how to help employees seize a challenge.

Rounding out the first-line manager learning program suite, MD 103 targets experienced first-line managers, or managers who have been in the role for more than 18 months. MD 103 is a virtual experience that includes a two-hour virtual learning element with an experienced manager and a management development facilitator. Learners conduct a 360-degree feedback survey to gather input from people they lead, people they work with, and their managers, as well as themselves. The learner then receives the 360-degree feedback from a dynamic website that describes input from various survey participants and how it differs from their own assessments. The learner can then create a learning plan based on recommended actions and programs to help them in their development journey.

Up-line managers play a crucial role and have a fantastic opportunity to rally first-line managers to lead in new ways. Ensuring first-line managers are as engaged as possible while managing direct reports and juggling work responsibilities and deadlines can be challenging. Here is where IBM up-line managers play the role of change agents — MD 201 aims to transform them to be the best change agents they can be.

This signature program takes new up-line managers through a two-day, face-to-face interactive and practical learning experience that brings the IBM strategy to life. Up-line managers learn how to embody the nine IBM Practices, "show up" for IBMers and clients each day and continuously invigorate an innovative and essential culture that is IBM. They walk away from MD 201 with clear action plans that incorporate how they can work more effectively through IBM's enterprise social network, IBM Connections.

IBM's continuous, informal learning programs include Management Development Modules (MDMs) and the MD series. MDMs are turn-key solutions that provide guidance on topics including how to better coach, give and receive feedback, and lead an engaged team. There are also a handful of MDMs focused on training managers in the performance management process. In a similar vein, and even more informal, the MD series includes one-hour virtual learning sessions featuring a subject-matter expert and/or a manager champion (one of the top 50 managers at IBM). Both of these continuous-learning offerings provide guidance to IBMers on how to engage in the cultural transformation through more clearly communicated, iterative and transparent feedback, work and decisions.

Growth and Transformation Team

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 Growth and Transformation Team (G&TT). G&TT develops recommendations to solve enterprise challenges and consists of approximately 300 IBM executives appointed by the chairman and her direct reports annually. Members of G&TT transcend their individual roles and work as a team to integrate, grow and transform IBM based on our values.

Every year, a small group of G&TT members are selected to serve on the initiative team. The G&TT initiative team addresses a critical, enterprise-wide business challenge set by the CEO. Team members spend four to five months working on the topic and have an ongoing dialogue with SVP champions, Operating Team executives and the CEO as they develop a set of recommendations.

In 2014 the 11th initiative (the first under the G&TT banner) challenged the team to create an agile IBM. Driven by the need for speed, the team used design thinking and agile practices as the basis for experimentation. G&TT 1 designed experiments, tested them, learned and iterated fast, acting 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.

Their experiments identified opportunities to streamline processes and remove barriers to creativity and innovation. They focused on clarity of purpose and outcomes and enabled a creative environment that allowed for frequent feedback, empowerment and leadership at all levels. With the launch of eight experiments across three geographies, the group started a movement that produced the Agile Toolkit and the IBM Agile Academy.

Awards

- IBM was named No.1 in North America and No. 2 globally among Aon Hewitt Top Companies for Leaders.
- The Hay Group named IBM No. 4 among its 2014 Best Companies for Leadership.
- Chief Executive Magazine named IBM No. 2 among its 2015 Best Companies for Leaders.

Environment

While IBM's business continues to transform, our longstanding commitment to environmental protection remains constant across all of our business activities worldwide.

In this section, you will find information on our environmental programs, our performance for the 2014 reporting year and a sampling of client solutions for environmental sustainability.

Commitment to environmental leadership

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

The phenomena of big data, cloud computing, and social and mobile technologies are changing business, society and the way the world works. At IBM, we are intent on enabling this transformation by providing technology, research and expertise to address grand environmental and sustainability challenges for our clients and the world. In doing so, we are building on a long history of protecting the environment.

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 years, that policy and the wide range of environmental programs supporting it have defined and driven IBM's longstanding commitment to environmental leadership in all of our business activities.

As a company, we recognize the far-reaching impact we can make across all aspects of the environment — from conserving energy and natural resources and pollution prevention, to the environmentally responsible development and manufacturing processes we use in our operations, to products and solutions we provide our clients.

- Since 1990, IBM's conservation actions have saved 6.8 million megawatt-hours (MWh) of electricity consumption, avoided 4.2 million metric tons of carbon dioxide (CO_2) emissions and saved the company $550 million.
- IBM has a 40-plus-year history of leadership in prohibiting or restricting substances of concern from our processes and products before regulatory requirements were imposed.

- From 1995 through the end of 2014, IBM documented the collection and processing of approximately 2.1 billion pounds of product and product waste worldwide.
- Our solutions are providing clients with unprecedented views of their data, improving decision-making, allocation of resources and overall operational efficiency to build a more sustainable planet.

This report marks a quarter century of our annual, voluntary corporate environmental reporting. Our business has changed over the decades and will continue to transform, but IBM's commitment to environmental leadership will not.

Global governance and management system

IBM implements its environmental programs through a global environmental management system that integrates corporate directives that govern IBM's conduct and operations worldwide.

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 protective standards for the environment in every country where business is conducted.

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 specific detail 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 businesses functions 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 to ensure the ongoing suitability, adequacy and effectiveness of IBM's single global EMS for IBM's activities, products and services. Formed in 1993, the Directors and Corporate Governance Committee reviews IBM's position and practices on significant issues of corporate public responsibility, including protection of the environment.

Environmental goals

Environmental goals are an important part of IBM's EMS. We maintain a range of environmental goals designed to drive continual improvement of our environmental programs — including climate protection, energy and water conservation, pollution prevention, waste management and product stewardship. These voluntary goals and our performance against them are discussed in their respective sections of this report, and a summary of key goals and their outcomes are provided in the listing of IBM's environmental key performance indicators.

ISO 14001:2004 standard on environmental management systems

In 1997, IBM became the first major company to earn a single global registration to the International Organization for Standardization (ISO) 14001 environmental management systems standard. We achieved this credential within just one year of the finalization of the standard, in part due to the results already delivered under our environmental policy, first issued in 1971, and the early implementation of our environmental management programs.

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 additional entities such as our research locations that use chemicals, several country organizations and their non-manufacturing locations, our product development function, as well as our Global Asset Recovery Services and supply chain organizations.

As our business model has evolved to include more services offerings, we have updated our EMS to address environmental opportunities and challenges in the services area. IBM's single global ISO 14001 EMS accreditation with a complete list of registered entities worldwide can be viewed on IBM's ISO 14001 webpage.

ISO 50001:2011 standard on energy management systems

IBM has always been committed to the efficient use of energy, and our CEO issued a formal corporate policy in 1974, calling for the conservation of energy and materials in all of IBM's activities. Over the intervening years, we improved our global energy management program and integrated it into the company's global EMS.

Once ISO issued 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 the ISO standard, we achieved ISO 50001 registration of our energy management program at the corporate level 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.

Following our successful ISO 50001 EMS registration at the corporate level, IBM's major energy-consuming locations received registration audits of their site-specific energy programs under IBM's single global ISO 50001 certification.

As of year-end 2014, 15 locations — 10 in the United States and one each in Canada, France, Hungary, Ireland and Mexico — had successfully concluded their ISO 50001 registration audits.

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 25th consecutive year of annual corporate environmental reporting.

In addition to providing information on our environmental programs and performance in this report since 2002, and in IBM's annual corporate environmental report, which we have been publishing annually since 1990, we provide a report based on the Global Reporting Initiative and supply information through a number of other voluntary reporting programs and tools, such as the Carbon Disclosure Project, EcoVadis and OneReport. 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 to engage 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 also has ongoing dialogues with many stakeholders. Engaged stakeholders include socially responsible investors and other shareholders, environmental nongovernmental organizations (eNGOs), governments, employees, clients, suppliers and others. 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.

Some examples of engagements in 2014 included:

- We met with a leading bank in Europe and participated in their sustainability summit, explaining IBM's practices and discussing possible collaborative initiatives with the client.

- We met with a group of stockholders and clarified IBM's practices and programs for the recycling of lead-acid batteries worldwide.

- We met with several leading universities and participated in several of their events to explore the impact of big data on sustainability.

In addition, IBM Stockholder Relations holds an annual call and webcast for financial analysts, in which executives from a range of IBM organizations are available to discuss all aspects of our corporate responsibility programs and performance.

Another example of 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 governments and eNGOs over the years.

Some current governmental examples include the US Environmental Protection Agency's (EPA) ENERGY STAR and SmartWay 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, 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 and the World Environment Center.

In addition, we partner with other companies and institutions to foster solutions for environmental sustainability:

- GridWise Alliance — 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 Nature Conservancy — IBM has continued its collaboration and partnership with the Nature Conservancy (TNC) in several ways. Ten IBMers participated in our pro bono Corporate Service Corps program and spent one month in Belém, Brazil, helping TNC further develop a land

management tool it created to help landowners comply with Brazil's forest code. IBM also participates in the Latin American Conservation Council, which works with TNC to develop strategies for the design and implementation of projects aimed at addressing water security, sustainable food security and smart infrastructure in Latin America.

- Eco-Patent Commons — Together with Nokia, Pitney Bowes, Sony and the World Business Council for Sustainable Development, IBM launched the Eco-Patent Commons in January 2008. The Eco-Patent Commons provides a unique opportunity for business to share innovation that can foster sustainable development through an online collection of environmentally beneficial patents pledged by the member companies for free use by anyone. Since its launch, 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.

Environmental investment and return

Over the past five years, IBM has spent $80.7 million in capital and $463.6 million in operating expense to build, maintain and upgrade the infrastructure for environmental protection at its plants and labs, and to manage its worldwide environmental programs.

Environmental capital and expense worldwide

($ in millions)

	2010	2011	2012	2013	2014
Capital	$15.1	$18.4	$9.9	$17.0	$20.3
Expense	$90.6	$96.1*	$98.2	$92.3	$86.4
Total	**$105.7**	**$114.5**	**$108.1**	**$109.3**	**$106.7**

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.

$121.1M

IBM's environmental savings and cost avoidance worldwide in 2014 was an estimated $121.1M.

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, IBM expanded its 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 2014, total environmental expenses associated with IBM's operations were $106.7 million.

IBM also estimates savings it has realized from its policy of environmental leadership. These include savings from energy, material and water conservation; recycling; packaging improvement initiatives; reductions in chemical use and waste; and process improvements from pollution prevention. Ongoing savings from previous years' initiatives are not carried over in this calculation, yielding very conservative estimates.

In addition, IBM realizes avoidance of costs that likely would occur in the absence of its 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 2014 IBM's combined, estimated environmental savings and cost avoidance worldwide totaled $121.1 million.

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

2014 environmental expenses worldwide

($ in millions)

Personnel	38.3
Superfund and former IBM site remediation	12.4
Surface water and wastewater management operations	8.6
Waste treatment and disposal	6.4
Waste and materials recycling	3.9
Consultant and legal fees	3.0
Laboratory fees	2.3
Groundwater protection operations	1.2
Permit fees	0.8
Product takeback and recycling costs	0.6
Air emission control operations	0.2
Other environmental operations	8.7
Total	**86.4**

2014 estimated environmental savings and cost avoidance worldwide

($ in millions)

Energy conservation and cost avoidance	56.2
Location pollution prevention operations*	28.4
Compliance cost efficiency**	17.3
Corporate operations*	7.0
Spill remediation cost avoidance***	4.9
Potential fines, penalty and litigation avoidance****	4.3
Packaging improvements	2.0
Superfund and site remediation efficiencies	0.8
Environmentally preferable materials usage	0.2
Total	**121.1**

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

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

*** *These savings are estimated considering IBM's actual experience with remediation costs.*

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

Chairman's Environmental Award program

For nearly 25 years, the Chairman's Environmental Award has promoted the contributions of IBM's business units toward the objectives of IBM's Corporate Policy on Environmental Affairs. Recipients of the Chairman's Environmental Award are selected based on their degree of leadership, initiative and results in contributing to IBM's environmental policy objectives. Performance against these criteria is evaluated against each nominee's opportunity to contribute given its mission and operations.

IBM's Global Asset Recovery Services (GARS) organization received the 2014 Chairman's Environmental Award. GARS is the line of business within IBM Global Financing that is responsible for remarketing pre-owned and end-of-lease IBM system assets externally, reutilizing and redeploying assets internally, and providing an environmentally responsible product end-of-life management structure for the disposal of scrap IT equipment. GARS is uniquely positioned to help clients in the areas of equipment buyback and disposal as they upgrade their own IT infrastructure or move to one of IBM's cloud solutions.

IBM Chairman, President and CEO Ginni Rometty presents the 2014 IBM Chairman's Environmental Award to Martin Schroeter, senior vice president and chief financial officer, in recognition of IBM's Global Asset Recovery Services organization.

Highlights from their operations in the three years covered by the Chairman's Environmental Award nomination included:

- Sent 2.4 million assets for refurbishment, with more than 90 percent resold or reused

- Generated significant revenue and savings for IBM clients from reuse of 1,293 IBM System z® and IBM Power Systems™ equipment through a technology exchange program

- Enabled energy savings for IBM and its clients by replacing and consolidating older technology hardware with more energy-efficient refurbished assets

- Achieved excellent waste minimization and pollution prevention results: less than 0.7 percent of materials sent for de-manufacturing and scrap was landfilled or incinerated despite increased activities in countries with underdeveloped recycling infrastructure

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. IBM's chairman presents the award to an executive from the recipient business unit at a gathering of IBM senior executives from all business units.

Energy conservation and climate protection

IBM recognizes climate change is 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 and the economy, as well as governments worldwide, must participate to address 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 (CO_2)-emitting and renewable sources where it makes both business and environmental sense
3. Minimizing the use and emissions of GHGs in semiconductor manufacturing, including perfluorocompounds (PFCs, a family of GHGs) and other GHGs
4. Requiring our suppliers to maintain an environmental management system that 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 and providing clients with energy-efficient offerings 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 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 merely offsetting them.

Conserving energy

IBM formalized its energy conservation and management program in 1974 and has continued it unabated ever since. Energy conservation is a major component of our comprehensive, multifaceted climate protection program because the release of CO_2 by utility companies powering our facilities, or from our use of fuel for heating or cooling, represents the greatest potential climate impact associated with our operations.

In 2014, IBM's energy conservation projects across the company delivered annual savings equal to 6.7 percent of our total energy use, versus the corporate goal of 3.5 percent. These projects saved and avoided the consumption of 325,500 megawatt-hours (MWh) of electricity and 267,200 million British thermal units (MMBtu) of fuel oil and natural gas, and an associated 142,000 metric tons of CO_2 emissions. The conservation projects also saved $37.4 million in energy expense, an increase of $1.6 million over 2013 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.

6.7%

In 2014, IBM's energy conservation projects delivered annual savings equal to 6.7 percent of its total energy use — surpassing our goal of 3.5 percent.

6.8M

From 1990 through 2014, IBM conserved 6.8 million MWh of electricity, avoiding 4.2 million metric tons of CO_2 emissions and saving $550 million.

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 cited above are conservative in that they include only the first year's savings from the projects. Ongoing conservation savings beyond the first year are not included in the results. Accordingly, the total energy savings and CO_2 emissions avoidance from these conservation actions is actually greater than this simple summation of the annual results.

Electricity and fuel use and related CO_2 emissions

Scope 1 and Scope 2 CO_2 emissions

		CO_2 emissions (estimated) metric tons x 1,000	
	Electricity and fuel use (1,000 MMBtu)	Calculated with grid emissions factors	Reduced by the CO_2 avoided by renewable electricity purchases
2014	20,842	2,092	1,842
2013	21,190	2,186	1,962
2012	21,613	2,404	2,195
2011	21,758	2,397	2,182
2010	21,622	2,426	2,156

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 CO_2 emissions.

Between 1990 and 2014, IBM saved 6.8 million MWh of electricity consumption, avoided 4.2 million metric tons of CO_2 emissions (equal to 61 percent of the company's 1990 global CO_2 emissions), and saved $550 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.

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 identifica-

tion of opportunities for improvement. The continuous review of energy use and conservation performance has driven the strong results noted above.

More than 2,200 energy conservation projects involving a full range of energy efficiency initiatives delivered savings by 341 IBM locations globally in 2014. Examples include:

- Projects to match building lighting and occupancy schedules or install more efficient lighting systems were implemented at 181 locations, reducing electricity use by 9,800 MWh while saving $1.4 million.

- HVAC systems or operating schedules were modified at 155 locations, reducing 36,100 MWh of electricity use and 97,800 MMBtu of fuel use, saving $4.4 million.

- Central utility plant projects were implemented at 72 locations, reducing 33,600 MWh of electricity and 103,200 MMBtu of fuel use, saving $5.1 million.

- More than 200 manufacturing energy efficiency projects — including fab tool consolidation, idling test tools when not in use, optimization of manufacturing temperature and humidity settings, and data center efficiency improvements — were implemented, saving 53,200 MWh of electricity, 37,700 MMBtu of fuel and $4.8 million.

- Data center cooling and server and storage virtualization and consolidation projects saved over 160,000 MWh of electricity consumption and $17.5 million.

Applying analytics to drive further efficiencies

IBM's TRIRIGA Real Estate Environmental Sustainability Manager (TREES) is being deployed in IBM facilities to increase energy efficiency.

The TREES solution is an IBM-designed software product that integrates existing controls infrastructure across a location, collecting data on an hourly basis and analyzing it for anomalies. It has been deployed at 28 locations around the

globe, representing over one-third of IBM's building space. There are 74 basic operating rules in the TREES solution focused on the air conditioning systems, small chilled-water systems, air compressors, boilers and heat exchangers. New rules can be proposed and adopted by users based on operating experience, driving advances in the system's capabilities. Identified problems include equipment operating outside scheduled hours or running at full design speed because of broken components and incorrectly configured control logic.

IBM has sustained an average of 10 percent reduction in energy use annually since 2011 for the buildings and systems monitored and managed by the TREES solution. In 2014, the 28 connected sites achieved energy savings of 30,500 MWh and $1.6 million. Since the start of the program in 2011, total energy savings of 78,700 MWh ($4 million) have been realized.

IBM also has installed chiller optimization software (COS) at eight locations. COS enables integration of chiller units and free cooling systems using a rules-based approach to optimize the overall efficiency of cooling delivery considering the efficiency characteristics of the individual units and the availability of free cooling. By balancing the operation of all the system components under the rules, cooling delivery is maximized while energy use is minimized. IBM saved 6,800 MWh of energy ($0.7 million) in 2014 and has realized annualized savings of 42,500 MWh (more than $4 million) at the eight locations since deployment began in 2011.

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 hardware and software development operations including design and test centers.

$3.6M

Nearly 290 energy conservation projects at more than 120 existing data center locations reduced energy use by almost 28,000 MWh in 2014, saving $3.6 million.

We take a holistic approach to managing our data centers — building new, high-efficiency data center space where needed to meet the needs of existing and new clients, and retrofitting and improving existing data center space to increase utilization and derive more workload per area, equipment and energy resources.

In 2014, we completed nearly 290 projects at more than 120 existing data center locations. These projects reduced energy use by almost 28,000 MWh, and saved more than $3.6 million. This energy savings is equivalent to the total annual energy use of 2,500 homes in the United States. IBM took the following actions in 2014 to achieve these energy reductions:

- Installed Measurement Management Technology (MMT), which monitors and controls the thermal profile of the data center. In additional data centers, MMT is now used in systems representing more than 60 percent of IBM's data center electricity use.
- Installed thousands of blanking panels and cable cutout plugs, reducing the short-circuiting of cooling air in the data center.
- Increased the average raised-floor temperature by 0.4ºC in 2014 and 2.0ºC for the period 2011-14, with work continuing to further raise temperatures toward an average of 24ºC.
- Shut down over 120 computer room air conditioning (CRAC) units. Overall, IBM has shut down more than 33 percent of the total installed CRAC units from 2010 to 2014, reducing the energy required to cool the data center and improving the average power usage effectiveness (PUE).

45

IBM data centers in 19 countries have received "Participant" status in energy efficiency, based on the EU Code of Conduct.

Data center power usage performance

IBM measures or uses estimating protocols to determine the PUE of the data centers we manage. These data centers include more recently constructed Leadership Data Centers as well as large existing data centers. The average PUE for IBM's raised-floor space is 1.71, a slight improvement over our 2013 average of 1.73. The average PUE is based on data collected from data centers representing over 69 percent of IBM strategic outsourcing and resiliency services raised-floor space and is calculated by aggregating monthly IT and total power consumption for the 12 months of 2014.

Because the majority of the data centers in IBM's 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 meet operational objectives and commitments to clients.

The overall performance of IBM data centers compares favorably with the average PUE of 1.7 as reported in the Uptime Institute 2014 Data Center Industry Survey of 1,000 data center users predominately located in North America, and with an average PUE of 2.0 as reported by a February 2014 Forrester Consulting Survey commissioned by Digital Realty Trust. IBM has made — and will continue to make — significant investments 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. Over the last three years we registered an additional 18 data centers, bringing the total number of data centers participating in this program to 45 in 19 countries. The 45 registered data centers represent the largest portfolio 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 resiliency services 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's leadership data center in Boulder, Colorado, has been certified as a US Environmental Protection Agency (EPA) ENERGY STAR data center. The ENERGY STAR certification recognizes that the Boulder Leadership Data Center performs in the top 25 percent of similar facilities nationwide for energy efficiency and meets strict energy efficiency performance levels set by the EPA.

IBM data center and IT system professionals continue to be involved in governmental and industry data center energy efficiency initiatives, including the EU CoC for Energy Efficiency in Data Centres program, ENERGY STAR and the Green Grid. 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 without compromising the objectives of mission-critical operations of their data centers.

System virtualization and cloud computing

Virtualizing server and storage systems allows individual systems 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 continues to virtualize and consolidate workloads from multiple servers and storage systems with low utilization onto single systems, reducing energy use and expense. In 2014, IBM virtualized more than 30,000 applications in our owned and leased data centers, avoiding almost 135,000 MWh and $14 million. Implementation of server and storage virtualization across client accounts and IBM's internal operations has been a key contributor in reducing the overall electricity consumption by our data centers over the past three years.

IBM continues to expand its cloud computing offerings. SoftLayer, an IBM company, now operates 24 data center locations in 18 cities worldwide, and IBM's Cloud Managed Services operates from 13 data centers in 12 countries. Cloud computing is an efficient model for providing IT services that optimize hardware utilization and virtualization technologies across the server, storage and network infrastructure.

Renewable energy

In 2014, IBM contracted with its utility suppliers to purchase 683,000 MWh 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 683,000 MWh represented 14.2 percent of our global electricity consumption and resulted in the avoidance of 250,000 metric tons of CO_2 emissions.

IBM's renewable energy purchases increased by 17.9 percent from 2013 to 2014. The increase was achieved through the addition of 17,325 MWh of wind- and biomass-generated electricity in Ireland, 43,810 MWh of wind-generated electricity for three cloud data centers in Texas, and increased purchases of renewable energy in Germany, Italy, Spain and Switzerland. In addition, approximately 5 percent of IBM's electricity purchases from the grid were generated from renewable sources — bringing our total renewable energy purchases to approximately 19 percent of our consumption in 2014.

14.2%

Renewable energy represented 14.2 percent of IBM's global electricity purchases in 2014, or 683,000 MWh.

IBM continued to contract for defined renewable energy purchases above and beyond the renewable electricity supplied as part of the grid mix in Australia, Austria, Belgium, Denmark, Finland, Germany, Ireland, Italy, Japan, Netherlands, Spain, Sweden, Switzerland, the United Kingdom and the United States in 2014. In addition, three on-site solar photovoltaic systems with capacities of 780, 50 and 40 megawatts, respectively, generate electricity for our consumption at the following IBM locations: Littleton, Massachusetts; Zurich, Switzerland; and New Delhi, India. We also have a 480-megawatt geothermal heating/cooling system at IBM Zurich. As the result of these purchases and systems, approximately 33 percent of IBM's locations with data centers, IT and product development labs, and 28 percent of our cloud data centers, currently source some or all of their electricity from renewable-generation sources.

We procure renewable electricity generated from wind, large and small hydro, biomass, and solar installations around the globe. We report all of our contracted renewable electricity purchases — be they from new, "additional" or existing generation sources, and without discriminating large hydro installations — and the associated CO_2 avoidance. 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 reliable in providing uninterrupted power for our critical operations. IBM's strategy of contracting for defined renewable

20%

IBM's goal is to procure 20 percent of its electricity from renewable sources by 2020.

energy has been most 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 choke points in the electricity transmission system; and by international treaties and national, state and local regulatory and legislative requirements. Continued advances are needed in renewable electricity generation, distribution and storage technologies, and in contracting and delivery mechanisms to increase the availability of economically viable renewable electricity in the marketplace, and to supply that 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 co-generation or tri-generation systems on an individual location basis. Three facilities in Europe have co-generation/tri-generation systems that provide 10-20 percent of facility electricity use, as well as heating and cooling, to support building operations.

In December 2014, IBM commissioned a one-megawatt fuel cell to provide electricity to IBM's data center in Connecticut. The system is delivering more than 8.5 million kWh per year, beginning in 2015. The fuel cell will reduce IBM's expenses for the electricity it purchases while lowering the associated CO_2 emissions by over 600 metric tons per year.

New renewable electricity procurement goal

In February 2015, IBM established a new goal to procure electricity from renewable sources for 20 percent of IBM's annual electricity consumption by 2020.

To achieve this goal, IBM plans to contract for over 800,000 MWh per year of renewable electricity — an amount that can power a city of 100,000 people. IBM works with its electricity providers to directly procure renewable electricity to supply IBM's facilities, making a clear connection by matching purchases to consumption, as opposed to purchasing renewable energy certificates as offsets.

Research and solutions to advance the use of renewable energy

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

- Watt-sun solar management program — IBM research has developed a solar forecasting platform that continually gathers data from a wide range of sources — from existing models to satellite views to cloud cover imagery captured by cameras lashed to poles — to predict the output of photovoltaic solar panels. The Watt-sun program has been tested at about a dozen solar sites in the United States, demonstrating that its predictions are 35 percent better than comparable tools. The program can help power companies manage the intermittent nature of photovoltaic generation and more effectively integrate solar generation systems into their supply grids.

- Solar concentrator — IBM Research has partnered with Airlight Energy, a Swiss-based supplier of solar power technology, to bring affordable solar technology to the market by 2017. Each system can concentrate the sun's radiation 2,000 times and convert 80 percent of it into useful energy to generate 12 kilowatts of electrical power and 20 kilowatts of heat on a sunny day — enough to power several average homes.

- Spray-on solar cells — Researchers with the Department of Electrical and Computer Engineering at the University of Toronto and IBM Canada's Research and Development Centre have invented a new way to spray solar cells onto flexible surfaces using minuscule light-sensitive materials known as colloidal quantum dots (CQDs). The invention is considered a major step toward making spray-on solar cells easy and inexpensive to manufacture.

Operational CO_2 emissions management

IBM's operational CO_2 emissions, those associated with IBM's use of fuel and electricity at its locations, were reduced 6.1 percent from 2013 to 2014. There were four main factors that drove this reduction:

- IBM's energy conservation efforts drove year-over-year reductions in our electricity use for the third year in a row. Electricity use was reduced by 1.9 percent from 2013 to 2014, resulting in a decrease of associated CO_2 emissions of 1.8 percent.
- The average CO_2 emissions factors associated with our grid-supplied electricity were reduced by 0.01 metric tons of CO_2 per MWh as a result of a change in the mix of generation sources supplying our locations. These changes contributed to a reduction of approximately 2.6 percent in our operational CO_2 emissions.
- A reduction in our fuel use of 36,000 MMBtu resulted in a 0.3 percent decrease in our CO_2 emissions.

The shift to greater use of renewable electricity during 2014, discussed above, resulted in a 1.4 percent reduction in our CO_2 emissions.

New third-generation CO_2 emissions reduction goal

IBM has aggressively reduced GHG emissions since 1990 and has had an annual worldwide energy conservation goal since 1996.

6.1%

IBM's operational CO_2 emissions associated with the use of fuel and electricity at our locations was reduced by 6.1 percent from 2013 to 2014.

35%

IBM's third-generation CO_2 reduction goal is to reduce emissions by 35 percent below 2005 levels by 2020.

From 1990 to 2005, IBM's conservation actions helped us avoid three million metric tons of CO_2 emissions — an amount equal to 40 percent of its 1990 emissions. We then exceeded our second-generation CO_2 emissions reduction goal to reduce operational CO_2 emissions by 12 percent from 2005 to 2012, achieving a further reduction in CO_2 emissions of 15.7 percent. Building on this accomplishment, IBM established a third-generation CO_2 reduction goal in February 2015 to reduce CO_2 emissions associated with our energy consumption 35 percent by year-end 2020 against a base year of 2005, adjusted for acquisitions and divestitures. This represents an additional 20 percent reduction, from year-end 2012 to year-end 2020, over the reductions achieved from 2005 to 2012 under IBM's second-generation goal.

IBM plans to achieve this new goal through continued focus on energy conservation and a shift to greater use of renewable electricity. With ongoing efforts, IBM's 2014 CO_2 emissions were already more than 25 percent below the 2005 baseline.

IBM's new CO_2 emissions reduction and renewable electricity procurement goals were recognized during a White House Executive Roundtable on Federal Supplier GHG Reduction in March 2015.

10.8%

IBM's PFC emissions were reduced by 10.8 percent between 2010 and 2014.

PFC emissions management

IBM releases some perfluorocompounds (PFCs) from our semiconductor manufacturing operations. PFC emissions represented approximately 10 percent of IBM's Scope 1 and 2 emissions during 2014. 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 of 25 percent by 2010 against a base year of 1995. We exceeded that 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. In 2014, our PFC emissions were approximately 215,900 metric tons of carbon dioxide equivalents (CO_2e), a reduction of 10.8 percent from 2010. Our reported emissions increased by 11.1 percent from 2013 to 2014 as a result of using revised emissions factors required by the US EPA for estimating emissions associated with semiconductor manufacturing processes. In 2014, IBM's semiconductor manufacturing plant in Vermont continued to convert from hexafluoroethane (C_2F_6) to octafluorocyclobutane (C_4F_8) on selected chamber cleaning processes, reducing the CO_2 emissions associated with chamber clean operations by 40 percent. Because C4F8 has a much higher utilization rate and much lower global warming potential than C_2F_6, it significantly reduced the GHG emissions from the process. In addition, IBM's manufacturing facility in New York continues to abate PFC emissions associated with its semiconductor operations, minimizing the emissions from that facility.

Overall CO_2 emissions inventory

IBM tracks and manages Scope 1 and 2 emissions across its operations from data center, semiconductor research and manufacturing, hardware development and assembly, and office operations. As discussed in the previous sections, IBM executes a range of programs and processes to reduce GHG emissions. IBM decreased its overall Scope 1 and 2 emissions by 3.6 percent from 2013 to 2014. The summary of our 2014 emissions inventory is provided in the following table:

IBM 2014 Scope 1 and 2 emissions inventory

(Metric tons [MT] of CO_2 equivalent)

Scope 1 emissions	Emissions type	2013	2014
Fuel use	Operational	225,514	226,187
Perfluorinated compounds	PFC	194,301	215,893
Nitrous oxide	Other	23,150	23,724
Heat transfer fluids	Other	61,747	83,566
HFCs	Other	9,752	7,283
Total Scope 1 emissions		514,464	556,653
Scope 2 emissions			
Electricity: Using grid and location MT CO_2/MWh emissions factors	Operational	1,934,736	1,847,141
Purchased energy commodities	Operational	43,858	34,871
Total Scope 2 emissions		1,978,594	1,882,012
Total Scope 1 and 2 emissions		**2,493,058**	**2,438,665**
CO_2 avoidance: Renewable electricity purchases	Operational	(223,624)	(250,345)
Total Scope 1 and 2 emissions adjusted for renewable electricity		**2,269,434**	**2,188,320**

Transportation and logistics initiatives

Employee commuting and leased/rental vehicles

IBM has been active for decades in promoting programs that reduce employees' work-related commutes. Key contributors to this effort are IBM's two flexible work programs that are available to many employees:

- Work-at-home — Enables employees to work from a home office
- Mobile employees — Enables employees to work from home for a designated number of days each week

In 2014, 100,000 of our 379,592 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 4.8 million gallons of fuel and avoided 38,000 metric tons of CO_2 emissions in 2014.

IBM is a member of the Best Workplaces for Commuters (BWC) program. Currently, 25 IBM locations in the United States 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 our 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 vehicles with lower emissions profiles. These guidelines enable reductions in average car emission levels as the 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.

Efficiency of logistics

IBM is reducing the CO_2 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 spending on shipments of 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 CO_2 emissions by reducing the volume and weight of the company's product shipments through innovative packaging design. Accomplishments in this area are discussed in the product stewardship section of this report.

Energy and climate protection in the supply chain

IBM is committed to doing business with environmentally responsible suppliers. One of the supply chain areas we focus on is our suppliers' energy efficiency and climate protection programs.

We require that all of our "first-tier" suppliers (those 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 2 GHG emissions — and to cascade IBM's requirements to their suppliers. 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 first-tier suppliers to further our 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 Supply Chain organization assesses suppliers (existing and new) regarding 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 tracking their energy use and GHG emissions. Companies in the electronics industry share many suppliers, and the EICC GHG emissions disclosure process enables 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 GHG emissions

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 the specific amount of Scope 3 GHG emissions associated with our value chain. 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 alone, versus those emissions associated with products or services provided to their other 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 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 are expected to develop a management system, identify their significant environmental impacts — including GHG emissions — and develop reduction plans for those impacts.

Product stewardship

IBM established its product stewardship program 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 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.

Product environmental compliance process

Regulatory and legislative requirements affecting electrical and electronic equipment continue to proliferate globally. Integrated within IBM's global environmental management system, IBM has programs — underpinned by robust processes and state-of-the-art tools — that ensure IBM's continued compliance with worldwide environmental laws and regulations without impacting business. In 2014, we identified 120 new or modified product-related regulations and acted on 64 of those regulations to meet the milestones defined by the regulations.

Frequent verification of product data is required 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) or the disclosure of the regularly amended list of Substances of Very High Concern developed for the European Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (REACH, Regulation (EC) No 1907/2006). In 2013, IBM developed a new process to automate the revalidation of Product Content Declarations (PCDs) for procured parts. The process includes a regular refresh cycle for PCDs whereby we request suppliers to update their declarations. In 2014, this process was further enhanced by the deployment of an automated validation tool that checks submitted PCDs against a series of rules to help ensure quality.

IBM conducts quality audits of selected PCDs to identify improvements in the administrative and technical content of the declarations. These process improvements in product data management ensure 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."

IBM also has deployed analytical tools for managing RoHS exemptions that are due to expire in July 2016. One tool identifies, in real-time, which IBM part numbers (among thousands) are impacted by the expiring exemptions. The tool's speed helps engineers ensure compliance while avoiding a negative impact on the business. Prior to the tool's deployment, engineers spent extensive time analyzing complex bills-of-materials to identify which IBM parts were impacted by changing RoHS exemptions.

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. Through collaboration of IBM Research and our product development teams, we have combined hardware and software technologies to improve the energy efficiency of IT equipment and data centers.

Following are some examples of new products IBM has developed with increased performance and improved energy efficiency. Additional information about these products, and how they are being used by clients to improve their operations, reduce energy use and costs, and lower the greenhouse gas emissions associated with their operations, can be found on IBM's energy efficient products, services, and solutions webpage.

IBM Power Systems

IBM's Power Systems provide enterprise-class server capabilities for traditional and cloud applications, with an emphasis on data-centric and highly virtualized operations requiring high reliability and availability. IBM POWER8® servers offer a broad range of specialized functional capabilities that may not be available in other servers. They offer 6-12 cores per processor with eight threads per core and large on-processor memory caches, delivering significant performance increases with minimal change in the power footprint of the server systems. From an energy-efficiency standpoint, Power Systems servers can deliver the most workload for unit of 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 matches energy use to the workload levels on the server.

IBM released six models of IBM Power Systems servers in 2014: the one-socket S812 and S814, the two-socket S822 and S824, and the enterprise E870 and E880 systems. These Power Systems servers continue to use 80 PLUS Platinum certified power supplies, one grade above the ENERGY STAR requirements and two grades above requirements established by Directive 2009/125/EC of the Ecodesign Requirements for computers and computer servers. Seven systems, the IBM Power® 730, 740, 750, and 760, and the IBM Power Systems S822, S822L, and S824 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

z Systems mainframes

IBM z Systems™ mainframe servers provide the computing infrastructure for the new "app economy." In January 2015, IBM announced the new IBM z13. One of the most sophisticated computer systems ever built, it delivers scale and economics for computing needs together with real-time encryption and analytics to handle workloads that help meet the demands of today's mobile economy, all while transforming the efficiency and economics of IT. The air- and water-cooled z13s offer 46 percent and 58 percent more capacity per kilowatt, respectively, compared to the air-cooled zEnterprise

EC12. With its high utilization rates, the z13 offers one of the most efficient computing platforms when measuring the workload delivered per unit of energy consumed.

High-performance computers

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 2014, 24 of the top 50 most energy-efficient supercomputers in the world, as rated on the Green500 List, were built on the IBM

2014 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 2014, 17.1 percent of the plastic resins procured by IBM and its suppliers through IBM's corporate contracts for use in IBM's products were resins that contained 50-100 percent recycled content. Comparing only the weight of the recycled fraction of these resins to the total weight of plastics (virgin and recycled) purchased, 12.1 percent of IBM's total plastic purchases in 2014 were recycled plastic versus the corporate goal of 5 percent.	As of May 2015, IBM had certified seven Power server and three storage machine types to the ENERGY STAR requirements. The Power servers meet the US Environmental Protection Agency's (EPA's) requirements for power-supply efficiency, idle power limits or power management capability, and Standard Performance Evaluation Corporation (SPEC) Server Efficiency Rating Tool (SERT) metric data reporting. The storage products meet requirements for power-supply efficiency and reporting of the Storage Network Industry Association (SNIA) Emerald Power Efficiency Measurement Specification results.
Use of landfills	IBM's product end-of-life management operations worldwide processed approximately 32,000 metric tons (70.5 million pounds) of end-of-life products and product waste, and sent only 0.5 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.	IBM also has a goal to qualify its new server and storage products to the ENERGY STAR program criteria where practical, and where criteria have been developed for the specific server or storage product type. In 2014 the IBM Power Systems S822, S822L, and S824 were certified to the ENERGY STAR server requirements (Version 2). The IBM FlashSystem™ 840, IBM XIV® storage system, and V3700 storage products had some of their available configurations ENERGY STAR certified against Version 1 of the storage requirements.
Product energy efficiency	One of IBM's product energy efficiency goals is to continually improve the computing power delivered for each kilowatt-hour (kWh) of electricity used with each new generation of server. In 2014, the IBM Power Systems™ S822, S824, and E880 — the three servers for which typical watts consumed per relative performance are available from the comparable, previous-generation systems — achieved reductions between 4 and 38 percent on this metric. The IBM z13™, announced in January 2015, increases the available capacity per kilowatt over the IBM zEnterprise™ EC12 system by 46 percent for the air-cooled and 58 percent for the water-cooled model.	For links to the data sheets for IBM ENERGY STAR certified servers and storage products, see our ENERGY STAR certified products webpage.

Blue Gene®/Q high-performance computing (HPC) platform. IBM Blue Gene/Q systems also occupy 4 of the top 10 spots and 9 of the top 50 spots on the November 2014 TOP500 list of the world's top supercomputers. An IBM Power 775 system is also in the top 50 of the TOP500 list. Technologies developed through IBM's HPC development efforts are leveraged across the entire IBM Systems product line to improve performance and energy efficiency.

The speed and expandability of IBM's HPC products and solutions have enabled business and the scientific community to address a wide range of complex problems and simulations and make more informed decisions in the life sciences, astronomy, climate, system simulations and modeling, and many other applications. IBM continues its leadership performance in a space-saving, power-efficient HPC package to address the most demanding performance applications, having recently been selected by the US Department of Energy to develop two IBM OpenPOWER™ supercomputers based on IBM's Data Centric computing architecture. The "Sierra" supercomputer at Lawrence Livermore and "Summit" at Oak Ridge will be offered to researchers to solve scientific and research projects in the areas of energy, national defense, healthcare, genomics, economics, financial systems, social behavior, and visualization of large and complex datasets.

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

IBM expanded its range of flash-based storage systems, announcing the FlashSystem 900 in March 2015. The FlashSystem 900 provides a 40 percent performance/power improvement as measured by the Storage Network Industry Association (SNIA) Emerald Power Efficiency Measurement Specification when compared to the FlashSystem 840. 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.

IBM's other storage product offerings provide clients efficiency improvements for their IT operations. The IBM XIV high-end, grid-scale disk storage system offers excellent economics, achieving an 80 percent reduction in space footprint and power consumption over previous-generation technologies configured to handle and store comparable amounts of data. Its grid-scale architecture automatically enables 95 percent utilization of storage capacity with no performance degradation.

The IBM Storwize® family of disk storage systems include built-in functions such as Real-time Compression™ and Easy Tier technology combining flash and hard-disk drives to deliver extraordinary levels of efficiency and high performance. Similar to the IBM XIV storage product, these capabilities enable the Storwize hardware to manage more data than previous-generation systems, decreasing the hardware and energy consumption footprint required to manage a given amount of data by 20-80 percent, depending on the application.

IBM has continued to expand its software-defined Elastic Storage offerings, which enable storage automation and virtualization in both traditional and cloud environments. Elastic Storage enables the reduction of storage energy consumption and 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 energy use.

Appliances

IT appliances combine server, storage and network capabilities, and then optimize them to execute a specialized task or group of tasks with a significantly smaller IT hardware and energy footprint than would be required if individual systems were deployed in a conventional manner.

IBM MessageSight, a server appliance, is 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. Previously, achieving connectivity at this level required hundreds of servers. The MessageSight appliance manages the same connectivity with a single server appliance, reducing the energy use by two orders of magnitude. IBM also offers appliances for data warehousing, storage data compression, data security and masking, and other specialty activities to offer optimized capabilities with a minimal energy footprint.

SoftLayer Cloud and Cloud Managed Services IT offerings

IBM has increased both its public SoftLayer Cloud and private or hybrid Cloud Managed Services offerings, with 37 cloud data center locations around the globe. Cloud computing offers an on-demand, more efficient way to deploy and run IT applications and systems. As an example of the benefits of the cloud, a banking client transferred its IT infrastructure to an IBM hybrid cloud solution, placing the bank's online and mobile workloads on the public cloud and its large-scale transaction workloads on a private cloud. This reduced the server infrastructure by 60 percent, achieving significant r eductions in energy consumption and other operations and maintenance costs.

Development of energy efficiency standards

IBM actively assists in the development of external product energy efficiency standards. As in 1992 when we helped to develop and were a charter member of the US Environmental Protection Agency's (EPA) ENERGY STAR computer program, IBM staff are actively participating in the development of updates to the ENERGY STAR requirements for server and storage products.

We are providing technical assistance regarding the assessment of the Standard Performance Evaluation Committee (SPEC) Server Efficiency Rating Tool (SERT) and the SNIA Emerald Power Efficiency Measurement Specification, working both inside IBM and in conjunction with industry groups to evaluate the SERT and Emerald results. We are also assisting the EPA and various regulatory bodies outside the United States in developing server energy efficiency criteria based on the SERT metric. Our activities have expanded to include providing extensive comments and technical data to the European Union Energy-related Products (ErP) Lot 9 Study on Server and Storage products and to the China National Institute of Standardization's server energy efficiency requirements effort.

0.5%

In 2014, IBM's PELM operations sent 0.5 percent of product waste directly to landfill or incineration facilities — surpassing our goal of 3 percent maximum.

Product recycling and reuse

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

In 2014, the total weight of end-of-life products and product waste processed by these operations was approximately 32,000 metric tons (70.5 million pounds). This represents 76 percent of the estimated 42,000 metric tons of new IBM IT equipment put on the market in 2014.

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

IBM's global PELM operations sent approximately 0.5 percent by weight of end-of-life products and product waste directly to landfill or incineration as a disposal treatment in 2014, versus a target of not exceeding 3 percent. IBM has sent less than 1 percent of the PELM processed annually to landfill or incineration as a final treatment since 2006.

2014 product end-of-life management operations

Total processed: 32,000 metric tons (% by weight)

54.9%	Recycled
34.9%	Resold
6.8%	Reused
2.9%	Waste-to-energy
0.5%	Landfill & incineration
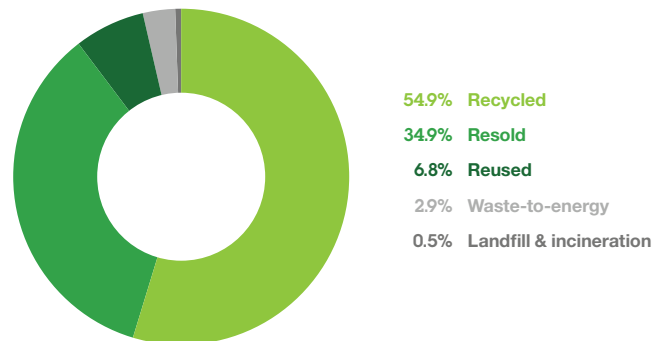
Of the 32,000 metric tons processed by IBM PELM operations worldwide, 54.9 percent was recycled as materials, 34.9 percent was resold as products, 6.8 percent was product reused by IBM, 2.9 percent was incinerated for energy recovery, and an estimated 0.5 percent was sent to landfills or incinerated for final disposal.

In 1991, IBM expanded our supplier environmental evaluation program — first introduced in 1972 — to include a corporation-wide requirement to evaluate the company's PELM suppliers. 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.

From 1995, when we first began including product recovery in our annual corporate environmental report, through the end of 2014, IBM has documented the collection and processing of approximately 945,000 metric tons (about 2.1 billion pounds) of product and product waste worldwide.

Product packaging

IBM's corporate environmental requirements for product packaging are included in our environmental packaging guidelines, which were first published in 1990 and have been updated as needed over the years. Key elements of IBM's packaging guidelines have been embedded in various engineering specifications and procurement documents, which extend their reach to include our supply chain and other business partners.

IBM has had a program focused on the environmental attributes of its product packaging since the late 1980s. Under the program, IBM packaging engineers design solutions that minimize toxic substances and packaging waste by specifying nontoxic materials and inks. We keep packaging to a minimum while continuing to provide protection to the product being shipped. We also collaborate with suppliers to use recycled and recyclable materials and promote reuse. The design of rugged products, the efficient use of protective product packaging, and the environmental benefits resulting from improvements in transportation efficiency are addressed and tracked though this program. Key elements of IBM's packaging guidelines have also been embedded in various engineering specifications and procurement documents which can be found on IBM's information for suppliers webpage.

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 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
- Reusable packaging systems
- Recyclable packaging
- Conserving natural resources

All product packaging suppliers that pack/ship products to customers on behalf of IBM worldwide must submit required packaging environmental compliance data to IBM, along with other relevant packaging compliance and performance data, through web-enabled tools. Any suppliers with a non-conformance must submit and implement supplier improvement plans to close out the identified issues within an agreed timeframe. Applying this process to packaging suppliers worldwide ensures ongoing compliance with IBM's environmental product packaging requirements.

Packaging reduction and improvements
In 2014, the global packaging engineering team saved an estimated 101.6 metric tons of packaging materials through the implementation of two significant packaging redesign projects for parts and assemblies shipped from suppliers to IBM fulfillment locations. These projects delivered an annual materials and transportation cost savings estimated at $2 million.

IBM packaging engineers in the United States and China worked in conjunction with several IBM suppliers to reduce the amount of packaging used to ship parts into IBM fulfillment sites. They designed and tested packaging that reduced packaging materials by as much as two-thirds and decreased the packaging size. This also improved space utilization in transit, and lowered the per-unit fossil-fuel consumption and emissions.

IBM also implemented a new packaging material called RESTORE Mushroom Packaging, to protect our large mainframe computers during domestic US shipping. This material is made from mushroom mycelium (roots) combined with agricultural waste (corn stalks). This mixture is placed in a mold and allowed to grow under ambient temperatures. The product is then removed from the mold and heat-treated. IBM attaches these mushroom cushions to a corrugate end cap, which is then placed on the outside of the mainframe for product protection.

Sourcing of paper and paper/wood-based packaging materials
IBM established its voluntary environmental goal for the responsible sourcing of paper and paper/wood-based packaging in 2002. It stated that the paper and paper/wood-based packaging directly acquired by IBM should 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 available to meet our needs. In 2014, after a continued focus on this objective by IBM and our suppliers over the years, 99 percent of the paper and paper/wood-based packaging IBM procured worldwide 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.

Process stewardship

Among its objectives, IBM's Corporate Policy on Environmental Affairs calls for the 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 development and manufacturing processes and in our products.

Our precautionary approach includes the careful scientific review and assessment of substances prior to their use in IBM processes and products. In specific instances, we have chosen to proactively prohibit the use of certain substances, restrict their use, or find alternative substances to use in our processes and products when the weight of scientific evidence determines a potential adverse effect upon human health or the environment, even when current laws permit such use.

When IBM develops new processes or significantly modifies existing processes, we conduct a scientific assessment of all substances in the process, even those that have been approved previously. Through these scientific assessments, we seek to identify potential substitutes that may be environmentally preferable. We believe that the same scientific rigor is required to investigate the human health and environmental effects of potential substitutes as was applied to investigate the substances in use.

IBM has a long history of taking proactive steps to evaluate the chemicals used in our processes and products — first, by identifying potential substitutes that may have less impact on the environment, health and safety, and then by 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 leadership in prohibiting or restricting 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.

We communicate to suppliers IBM's restrictions on specific substances and other environmental requirements for our products through 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, more precise and more energy-efficient. Nanotechnologies have 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.

In 2014, IBM announced it will invest over $3 billion over the next five years in research and development programs, to push the limits of chip technology needed to meet the emerging demands of cloud computing and big-data systems. IBM will be investing significantly in emerging areas of research such as carbon nanoelectronics, silicon photonics, new memory technologies and architectures that support quantum and cognitive computing. This research will focus on providing orders-of-magnitude improvement in system-level performance and energy-efficient computing. In addition, IBM will continue to invest in the nanosciences and quantum computing — two areas of fundamental science where IBM has remained a pioneer for over three decades.

As an example, IBM researchers working in the area of carbon nanotube electronics recently demonstrated — for the first time — two-way complimentary metal-oxide semiconductor (CMOS) NAND gates using 50-nanometer gate length carbon nanotube transistors. Carbon nanotube transistors can operate as excellent switches at molecular dimensions of less than 10 nanometers — the equivalent to 10,000 times thinner than a strand of human hair, and less than half the size of the leading silicon technology. Modeling of the electronic circuits suggests that about a five- to ten-times improvement in performance is possible, compared to silicon circuits.

These advances in chip technology offer potential alternatives to today's higher-power transistors by creating advanced microelectronics that operate at much lower voltage and thus use significantly less power than current technologies.

Pollution prevention

Pollution prevention is an important aspect of IBM's long-standing environmental efforts and it includes, among other things, the management of hazardous waste, nonhazardous waste and chemical releases.
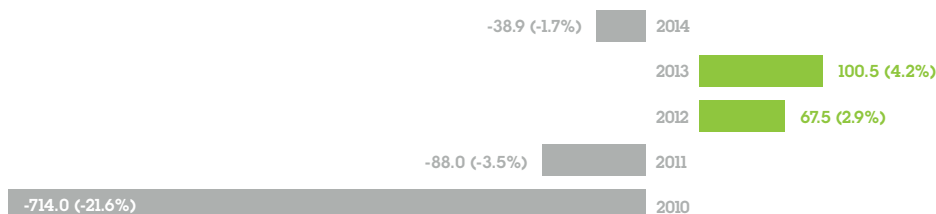
Hazardous waste

The best way to prevent pollution is to reduce the generation of 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, or we substitute the use of certain chemicals altogether with more environmentally preferable substances. We maintain programs for proper management of the chemicals used in our operations, from selection and purchase to storage, use and final disposal.

To more effectively track IBM's hazardous waste management performance, we developed a methodology in 1992 to correlate the hazardous waste generated from our manufacturing operations relative to production, and 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 a 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 that is attributable to manufacturing processes.

1.7%

In 2014, IBM's hazardous waste generation from manufacturing processes, indexed to output, decreased by 1.7 percent from 2013 — achieving our goal of a year-to-year reduction.

In 2014, IBM's hazardous waste generation indexed to output decreased by 1.7 percent, or approximately 39 metric tons, compared to the goal of a year-to-year reduction. The primary factor for this decrease was a reduction in sludge containing fluoride and heavy metals from wastewater treatment at one manufacturing site.

The total hazardous waste generated by IBM worldwide in 2014 decreased by 45 percent from 2013 to 4,040 metric tons. There were two primary factors for this year-to-year decrease: first, the completion of land remediation programs at two IBM locations in the United States, which generated significant quantities of contaminated soil in 2013, and second, a reduction in industrial wastewater treatment plant (IWTP) sludge classified as hazardous waste from one of our microelectronics manufacturing locations, resulting from the delisting of the waste stream as "hazardous" in 2013. This IWTP sludge is now used as an alternative daily cover for a landfill.

Annual change in hazardous waste generation indexed to output

(Metric tons and % change)

Year	Change
2014	-38.9 (-1.7%)
2013	100.5 (4.2%)
2012	67.5 (2.9%)
2011	-88.0 (-3.5%)
2010	-714.0 (-21.6%)

For the hazardous waste that is generated, we focus on preventing pollution through a comprehensive, proactive waste management program. For example, IBM has an active program for increasing the off-site reclamation and beneficial use of waste solvents from photolithography processes.

Of the total 4,040 metric tons of hazardous waste IBM generated worldwide in 2014, 57 percent was recycled, 29 percent was sent off-site for treatment, 11 percent was sent by IBM directly to suitably regulated landfills, and 3 percent was sent for incineration. Of the total amount of hazardous waste sent to landfills, about 58 percent was sludge from IWTPs. Government regulations required disposition of this sludge in secure hazardous waste landfills.

2014 total generated hazardous waste worldwide by treatment method
(4,040 metric tons)

57%	Recycled
29%	Treatment
11%	Landfill
3%	Incineration
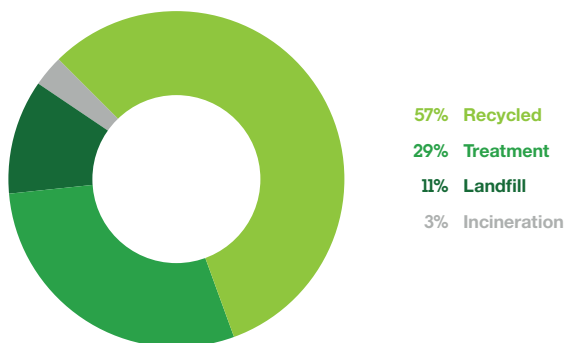
Nonhazardous waste

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 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 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 returned by external customers at the end of a lease. The second broadened the goal to include nonhazardous waste generated by IBM at leased locations that meet designated criteria.

Our voluntary environmental goal is to send an average of 75 percent of the nonhazardous waste generated by IBM to be recycled. In 2014, we sent 86 percent of the nonhazardous waste generated by IBM worldwide to be recycled.

Treatment methods that were recognized toward the waste recycling target included reuse, recycle, energy recovery, composting, reclamation and land farming. Treatment methods that were not recognized toward the recycling target included incineration, landfilling and treatment, such as aqueous treatment, biodegradation of organics, filtration, neutralization and stabilization.

Total annual nonhazardous waste quantity and recycling performance
(Metric Tons x 1,000)

	2010	2011	2012	2013	2014
Total sent for recycling	56	55	60	56	92
Total generated	71	70	69	65	107
Percentage sent for recycling	79%	78%	87%	86%	86%

*IBM's goal is to send 75% for recycling.*

86%

In 2014, IBM sent 86 percent of its nonhazardous waste to be recycled — surpassing our goal of 75 percent.

In 2014, our worldwide operations generated approximately 107,000 metric tons of nonhazardous waste, an increase of 42,000 from 2013. This increase resulted from several large construction projects at IBM locations in 2014. Construction debris accounted for about 48 percent of nonhazardous waste we generated in 2014. Without this waste stream, IBM would have seen a 1,400 metric ton reduction compared to 2013.

Source reduction and waste prevention initiatives implemented by IBM worldwide were estimated to have prevented the generation of over 4,000 metric tons of nonhazardous waste in 2014, with estimated annual handling, treatment and disposal cost savings and revenue returns totaling $5.5 million.

2014 total nonhazardous waste worldwide by treatment method

(107,000 metric tons)

86.0%	Recycled
13.2%	Landfilled & incinerated
0.8%	Other treatments
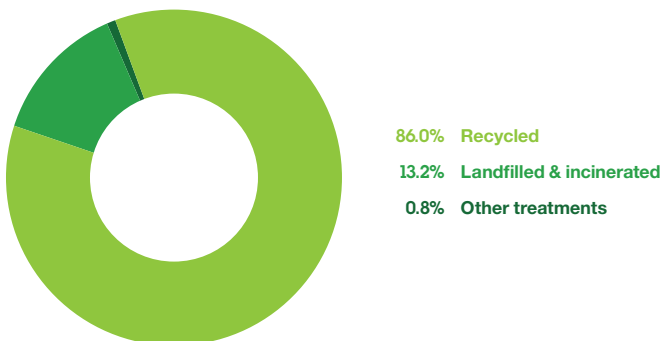
Management of chemical releases

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 and 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 2014, IBM's worldwide reportable quantities of EPCRA-listed chemicals amounted to 2,778 metric tons, representing a decrease of 3.2 percent compared to 2013. More than 77 percent of this quantity was treated on-site or sent off-site for recycling or combustion for energy recovery.

2014 worldwide reportable quantities of EPCRA-listed chemicals*

(2,778 metric tons)

66.0%	On-site treatment
22.1%	Released to water
7.6%	Off-site recycling
3.5%	Off-site energy recovery
0.5%	Released to air
0.3%	Off-site treatment
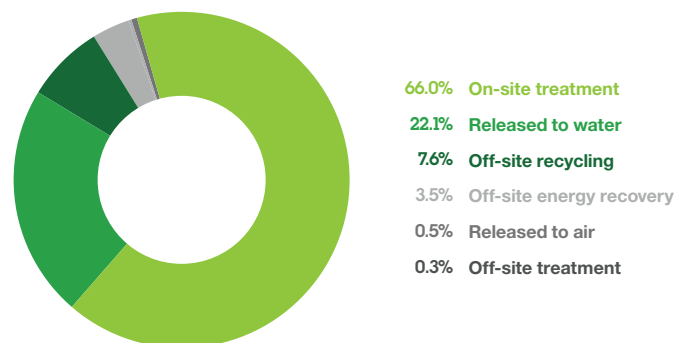
*As defined under Section 313 of the US EPCRA

2014 worldwide reportable quantities of EPCRA-listed chemicals*

Chemical	Metric tons
Sulfuric acid (aerosol only)	1,053
Nitrate compound	743
Hydrogen flouride	250
Nitric acid	234
Xylene	146
n-methyl-2-pyrrolidone	126
Ozone	41
Ethylbenzene	31
All Others	154
Total	2,778

As defined under Section 313 of the US EPCRA

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

In 2014, IBM's releases of EPCRA-reportable chemicals, indexed to output, increased by 6.2 percent from 2013. The increase resulted from greater nitrate releases at one of our manufacturing locations and the delayed start-up of that location's nitrate reduction process, which was designed and constructed by IBM voluntarily to address these releases. Releases of nitrate compounds from this location are not regulated by a discharge permit and do not materially impact the quality of the receiving water body. 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. The nitrate reduction process was fully operational from the beginning of 2015.

Worldwide reportable quantities of EPCRA-listed chemicals,* 2010-14

(Metric tons x 1,000)

Year	Value
2014	2.8
2013	2.9
2012	2.8
2011	3.2
2010	3.6

*As defined under Section 313 of the US EPCRA

Water conservation

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

IBM's microelectronics manufacturing operations have been our company's most water-intensive business activities. In 2014, these operations represented 88 percent — or 8,937 of 10,152 thousand cubic meters (TCMs) — of the 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 goal to achieve average annual water conservation savings equal to 2 percent of IBM's water use in microelectronics manufacturing operations each year, based on the water usage of the previous year and measured over a rolling five-year period. This voluntary environmental goal measures annual water conservation resulting from new water reduction projects and improvements in water reuse and recycling by these operations.

Water conservation initiatives in IBM's microelectronics manufacturing locations achieved a 3.3 percent annual savings in 2014, versus 2013 usage. Over the past five years, initiatives at these locations have achieved an average of 2.3 percent water conservation savings against the 2 percent goal.

2.3%

IBM's microelectronics manufacturing operations achieved a 2.3 percent average annual water savings over five years, based on previous years' usage — surpassing our goal of 2 percent.

In 2014, a total of 695 TCMs of water were conserved, of which 469 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 225 TCMs in water savings. The total accumulated water conservation over the past five-year rolling period was 3,265 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 14 years, conservation efforts have avoided the accumulated use of 21,039 TCMs of water.

Water conservation in microelectronics manufacturing operations

(annual savings as a percentage of previous year's total water use)

5-year average	2.3%
2014	3.3%
2013	3.2%
2012	2.2%
2011	1.2%
2010	1.8%
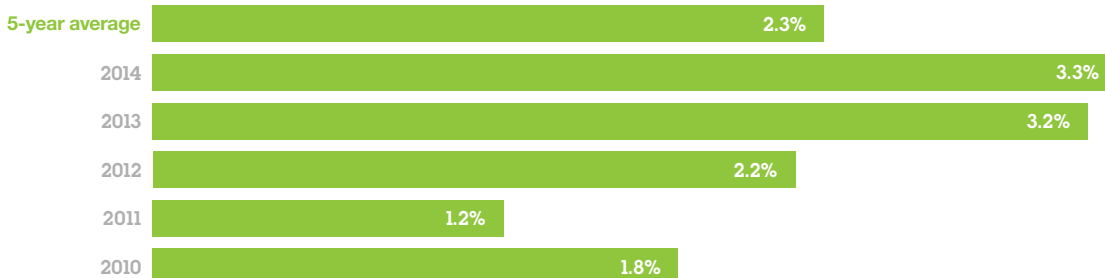
Solutions for environmental sustainability

We apply our expertise, resources, research and innovation to help discover solutions to some of the world's most challenging environmental problems.

More than ever, organizations are applying new technologies to transform their operations, products and services to become more efficient, innovative and sustainable. We recognize that our greatest opportunity for building a more sustainable planet comes from enabling this transformation for our clients. Our activities 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

Because water sustains us, water management is as essential as the element itself. As stewards of our planet, leaders and citizens are compelled to act. And as individual users of this essential resource, we are compelled to act together.

The Jefferson Project at Lake George

Rensselaer Polytechnic Institute, IBM and the FUND for Lake George launched the Jefferson Project in June 2013 in an ambitious effort to model Lake George in New York - its
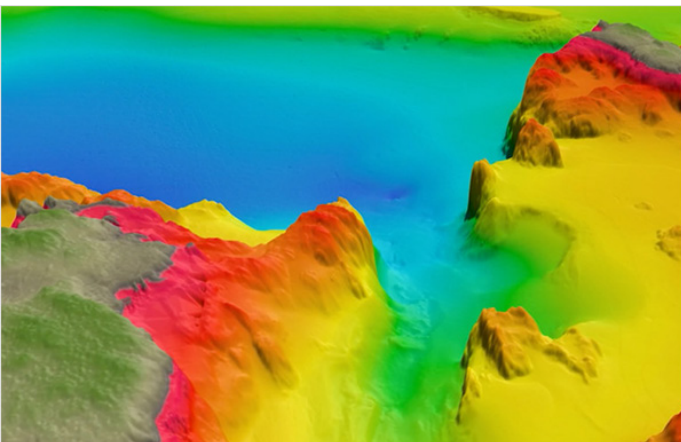
Scientists will be able to zoom in on high-resolution, 3-D models of Lake George and the surrounding area with a degree of detail unprecedented for a lake of this size.

depths and shoreline - to get a holistic and accurate view of everything happening in and around one of the United States' pristine lakes. The goals of the project are multifold and include understanding and managing the complex factors impacting the lake from invasive species, pollution and other factors, to developing a template to use in other fresh-water bodies around the globe.

The three partners previously developed preliminary models of key natural processes within the watershed. As part of the first phase of the project, a network of 12 sensor platforms including vertical profilers and tributary monitoring stations were deployed around Lake George and its tributaries in late 2014, providing an unprecedented amount of data for researchers. With the Jefferson Project's sophisticated lake environmental monitoring and data analysis capabilities, scientists are learning how the lake has changed in the past, observing how it functions in real time, and will be able to predict how different variables could impact this valuable resource in the future.

In addition, a new 2,000-square-foot data visualization laboratory at the Darrin Fresh Water Institute in Bolton Landing unveiled in October 2014 features advanced computing and graphics systems that allow researchers to visualize sophisticated models and incoming data on weather, runoff and circulation patterns. The data visualization laboratory displays streaming data from various sensors in and around the lake in real time. Within the new laboratory, scientists are able to zoom in as close as half a meter on high-resolution 3-D models of the lake and surrounding area, a degree of detail unprecedented for a lake of this size.

Preliminary models of the lake's circulation and runoff, developed with data from existing bathymetry and a 30-year study of Lake George, will be refined and enhanced with the new high-resolution bathymetric and topographic survey data. In addition, a combination of shore-based weather stations and lake-based sensor platforms - connected via an advanced cyber infrastructure - will be deployed to monitor the temperature of the air and water, flow rates of tributary streams, lake currents

and the amount of oxygen and algae in the water as well as additional water quality indicators. The sensor data not only improves the accuracy of the early models, it also opens opportunities for future analytics. To gain a complete view of the lake's ecosystem, project partners will combine biological data with the circulation and other models, to create a "food web model" that simulates the biological impacts physical and chemical changes have on fish and other species in the lake.

Using big data and analytics technology for seamless water distribution in India
The government of Kerala, India, is using IBM analytics and mobility solutions to analyze, monitor and manage water distribution in the city of Thiruvananthapuram.

With a population of more than 3.3 million, providing connections with equitable water supply to 210,000 households across divisions and subdivisions was a challenging task due to aging pipes, leaking infrastructure, and unauthorized use of water. There were huge losses in water distribution, with close to 45 percent of fresh water unaccounted for or wasted due to leakages. In addition, the Kerala Water Authority (KWA) faced challenges in revenue collection because the billing system was unable to track water consumption by consumers accurately. And without systems in place to monitor and provide real-time visibility into water consumption, it was difficult to track the performance of water treatment facilities and the effectiveness of the water supply network.

KWA is working with IBM to put in place the necessary infrastructure, monitoring and analytics to help identify potential issues proactively, in an effort to dramatically reduce water waste, improve customer satisfaction and increase the efficiency of maintenance and business operations. IBM will help KWA establish a water management center using the IBM Intelligent Water software to bring all the distribution and consumption data from meters to a central dashboard - where water usage can be effectively and predictively monitored and managed, thereby reducing billing anomalies and improving revenue collection by more than 10 percent. This provides the

city's water supply networks and KWA management with a unified and real-time view of the transmission and consumption of water across the city of Thiruvananthapuram. Smart sensors, working in conjunction with the IBM Intelligent Water software, enable workers to receive alerts through their mobile or smart devices or laptops, so they can respond immediately to irregularities in water supply and react more quickly to repairs that are needed. With the solutions, KWA aims to achieve 100 percent success in equitable water supply.

Cities
Today more than 3.9 billion people - 54 percent of the world's population - live in urban areas, and that amount is expected to increase to 66 percent by 2050. Smarter cities of all sizes are capitalizing on new technologies and insights to transform their systems, operations and service delivery to operate more efficiently and sustainably.

Transforming China's energy systems and protecting citizen health
China's economic growth over the past several decades has raised the living standards of hundreds of millions of its citizens. However, the resulting environmental impact, particularly air pollution, has become a priority for the Chinese government. IBM announced a 10-year initiative to support China in transforming its national energy systems and protecting the health of citizens. Dubbed "Green Horizon," the project sets out to leap beyond current global practices in three areas critical to China's sustainable growth: air quality management, renewable energy forecasting and energy optimization for industry.

- Air quality management — IBM is partnering with the Beijing Municipal Government on a system to enable authorities to pinpoint the type, source and level of emissions, and to predict air quality in the city. By applying supercomputing processing power, scientists from IBM and the Beijing government aim to create visual maps showing the source and dispersion of pollutants across Beijing 72 hours in advance, with street-scale resolution.

- Renewable energy forecasting — The Chinese government has announced increased investment in solar, wind, hydro and biomass energy in a bid to decrease its dependency on fossil fuels. To support the objective, IBM has developed a renewable energy forecasting system solution that combines weather prediction and big-data analytics to enable utility companies to forecast the amount of energy that will be available to be directed into the grid or stored - helping to ensure that as little as possible is wasted.

- Energy optimization for industry — China's economic growth over the past 10 years has led it to become the biggest energy consumer in the world. As part of the transformation of Chinese industry, the government has committed to reducing the country's "carbon intensity" by 40-45 percent by the year 2020 compared with 2005 levels (equivalent to 130 million tons of coal per year). To support this goal, IBM is developing a new system to help monitor, manage and optimize the energy consumption of industrial enterprises - representing over 70 percent of China's total energy consumption.

Solutions to transform water, energy and waste management services

IBM and Veolia announced new solutions that integrate intuitive and powerful digital technologies into urban services to improve the efficiency of municipal systems. A world leader in municipal

Click to view the full infographic on Project Green Horizon.

services, Veolia sought IBM's partnership to transform the way they deliver digital services and solutions for cities.

IBM and Veolia will first deliver new solutions for smarter water, incorporating IBM Intelligent Water software that allows for better utilization of big data and provides a management system for the integration, optimization and analysis of all data related to water management. Veolia and IBM will also introduce new digital solutions and services for energy management and waste management — areas in which Veolia has deep operations experience and IBM has proven technology.

Energy

Energy and utility companies are challenged to continuously deliver reliable, affordable, and sustainable energy in an increasingly competitive market. This is putting enormous pressure on the industry that can only be overcome through flexible, scalable and data-driven insights to modernize the utility network and improve power generation.

Cloud-based enterprise-wide analytics for energy companies

IBM Insights Foundation for Energy is an energy analytics, data management and visualization software solution for energy and utility companies. It can integrate disparate data sources and develop actionable analytic insights across and within business domains. Using advanced analytics, energy and utility companies can turn business challenges into opportunities, driving rapid time to value and real business outcomes. The solution can be used to get a 360-degree view from the individual transformer level to the entire grid. It also enables renewable energy forecasting and integration to the network as well as supporting custom analytics development so it can be tailored to meet the specific needs of each energy and utilities provider. The platform can be used to help utilities shift from traditional and costly time-based asset management — where network repairs are done on schedule regardless of how much useful life is left in an asset — to a more informed reliability-based approach of making repairs when they are actually needed.

Bringing solar electricity and heat to remote locations

IBM Research is partnering with Airlight Energy, a Swiss-based supplier of solar power technology, to bring affordable solar technology to the market. The high-concentration photovoltaic thermal (HCPVT) system, which resembles a 10-meter-high sunflower, uses a 40-square-meter parabolic dish and can concentrate the sun's radiation 2,000 times, converting 80 percent of it into useful energy to generate 12 kilowatts of electrical power and 20 kilowatts of heat on a sunny day — enough to power several average homes.

The inside of the parabolic dish is covered with 36 elliptic mirrors made of 0.2-millimeter-thin recyclable plastic foil with a silver coating, which are then curved using a slight vacuum. The mirrored surface area concentrates the sun's radiation by reflecting it onto several microchannel liquid-cooled receivers, each of which is populated with a dense array of multi-junction photovoltaic chips — each one-square-centimeter chip produces an electrical power of up to 57 watts on a typical sunny day.

The photovoltaic chips, similar to those used on orbiting satellites, are mounted on micro-structured layers that pipe treated water within fractions of millimeters of the chip to absorb the heat and draw it away 10 times more effectively than with passive air cooling. The 85-90 degrees Celsius hot water maintains the chips at safe operating temperatures of 105°C, which otherwise would reach over 1,500°C. This direct hot-water cooling design with very small pumping power is an IBM technology that has already been made commercially available in IBM's high-performance computers.

Buildings

Commercial buildings consume large quantities of energy worldwide and are a significant contributor to greenhouse gas emissions. Moreover, about 30 percent of a building's total operating cost goes for energy. So, as concerns for the environment and financial bottom line increase, the need to reduce both energy consumption and overall building expenses takes on new urgency.

IBM Building Management Center solution at Carnegie Mellon

IBM announced an innovative project with Carnegie Mellon University to deliver a cloud-based analytics system for reducing energy and facility operating costs. With 6.5 million square feet of infrastructure, miles of underground utilities, water lines, electrical systems, health facilities, restaurants, and even its own police force, Carnegie Mellon is practically a city unto itself.

This is a campus where the first building was built in 1906 and the most recent is under construction now. More than a century of infrastructure will all be managed through a single system using the new IBM Building Management Center solution, delivered on the IBM SoftLayer cloud. It will monitor thousands of data points from building automation and control systems in order to deliver better building performance, energy efficiency and space utilization.

Click to view the full infographic on Smarter Building Management.

By harvesting intelligence, best practices and value from the big data of buildings, the university expects to save approximately 10 percent on utilities — nearly $2 million annually — when the IBM system is fully deployed across 36 buildings on its Pittsburgh campus. Optimizing energy use and operations drives down costs, improves facility performance and makes buildings more sustainable. The IBM solution can manage all asset classes on a converged, integrated platform. It can identify opportunities to extend asset life, optimize up-time, improve occupant satisfaction and address regulatory compliance. It also has capabilities to measure, manage and reduce facility energy and environmental impact to help achieve sustainability goals.

Read more about this project at the Smarter Planet blog, the Smarter Cities website, or in the solution brief.

Agriculture and food

Protecting the global food supply is a monumental public health and sustainability challenge. 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 $9 billion in medical costs. Another $75 billion worth of contaminated food is recalled and discarded annually.

IBM and Mars launch effort to drive advances in food safety
In January 2015, scientists from IBM Research and Mars established the Consortium for Sequencing the Food Supply Chain, a collaborative food safety platform that will leverage advances in genomics to further our understanding of what makes food safe. As a first step, the consortium's scientists will investigate the genetic fingerprints of living organisms such as bacteria, fungi or viruses and how they grow in different environments, including countertops, factories and raw materials. This data will be used to further investigate how bacteria interact, which could result in completely new ways to view supply chain food safety management. This pioneering application of genomics will enable an in-depth understanding and categorization of microorganisms on a much bigger scale than has previously been possible.

The first data samples will be gathered at Mars-owned production facilities, while IBM's genomics, healthcare and analytics experts will utilize IBM's Accelerated Discovery THINKLab, a unique collaborative research environment, for the large-scale computational and data requirements of this initiative. Beyond the research, data and findings will be presented in a systematic way to enable affordable and widespread use of these testing techniques.

Read more about this project at IBM Research.

Click to view the full infographic on sequencing the food supply chain.

Environmental requirements in the supply chain

IBM has a longstanding commitment to protect the environment and to pursue environmental leadership across all of our business activities.

As a part of this commitment, IBM does business with suppliers who are environmentally and socially responsible and encourages environmental and social responsibility awareness with these suppliers. Further, IBM must respond to an increased 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:

- Ensuring that IBM does business with environmentally responsible suppliers who are actively managing and reporting on their environmental intersects and impacts
- Helping our suppliers build capabilities and expertise in the environmental area
- 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 of our suppliers
- Protecting IBM, to the greatest extent possible, from potential long-term environmental liabilities or potential adverse publicity

Supplier social and environmental management system requirements

In 2010, IBM established a requirement that all first-tier suppliers maintain a management system to address their social and environmental responsibilities. Our objective 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 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 any of their suppliers who perform work that is material to the products, parts and/or services supplied to IBM

More information on these requirements may be found on IBM's supply chain environmental responsibility website.

Requirements for suppliers managing chemicals, processing wastes or managing end-of-life equipment

IBM has additional requirements for those suppliers where IBM:

- Specifies and/or furnishes chemicals or process equipment
- Procures materials, parts and products for use in hardware applications
- Procures hazardous waste and nonhazardous special waste treatment and/or disposal services
- Procures product end-of life management services
- Uses extended producer responsibility systems

Specific environmental requirements are documented in our contracts with suppliers conducting these 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.

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

IBM's hazardous waste and product end-of-life management supplier evaluations are comprehensive in the scope of the environmental aspects covered, including:

- 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)

1972

Established a corporate directive requiring the environment 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

– 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 social and environmental management requirements — supplier's social and environmental management system

• 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.

As with all of our environmental programs, IBM manages its hazardous waste and product end-of-life management programs to the same high standards worldwide. 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 not existent.

Under IBM's waste management program, hazardous and nonhazardous special wastes are treated, recycled or disposed 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 where 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 will store 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.

Remediation

When groundwater contamination was first discovered at one of IBM's sites in 1977, the company voluntarily initiated groundwater monitoring at all of its manufacturing and development locations worldwide. Today, IBM has 2,609 monitoring wells and 104 extraction wells in place at its current and former locations.

In 2014, IBM's remediation wells extracted approximately 16,100 pounds of solvents from past contamination at six currently operating IBM locations and 12 former IBM locations in three countries. At six of these locations, an additional 1,915 pounds of solvents were removed by soil vapor extraction or other methods. IBM also has financial responsibility for remediation at two additional former locations.

Under 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 all the parties that may have sent waste or otherwise contributed to contamination at third-party-owned sites, regardless of whether those sites were complying with environmental laws at the time. As of year-end 2014, IBM had received notification (through federal, state or private parties) of its potential liability at 114 such sites since the beginning of the Superfund program in 1980. Of these, 63 are on the US National Priority List. At most of the 114 sites, IBM has either resolved its liability or has proven it has no outstanding liability. Currently, IBM is actively participating in a cleanup or otherwise managing its potential liability at only 17 Superfund sites.

When environmental investigation and/or remediation at a current or former IBM location or a non-IBM facility is probable, and the costs for future activities can be reasonably estimated, IBM establishes financial accruals for loss contingency. IBM accrues for estimated costs associated with closure activities (such as removing and restoring chemical storage facilities), when IBM decides to close a facility. As of December 31, 2014, the total accrual amount for all such environmental liabilities and associated activities was $254 million.

Audits and compliance

IBM measures our environmental performance against both external and internal requirements, and we take prompt and decisive action when any issues are identified.

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 Services Environmental Compliance, and Supply Chain — complete a comprehensive self-assessment. IBM's Corporate Internal Audit staff may also 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, independent external audits are conducted on a scheduled cycle as part of IBM's single, global registration to ISO 14001:2004. Approximately 25 IBM locations and relevant business organizations (known as registered entities) are audited annually by an independent ISO 14001 registrar. Our manufacturing, hardware development and chemical-using research locations and organizations are audited by the ISO 14001 registrar every 12-30 months.

An independent registrar also audits IBM's Energy Management Program and enterprise-wide database for managing energy consumption information, against the ISO 50001:2011 standard, as part of IBM's single global Environmental Management System. Annually, between six and eight of our ISO 14001 registered sites are audited for conformance to the ISO 50001 standard.

On an annual basis, using a sampling approach, the registrar audits between 15 and 25 of IBM's ISO 14001 registered entities to verify energy savings calculations from conservation projects and to validate the accuracy of the energy bill data entry process. The audited entities typically cover 30-60 percent of IBM's global annual energy consumption. During these audits, the registrar tests a sample of the energy con-

sumption records in the enterprise-wide database, comparing the consumption values on the energy bill to the database entries. The audits provide an independent check on the accuracy of energy data and greenhouse gas (GHG) emissions reporting by IBM locations globally. The results of this testing are used in a separate validation audit of the corporate GHG emissions reporting process and data. The results of the latest audits can be found on the IBM environmental reporting, disclosure and verification webpage.

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 applicable 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 2014, a total of 11 accidental releases of substances to the environment related to IBM operations were reported through EIRS. Of these, four were to air, five to land, and two to water.

Emissions to the air were four releases of refrigerants due to minor leaks in refrigeration systems. Releases to land were four releases of cooling tower water and one release of chilled water. Releases to water were two releases of chilled water containing additives. 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 2014, IBM received 87 agency visits worldwide with two Administrative Citations issued by the San Jose Department of Environmental Services Watershed Protection Division as a result of two separate incidents at the same site. Both incidents involved an overflow of water from the cooling tower basin that reached nearby storm drains. IBM paid two fines totaling $1,125. Corrective actions were taken to prevent recurrence, including review and revision of site procedures, retraining of personnel, and installing additional automation.

IBM paid two additional fines in 2014 for two Notices of Violation (NOV) issued by the California Regional Water Quality Control Board (RWQCB) in September 2013 associated with groundwater remediation at a former IBM site. The NOVs were for effluent exceedances — one during a National Pollutant Discharge Elimination System (NPDES) sampling event in 2007, and the other resulting from a leak in a pipeline from an extraction well in 2012. The pipeline was repaired and reinforced immediately after the leak was detected. IBM paid two fines of $3,000 each for these incidents.

Over the past five years, IBM has paid seven fines with a total amount of $81,939.

Fines and penalties worldwide
($ in thousands)

	2010	2011	2012	2013	2014
Number	0	0	3	0	4
Fines	$0.0	$0.0	$74.8	$0.0	$7.1

Supply Chain

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

Our supply chain

Social and environmental responsibility is a major component of our corporate responsibility strategy, and we incorporate this in our business relationships with over 17,000 suppliers operating in nearly 100 countries.

IBM's global supply network is a strategic asset that enables us to deliver goods and services to our customers on a local and global level. We understand the stewardship that comes with having a supply chain of this scale and have implemented our social responsibility work in conjunction with our suppliers to promote sustainable performance as a shared objective. And in light of the increased interest stakeholders have in our global supply chain, we continually invest in and enhance our initiatives described here.

In 2014 supplier spending was approximately 8 percent lower than 2013 due to the effects of the fourth-quarter divestiture of IBM System x server business to Lenovo and reflecting lower market costs in multiple categories of goods and services purchased. Geographic distribution of supplier spend remained consistent year to year, reflecting IBM's balanced supply chain in support of our global customer base.

As in prior reports, we are providing the following two lists of suppliers that represent a significant portion of our global expenditures. Feedback received from stakeholders indicates this is useful information, as it expands their understanding of IBM's extended supply chain. In the spirit of supporting greater transparency in the supply chain, we are including links to our suppliers' corporate responsibility reports and/or related websites. In 2014, 60 percent of our listed suppliers have published corporate responsibility reports, and 80 percent of these reports are mapped to the Global Reporting Initiative guidelines — most to the latest G4 criteria. We are gratified with this sharing of information and encourage all of our suppliers to create and publish these reports as they serve to enrich our collective knowledge of the efforts taking place to improve social and environmental performance in the extended supply chain.In 2014, approximately 85 percent of our global
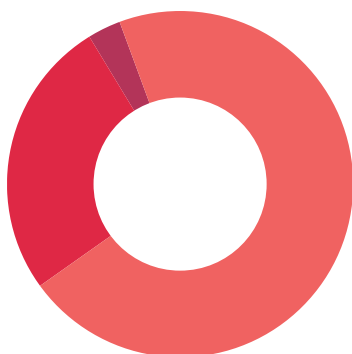
spend in Production and Logistics Procurement (in support of our hardware and logistics business operations) occurred with the following firms:

- Acbel Polytech
- Advantech
- Altis Semiconductor
- Amkor Technology
- Applied Materials
- Avnet
- ASML Holding
- Avago
- Benchmark Electronics
- Brocade
- Celestica
- Cisco Systems
- Compro Business Services
- Delta Electronics
- Emerson Network Power
- Emulex
- Flextronics
- Fuji Electric
- Fujifilm
- Geodis
- GLOBALFOUNDRIES
- Hon Hai
- i3 Technologies
- Intel
- Jabil Circuit
- Kingston Technology

- KLA-Tencor
- Kyocera
- Lam Research
- Lenovo
- Mellanox Technologies
- Micron Technology
- Molex
- NEC
- NetApp
- QLogic
- Quantum
- Samsung
- SanDisk
- Seagate
- Shin-Etsu Handotai
- SK hynix
- Ted-Ad Electronics
- The Karrie Group
- Tokyo Electron
- Toshiba
- Universal Scientific Industrial
- Venture
- Western Digital
- Wistron

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
- American Express
- Anixter
- Artech Information Systems
- AT&T
- Bilfinger
- BMC Software
- Camelot Information Systems
- CA Technologies
- CBRE Group
- CDI
- Cisco Systems
- Collabera
- CVS Caremark
- Deloitte Touche Tohmatsu
- Delta Air Lines
- EMC
- Fluor
- Fujitsu
- George P. Johnson
- Hays plc
- Hewlett-Packard
- Hilton
- Hitachi

- Infinite Computer Systems
- Internet Initiative Japan
- IT Holdings
- Johnson Controls
- Jones Lang LaSalle
- Juniper Networks
- LeasePlan
- Lenovo
- Manpower
- Marriott International
- Microsoft
- Mitsubishi
- Nippon Systems Development
- Oracle
- Randstad
- Red Hat
- Ricoh
- Rocket Software
- SAP
- SDI International
- SHI International
- The Employment Solution
- Virtela Communications
- WPP
- ZeroChaos

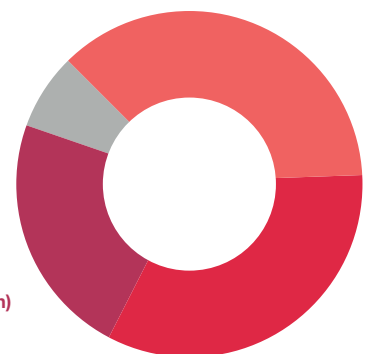**Supplier spending: $30.3 billion total in 2014**

2014 Supplier spending by category

- **71%** **Services & General Procurement ($21.6 billion)**
- **26%** **Production Procurement ($7.8 billion)**
- **3%** **Logistics Procurement ($0.9 billion)**

2014 Supplier spending by location

- **37%** **North America ($11.2 billion)**
- **33%** **Asia Pacific ($9.9 billion)**
- **23%** **Europe, Middle East, Africa ($6.9 billion)**
- **7%** **Latin America ($2.3 billion)**

Supplier assessment and improvement plans

In today's socially connected world, information availability and the exchange of ideas continue to rise to levels never imagined a decade ago. In this era of omnipresent communication, we see heightened expectations for companies to continually invest in and improve their social responsibility — both internally and upstream through their extended supply chains.

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 activities that we engage in with our suppliers as we encourage continuous improvement in order to meet these heightened expectations.

IBM's Social and Environmental Management System for its suppliers

In 2010, IBM established a requirement that first-tier suppliers create 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. Suppliers are required to:

- Define, deploy and sustain a management system that addresses intersections with employees, society and the environment; integration and compliance to the Electronic Industry Citizenship (EICC) Code of Conduct is part of their management system.
- 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, audits, and senior leadership reviews of their system.
- Encourage first-tier suppliers to cascade these requirements to their own suppliers.

More information on these supplier requirements may be found on IBM's supply chain environmental responsibility webpage.

During 2014 we received submissions of management systems materials from over 1,500 new suppliers primarily from our Services and General Procurement sector of the supply chain.

Supply chain social responsibility

Supply chain social responsibility has been part of our corporate and procurement strategy since 2004. IBM endorses the Electronic Industry Citizenship Coalition (EICC) Code of Conduct for its internal operations and requires the same of our direct suppliers. IBM communicates code compliance at the initial stages of supplier engagement and compliance — or progress on any plan implemented to achieve compliance — is 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.

Year by year, we have assessed a growing percentage of our supply chain in the developing world, and with the resulting improvements made by our suppliers, this has driven upstream improvements in conditions for thousands of people employed in the extended supply chain.

In 2014, assessments to the EICC Code of Conduct took place simultaneously for both our Services and General Procurement suppliers, and those in the Production and Logistics Procurement supply chain. IBM continued its longstanding endorsement of the electronics industry standard social audit, and further solidified our leadership position in using this protocol as our means to assess suppliers' compliance to the EICC code. In 2014 we provided a long-range outlook to suppliers for the sites where 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 work.

In 2014, the total number of full-scope audits in the 10-year time frame reached 1,811, with cumulative results illustrated in the chart below. These assessments measured supplier compliance to the EICC code — and in earlier years to IBM's Supplier Conduct Principles. IBM is a major user of the EICC's Validated Audit Process, directing code-related supplier assessments through this sector-developed approach that provides a common process for sharing results and eliminating costly duplicate assessments. Our 2014 data includes in this cumulative total second-, third-, and fourth-
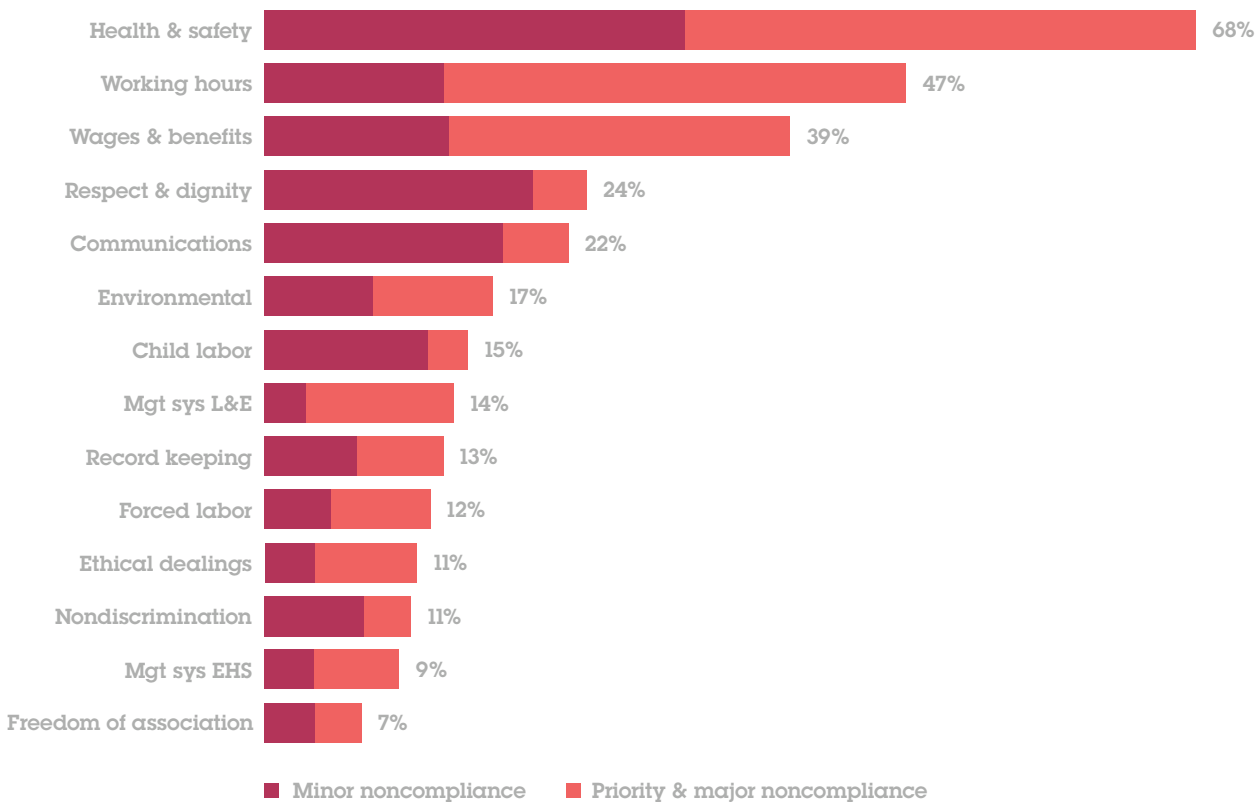
1,811

full-scope audits measuring supplier compliance from 2004 through 2014

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 suppliers. In the last decade, social responsibility assessments have been chartered with suppliers in 34 growth-market countries as listed at the bottom of the following chart.
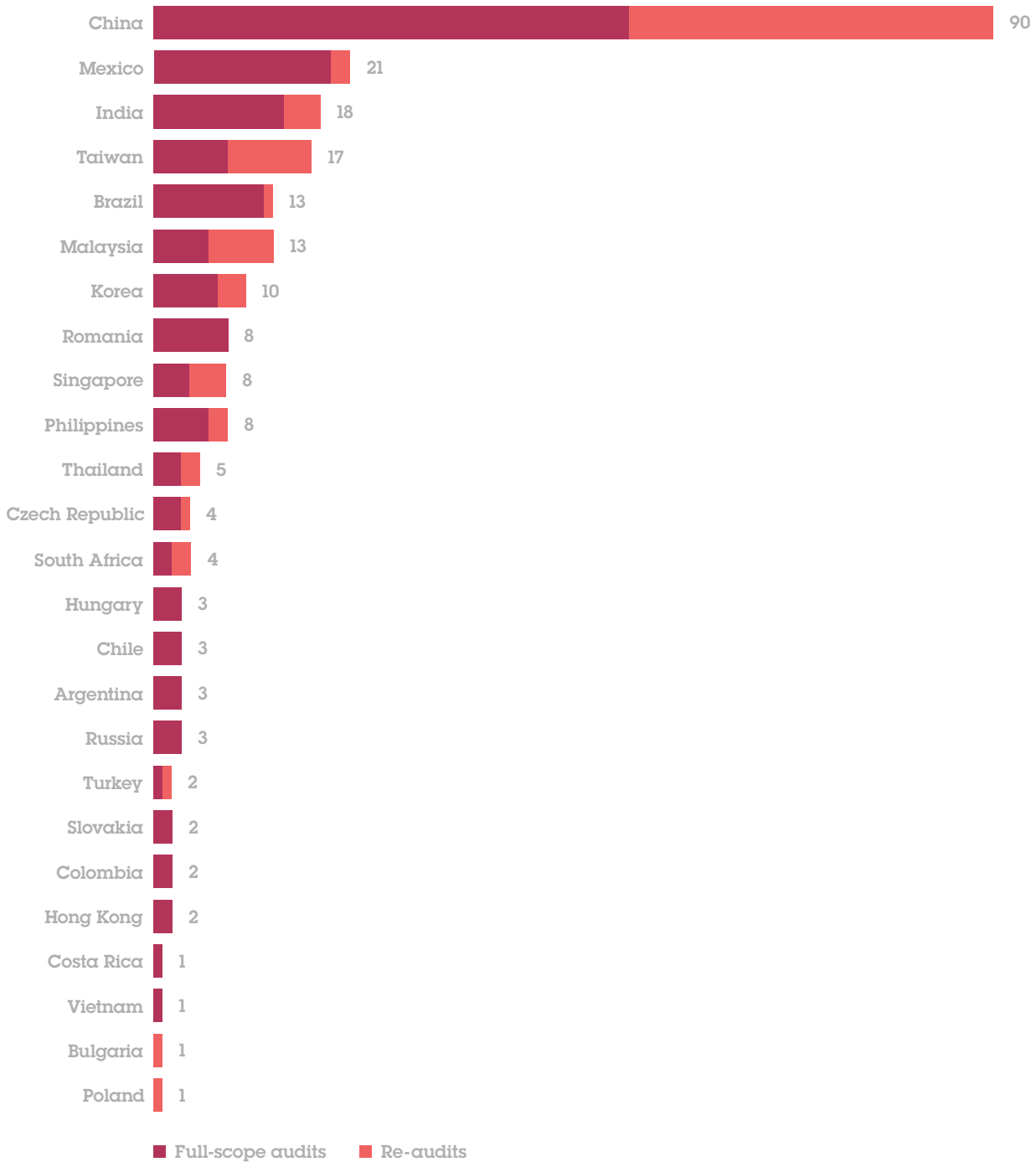
Supplier full-scope audit results: Global cumulative 2004-14

(% non-compliant to IBM/EICC code; base = 1,811 assessments)

Category	%
Health & safety	68%
Working hours	47%
Wages & benefits	39%
Respect & dignity	24%
Communications	22%
Environmental	17%
Child labor	15%
Mgt sys L&E	14%
Record keeping	13%
Forced labor	12%
Ethical dealings	11%
Nondiscrimination	11%
Mgt sys EHS	9%
Freedom of association	7%

■ Minor noncompliance   ■ Priority & major noncompliance

2014 IBM SCSR completed audits by country

(243 assessments conducted)

Country	Audits
China	90
Mexico	21
India	18
Taiwan	17
Brazil	13
Malaysia	13
Korea	10
Romania	8
Singapore	8
Philippines	8
Thailand	5
Czech Republic	4
South Africa	4
Hungary	3
Chile	3
Argentina	3
Russia	3
Turkey	2
Slovakia	2
Colombia	2
Hong Kong	2
Costa Rica	1
Vietnam	1
Bulgaria	1
Poland	1

■ Full-scope audits   ■ Re-audits

Since 2004 full 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.
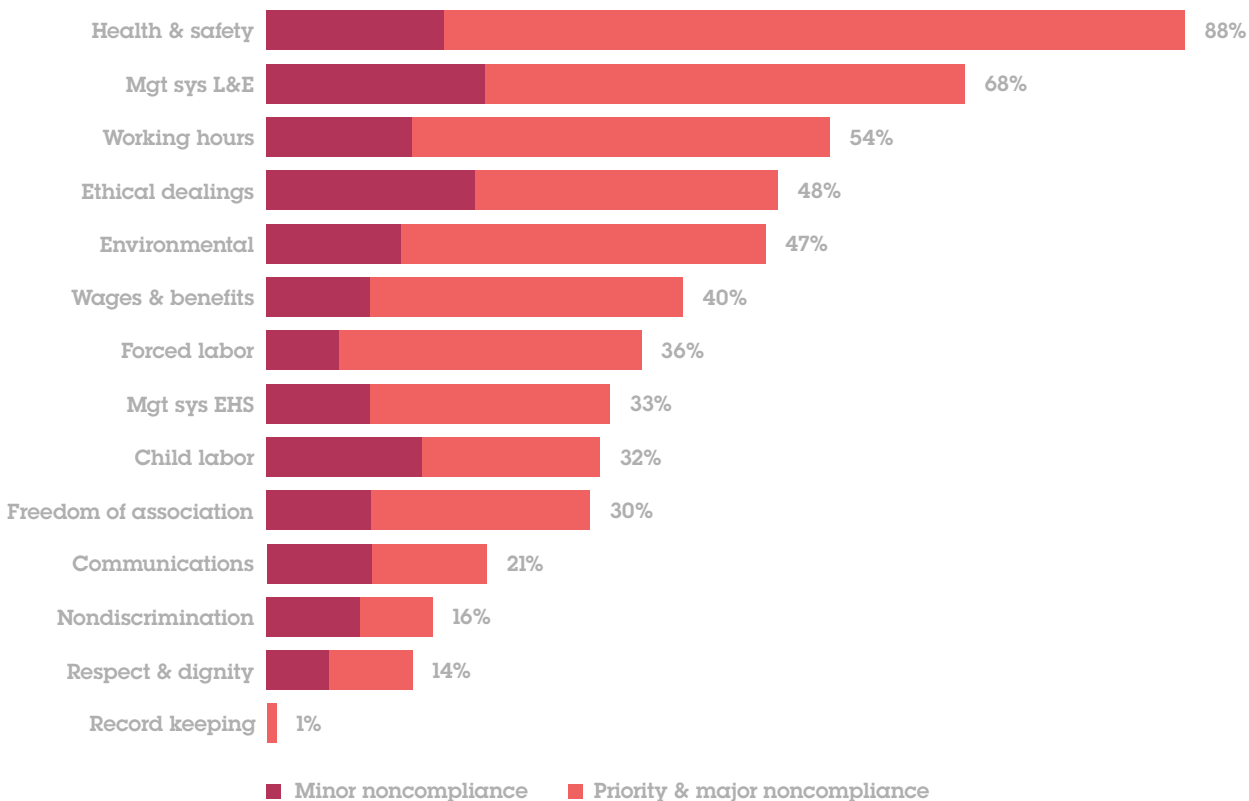
In 2014, IBM engaged its suppliers in 164 full-scope audits and 79 re-audits for a total of 243 assessments in 25 countries or territories. China was the most active for audits and re-audits, followed by Mexico, India and Taiwan. Fifteen countries had re-audit activity, from audits conducted in the prior two years, as we aim for re-audits to follow any full-scope audits with noncompliance.

Of the 164 full-scope audits IBM engaged its suppliers in, at year-end, reports were in hand for 112 audits. (Due to a large number of audits scheduled in fourth quarter 2014, many of the reports were received during first quarter 2015.) The results of the 112 full-scope audits are representative of the 164 and are depicted in the following chart.

For the 112 full-scope audits depicted, 67 were from Production Procurement suppliers and 45 from Services and General Procurement suppliers, in the latter case, these assessments were often the first time the suppliers were assessed to the EICC Code of Conduct.

Supplier full-scope audit results (2014) — Production and Services/General

(% non-compliant to EICC code; base = 112 assessments)

Category	%
Health & safety	88%
Mgt sys L&E	68%
Working hours	54%
Ethical dealings	48%
Environmental	47%
Wages & benefits	40%
Forced labor	36%
Mgt sys EHS	33%
Child labor	32%
Freedom of association	30%
Communications	21%
Nondiscrimination	16%
Respect & dignity	14%
Record keeping	1%

■ Minor noncompliance   ■ Priority & major noncompliance

In 2014 full-scope audits, health and safety was the most prevalent noncompliance uncovered, which is similar to recent years. Many of the findings in this category uncovered weaknesses in the supplier's management systems relating to health and safety, such as: frequency of conducting emergency drills, planning for all manners of emergencies, egress signage, training of first-aid personnel, and first-aid kit supplies. While we do require a complete post-audit Corrective Action Plan, suppliers tended to address the health and safety findings with expediency, often during the course of the audit itself. The second-most prevalent finding was in Management Systems (Labor and Ethics). The EICC Code (by design) is very robust in management systems relating to an organization's structure to attain and maintain long-term compliance to the code provisions. Suppliers with nonconformance were often lacking one of more elements of a strong management system — having documented goals, objectives, metrics, periodic reviews with in-line management, and tracking of closure actions. Working hours was the third-highest nonconformance, reflecting the challenge suppliers have in meeting the code or local requirements; however, we continue to see incremental progress in meeting this provision during successive audit cycles. Many 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 child labor (policies and practices pertaining to pre-employment age documentation). In no instances were underage workers found in these audits during 2014.

For each noncompliance found in an EICC assessment, the EICC audit report provides a description of the finding — and also, very importantly, a cross-reference to the specific aspect of the EICC code and/or the local regulation that it pertains to. This level of detail is indicative of the thoroughness of the EICC audit and is very effective in enabling the supplier to isolate the root cause of any noncompliance and to work on sustainable improvements.
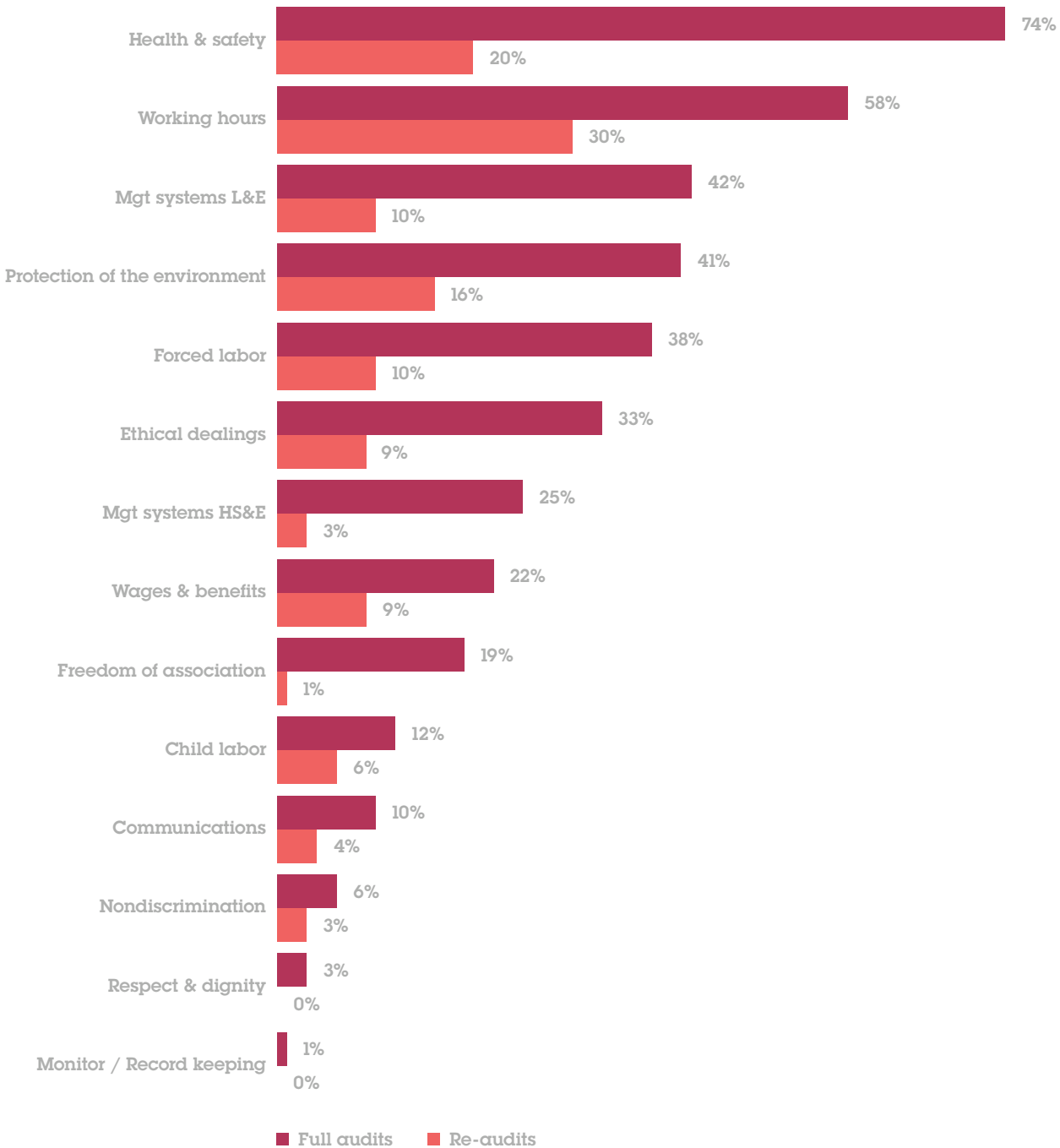
IBM's supplier assessment activity follows the prescribed methodology of the EICC, whereby audited suppliers create and submit a Corrective Action Plan (CAP) for all incidents of noncompliance discovered in the full-scope audit. The CAP links noncompliance back to its root cause and enables the supplier to create meaningful targeted improvements, and ultimately test their effectiveness by means of a closure or re-audit. During 2014, 141 supplier CAPs were reviewed and accepted within 90 days of submission (reflecting audits that occurred in late 2013 and throughout 2014).

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 2014 at 69 Production and Services and General Procurement suppliers are compared with their full-scope audits (conducted over the 2013-14 timeframe). For ease of reading and comparison, only major noncompliance results are depicted in the chart.

With regard to a number of code provisions, the re-audits indicated major noncompliance was completely remediated in respect and dignity, and in monitoring/record-keeping. In the top five noncompliant full-audit provisions, substantial reductions in noncompliance were achieved, including a 73 percent improvement in health and safety compliance, a 48 percent improvement in working hour compliance, a 76 percent improvement in management systems (labor and ethics), a 61 percent improvement in protection of the environment, and a 74 percent improvement in forced labor compliance.

Comparison of 69 re-audit vs. full-scope audit compliance

(% non-compliant, major non-compliance levels illustrated)

Category	Full audits	Re-audits
Health & safety	74%	20%
Working hours	58%	30%
Mgt systems L&E	42%	10%
Protection of the environment	41%	16%
Forced labor	38%	10%
Ethical dealings	33%	9%
Mgt systems HS&E	25%	3%
Wages & benefits	22%	9%
Freedom of association	19%	1%
Child labor	12%	6%
Communications	10%	4%
Nondiscrimination	6%	3%
Respect & dignity	3%	0%
Monitor / Record keeping	1%	0%

■ Full audits   ■ Re-audits

At the conclusion of the re-audits, working hours remained the largest area of noncompliance. While this is unsatisfactory, it is consistent with our understanding of the challenges associated with full resolution on a global basis, especially in developing markets. In particular, China poses a significant 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.

In 2014, just over 50 percent of re-audited suppliers (Production Procurement, and Service and General Procurement) resolved all major noncompliance issues after completion of one cycle — a significant accomplishment and testament to the results of following the EICC process. For the other 50 percent, 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.

With the results of the 2014 full-scope audits and re-audits, IBM is able to attenuate its communication plans with suppliers for the following year of assessments. Our plans for 2015 include a mass communication of the newly released EICC Code Version 5.0 (effective April 1) to our supply chain and a second round of advance notification for suppliers that will be selected to participate in EICC assessments (full-scope audits or re-audits).

Center of Excellence for Product Environmental Compliance
IBM's global Center of Excellence (CoE) for Product Environmental Compliance enables IBM to meet the global environmental regulations in all the countries in which IBM does business, by rolling out consistent methodologies to deliver environmentally compliant products. The CoE's mission includes the development of strategy, processes, deployment plans, research, and development of alternative materials and technologies, and education and training materials. The CoE also is an active member of industry and regulatory bodies around the world.

As governments worldwide become increasingly concerned about the health and safety of their citizens, the number of product environmental laws has grown exponentially over the last several years. Not only are such laws growing in number year over year, but they are also increasingly more detailed and the scope of what constitutes an environmental law has continued to expand. These product-oriented laws directly pertain to all hardware products IBM designs, manufactures, or contracts to manufacture, and/or purchases for resale. The scope of IBM's product environmental compliance work includes:

- Validating that all IBM hardware products do not contain prohibited substances, or do not exceed certain maximum thresholds of reportable substances, as called out by EU RoHS and REACH regulations
- Meeting power and energy reduction requirements
- Complying with the US Toxic Substance Control Act, French Nano Particle Decree, battery laws, product takeback regulations annual reporting, and import/export documents of conformance

Globally in 2014, IBM's CoE assessed 120 new and modified environmental regulations. From these 120 regulations, 64 required implementation plans and all were successfully executed to meet their respective compliance dates, without any detriment to IBM's client deliveries or IBM's revenue.

Engagement and collaboration

At IBM, we embrace a strategy of working with other parties who share our vision of making sustained improvements to transform the extended supply chain.

We collaborate with entities including industry groups, academics, nongovernmental organizations, and other professional organizations globally. We openly share our work — and in return, learn from — these varied groups in order to improve our continued efforts in supply chain social responsibility.

In 2014, IBM's involvement with the Electronic Industry Citizenship Coalition (EICC) continued in terms of support, participation, and utilization of the organization's numerous resources. The EICC celebrated its 10th anniversary in 2014 as a nonprofit industry group, and 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 2014, the EICC had grown to over 100 member companies across retail, electronics brands, contract manufacturing, hardware components, software, logistics, and communication industries, representing multiple distinct tiers of the extended supply chain.

Last year, IBM expanded its participation in a number of working groups including Conflict Minerals, Asia Program Outreach, and Validated Audit Process work group. Each member of IBM's Supply Chain Social Responsibility team is part of one or more of the EICC's work groups. This allows us to remain engaged in, contribute to, and learn from other companies that constitute the various groups. Building upon its long history of working with indirect suppliers (services and software), IBM accepted a role as team leader of the EICC's newly formed Indirect Spend work group. This work group is engaging EICC members who are deploying the EICC Code of Conduct to indirect suppliers that support the electronics industry. Suppliers in this sector are varied and range from large global firms to locally owned small enterprises, which presents a challenge in terms of communicating and assessing compliance to the EICC Code. This work group is also engaging key suppliers to collaborate on determining the most effective means of deploying the code and assessments in this varied sector of the supply chain.

Through the collective efforts of its members and external parties, the EICC attained these notable accomplishments in 2014:

- Completed a thorough stakeholder and membership review of the EICC Code of Conduct, and released Version 5.0 (effective April 1, 2015)
- Facilitated dialogue on trafficked and forced labor at EICC meetings and conferences between industry, government and civil society groups in the United States, China and Malaysia
- In cooperation with nongovernmental groups, sponsored development of a student worker toolkit to help support responsible management of student interns by electronics manufacturing facilities in mainland China
- Expanded the geographic coverage of the Validated Audit Process to more than 30 countries and deployed 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
- Continued growing membership in the EICC/Global e-Sustainability Initiative Conflict Free Sourcing Initiative (CFSI) and published updated rosters of conflict-free smelters for all four conflict minerals (tantalum, tin, tungsten and gold)
- Expanded its permanent office in Alexandria, Virginia, by hiring additional staff members to assist the organization in reaching its goals and objectives

In addition to its involvement with the EICC, IBM continues its long history of engaging with local and regional nongovernmental organizations that share our passion for a sustainable and responsible supply chain. The interactions between IBM and organizations in Guadalajara/Jalisco Mexico region is a continuous and robust example of this engagement. As a key member of the electronics ecosystem in Jalisco state, IBM collaborates with industry chambers and nonprofit organizations to foster the development of socially responsible practices in the electronics sector in Mexico — a key element of the Mexican economy. For the last four years IBM has collaborated with Red Activo Sustentable, a nonprofit organization that continues to help small and medium-sized enterprises to develop responsible practices. Over this time span, more than 500 local and regional companies have attended workshops on corporate responsibility. During 2014 IBM and Red Activo Sustentable developed a dedicated workshop for the electronics industry and its supply chain in Mexico. IBM also maintains a 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 supply chain.

In 2014 IBM furthered its broad-based external collaboration by attending and presenting on its various social responsibility supply chain initiatives in these important venues:

- Conference on supply chain social responsibility at Tecnológico de Monterrey, part of our activities with Red Activo Sustentable, with 100 attendees
- Conference on sustainable supply chain hosted by the Labor department of Guadalajara, more than 50 general managers attended from leading industries in Jalisco
- Conference on corporate social responsibility sponsored by Universidad Tecnológica de Querétaro, attended by more than 200 students as part of their studies in sustainability
- Presented at North Carolina State University on supply chain sustainability and the imperative for companies to adopt, implement, and successfully execute; audience was the top 25 supply chain students from China (as part of an exchange program)
- Provided the keynote speaker at the New York & New Jersey Minority Supplier Development Council to address an audience of women-owned, minority and small businesses on why having a well-established supply chain sustainability program is an imperative as well as providing a competitive advantage in the global marketplace.

Conflict minerals

In 2014, we continued working to achieve a supply chain free of minerals originating in conflict regions of the Democratic Republic of the Congo.

In 2014, IBM and other members of the Electronic Industry Citizenship Coalition (EICC), in conjunction with companies from other sectors outside electronics, continued working to achieve a supply chain free of conflict-originated Democratic Republic of the Congo (DRC) minerals. IBM participates in the Conflict-Free Sourcing Initiative (CFSI) industry group, where interested companies participate in working to resolve challenges associated with this issue.

By popular definition, four minerals (tantalum, tin, tungsten and gold) are considered conflict minerals, even though these materials are mined from other parts of the world and increasingly from legitimate sources within the DRC that are not conflict-related. Care needs to be taken to allow market access for legitimate sources of supply from within the DRC to participate in a compliant supply chain. Like the majority of companies using these four materials, IBM 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 in-scope direct suppliers relating to sources of supply.

IBM's conflict minerals program is run by a full-time, dedicated team of experienced supply chain professionals within the IBM Global Procurement organization. The Conflict Minerals Program team reports to IBM's vice president and chief procurement officer. Relative to IBM's use of conflict minerals, the following products designed and manufactured by our Systems and Technology Group are within the scope of our conflict minerals work:

- Systems — A range of general-purpose and integrated 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 2014, our efforts collectively harnessed the work of the past four years in preparing for the second round of reporting documentation required to be filed by June 1, 2015, with the US Securities and Exchange Commission under the Dodd-Frank Wall Street Reform and Consumer Protection Act, section 1502; specifically, the Specialized Declaration Form (Form SD) and related Conflict Minerals Report.

IBM's due diligence measures for conflict minerals conform to the framework set forth in the Organisation for Economic Co-operation and Development (OECD) Due Diligence Guidance for Responsible Supply Chain of Minerals from Conflict-Affected and High-Risk Areas. 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 in-scope direct suppliers using the CFSI Conflict Mineral Reporting Template (CMRT) 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 in good faith 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 regarding its supply chain to better understand the sources of these four materials.

To determine information about its upstream sources of the four materials, IBM has used in multiple iterations the CFSI CMRT with its in-scope direct suppliers. The CMRT was developed to provide companies with a common format for their upstream suppliers to identify the use of the four materials, the smelters or refiners used in the extended supply chain, and — where possible — the country of origin of the four minerals. In 2014 IBM deployed the CMRT to 324 in-scope suppliers for our systems, storage and microelectronics products, representing greater than 85 percent of our total supply chain expenditures for these three product groups. From these CMRTs we learned the identities of 264 upstream tantalum, tin and tungsten smelters, and gold refiners, located in 35 countries, used by our direct suppliers. The specific names and locations of these smelters or refiners can be found in IBM's 2014 Conflict Minerals Report. Illustrating the interest that companies have in conflict minerals, during 2014 IBM shared its own consolidated CMRT with 135 customers in support of their work on this topic.

IBM and members of CFSI have deployed 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 2014, CFSP updated its web-based list of conflict-free smelters and refiners, and as of June 2015 had identified 35 tantalum smelters, 44 tin smelters, 19 tungsten smelters and 75 gold refiners. The CFSP list is periodically updated, so interested parties are encouraged to access the CFSP 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 2014 that 49 percent of the smelters and refiners identified by our upstream suppliers were conflict free, with 96 percent of the tantalum smelters, 32 percent of the tin smelters, 23 of the tungsten smelters, and 50 percent of the gold refiners in IBM's supply chain conflict free. While 2014's results yielded a significant increase in conflict-free status, we know we have further to go and have plans to increase the engagement of smelters and refiners in the CFSP during 2015.

One means of expanding engagement is by direct interaction with smelters and trade groups that are associated with the processing of these materials. In 2014, IBM and other member companies of CFSI met in Indonesia for a multi-day engagement to discuss aspects of our work on conflict-free minerals. 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. IBM also attended the 2014 China Gold Conference in Beijing to establish channels for direct contact with gold smelters in China that are not engaged in the CFSP. Additionally, IBM contributed to the CFSP Initial Audit Fund, which provides a financial incentive to encourage CFSP-eligible smelters to participate in a first-time assessment.

For more details on our overall conflict minerals work and plans to further our efforts, please see our 2014 Conflict Minerals Report.

Supplier diversity

IBM has long recognized that diversity is critical to fostering innovation and delivering value to clients — and that supplier diversity adds to our competitive advantage while stimulating growth in a global marketplace.

IBM created its supplier diversity program in 1968, before the existence of the US Department of Commerce's Minority Business Development Agency (MBDA). Our program's goal is to provide opportunities to diverse suppliers who can add value in every region where we operate.

IBM was the first information technology firm to join the Billion Dollar Roundtable, an organization that encourages corporate entities to grow their supplier diversity programs by increasing commitment and spending levels each year. Since 2000, IBM has annually conducted greater than $1 billion in business with first-tier diverse suppliers in the United States. With the growth of IBM's diverse supplier initiative outside the United States, IBM since 2006 has conducted more than $2 billion in business annually with first-tier diverse suppliers globally. In 2014, IBM purchased $2.9 billion in goods and services from first- and second-tier diverse suppliers globally, of which $1.5 billion was with first-tier diverse suppliers in the United States and $883 million with first-tier diverse suppliers in other countries.

IBM's diverse supplier expenditures with first-tier suppliers declined in 2014 as the result of business actions beyond the sphere of influence of IBM's supplier diversity activities. A number of diverse suppliers were providing goods and services for business lines that IBM divested in 2014 (IBM's customer care Business Process Outsourcing services that were sold to Concentrix and IBM's System x server business sold to Lenovo); spend associated with these suppliers is reflected in the report up to the point of divestiture. Also in 2014, one of IBM's larger diverse suppliers in the United States relinquished its diverse status due to its growth and transformation into a publically owned company.

In 2014, IBM was selected for the 12th consecutive year as one of the Women's Business Enterprise National Council's top corporations, and was recognized internationally by the UK's Employers Network for Equality and Inclusion's Inclusive Procurement Award. We were also honored with Supplier Diversity Programme of the Year by the European Diversity Awards In addition, Michael Robinson, IBM's program director of global supplier diversity, was inducted into the Women's Business Enterprise Hall of Fame, was given the Ronald H. Brown Leadership Award from MBDA and was selected as Advocate of the Year by the Minority Supplier Development China organization.

IBM's will continue fostering diversity in its global supply chain as business needs evolve. IBM works with external organizations to support identification and development of diverse firms in the countries where we have purchasing needs.

Amount of IBM business conducted with first-tier diverse suppliers

($ in millions)

Year	Value
2014	2.4
2013	2.7
2012	2.6
2011	2.5

Governance

At IBM, we continuously strive to transform our company culture as the world around us changes. Our culture is firmly based on ethics and integrity but is also fluid to reflect current issues, challenges and opportunities. This culture is guided by a rigorous system of corporate governance; in this section you'll 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

The ultimate responsibility for our economic, environmental and social performance lies with IBM senior management, as does 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 is charged with providing leadership and direction on key corporate responsibility issues. Senior executives from functional areas across the company make up the committee, which is chaired by the vice president for Corporate Citizenship and Corporate Affairs. Each functional area within IBM is responsible for the development of its own corporate responsibility goals and strategy, and organization-wide goals are approved by the steering committee.

Corporate Responsibility Working Group

Consisting of representatives from 10 functional areas (including global representation), our Corporate Responsibility Working Group meets at least monthly to manage IBM's corporate responsibility activities and stakeholder engagement across the company. The working group is responsible for reviewing key policy and strategic issues and making 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.

Ethics and integrity leadership

IBM has a long history of ethics and integrity leadership. Creating a culture of ethics and integrity starts with our employees and leaders and extends to our business partners, suppliers and communities in which we live and work. To propagate a culture of ethics and integrity, we teach, listen and collaborate. In 2014 we enhanced and added a number of initiatives designed to help reinforce our standards and values.

In 2014, as in prior years, IBM saw 100 percent participation by its employees around the world in its online Business Conduct Guidelines (BCG) course and certification. First published in 1961, the BCG is currently available in 24 languages around the world. For nearly 10 years we have provided an online, interactive BCG training program in 14 languages. It is refreshed annually to include timely, relevant business scenarios that employees may face when conducting IBM's business. IBM's trust and compliance officers, lawyers and management also work to provide compliance and ethics training to employees around the world in targeted group sessions.

In 2014, we supplemented our employee ethics and integrity education program with three new online courses for employees who are achieving career milestones. These education modules are designed for employees new to IBM, those promoted to management positions and those taking international assignments in emerging markets. Also in 2014, IBM senior business leaders around the world worked to foster our culture of compliance by sponsoring integrity summits in eight cities, primarily in emerging markets. These summits emphasized the role of leaders in creating an ethical culture and focused on key compliance risks in each region, along with specific actions that can be taken to mitigate these risks.

In addition to teaching about ethics and integrity, we also listen. For more than 50 years, IBM has maintained an internal "speak up" reporting channel for employees, as well as channels for suppliers, business partners and others to report concerns or suspected violations to the company. These channels support anonymous reporting. Ten years ago, we added an online component to that channel. And since 2010, hundreds of thousands of IBM employees have provided their perspective on integrity at IBM by participating in our semi-annual survey. In 2014, more than 45,000 employee surveys were completed, providing valuable feedback about employee perception of ethics and integrity within the organization. The insights from these surveys are used to enhance our global ethics and integrity programs.

IBM's commitment to ethics and integrity leadership does not end with our employees, however. We also provide online ethics and integrity education to our business partners' and suppliers' employees, as part of their partnership commitment to IBM. In 2014, IBM extended its online education offerings to nearly 15,000 representatives from our business partners and suppliers around the world. And since 2013, IBM's chief trust and compliance officer has delivered an address at our Global Business Partner Leadership Conference (Partner-World®) on the value of ethics and integrity. In 2014, the presentation "Why Integrity Matters — Mitigating Regulatory and Other Risks" was delivered to more than 1,400 business-partner employees at this event. Also in 2014, IBM's compliance team delivered in-person ethics and integrity training to more than 800 supplier employees representing 500 supplier entities across 22 cities.

Consistent with our commitment to the communities in which we do business, IBM collaborates with universities to deliver ethics and integrity seminars. In 2014 we partnered with US universities to support the Young African Leadership Initiative (YALI) Fellow program. YALI is sponsored by the US Department of State and hosts 500 young African leaders for six weeks of networking and skills-building programs in business, entrepreneurship and public policy at US universities, commencing with a session in Washington, DC, and a meeting

President Obama's message to the Young African Leaders Initiative applicants.

with President Obama. IBM contributed faculty to four of the business- and entrepreneurship-sponsoring universities — University of Notre Dame, Yale University, University of Texas and Clark Atlanta University — to conduct a seminar entitled "Ethical Leadership & Business Integrity — Creating a Culture of Trust." This seminar reached more than 100 YALI fellows during their skills-building visit. IBM also conducted seminars on creating a culture of trust at other universities in the United States and the Czech Republic.

Just as we have done for many years, IBM intends to continue its tradition of teaching, listening and collaborating with all our constituents around the world for many years into the future.

Security and privacy

Security is an important consideration for every organization around the world today. At IBM, we not only carefully consider security when developing our technology solutions, we also examine our internal systems and processes to assess how we can best reduce risk to help us maintain the continuity of our business. We know that security has a human element, so we continuously strive to reinforce a cybersecurity-aware culture within our company and throughout the communities around us.

IBM's Marie Wallace talks about privacy by design and humanizing analytics during a TED Institute presentation.

To that end, each of IBM's active employees completes a mandatory, annual cybersecurity and privacy course. Simulated phishing exercises are periodically conducted for employees to give them hands-on experience in recognizing and avoiding phishing attacks. Additional advanced training is provided on phishing and social engineering, and employees who administer IBM applications, systems and networks receive tailored education to make them aware of their security responsibilities.

Each October, IBM takes part in National Cybersecurity Awareness Month, led by the US Department of Homeland Security and the National Cyber Security Alliance. IBM is a corporate champion of the event and in 2014 used the occasion to launch a series of short, animated cybersecurity videos for employees. Also as part of the month-long event, IBM provides resources for employees to share with family members, neighbors, schools and communities. In addition, IBM conducts year-round IT security awareness campaigns — often focused on specific security risks, countries or business units — with articles, blogs, posters, flyers and other materials designed to reduce security risks and increase our employees' cybersecurity IQ.

Privacy

Information has become one of the most important and influential forces in the world today. Information enables social progress and economic growth while empowering people, organizations, and communities. By collecting and using information in inventive ways, we are able to explore new opportunities, achieve new goals and gain a deeper understanding of the world around us.

However, as the value of information increases, so does the responsibility to safeguard it. Data can be closely tied to individuals, making it more sensitive. Organizations that collect data must work hard to earn the public's trust in their ability to steward information, and in turn, consumers must take educated steps to protect themselves and their families.

At IBM, we believe that privacy and data protection must be built into the fabric of our business, and we take this responsibility seriously. We've built a globally recognized enterprise privacy program that follows privacy-by-design practices. Our software tools for performing global privacy assessments of 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 help us improve risk management and usability.

Enterprise risk management

At IBM, we believe that innovation and leadership are impossible 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 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 2014, we

continued to enhance our approach with scenario planning, increased education and awareness training and analytics.

The IBM Risk Management Framework aligns to industry standards and good practices, focusing on leadership, programs and practices, enablement, and effectiveness supported by a strong risk-aware culture.

Leadership
Senior management continued its collaborative process of identifying, evaluating and managing enterprise-level risks in 2014. This includes periodic reviews and interaction with the board of directors and the audit committee, which oversee 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 across units globally. 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 identifying and managing 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.

IBM Risk Management Framework
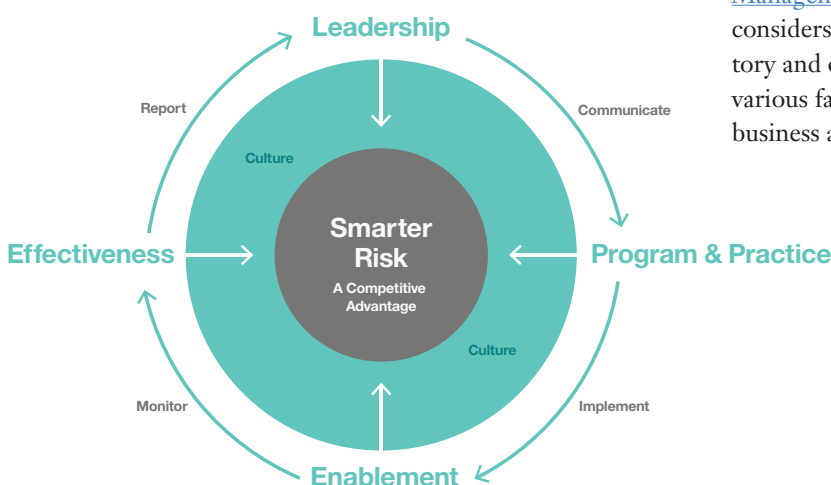
10,000

the approximate number of IBMers who collaborate in an internal social community, engaging on key risk stories, news and practices and identifying and connecting risk-management experts

We held in-depth discussions with leading consultants on emerging risks and conducted a robust internal study that included polling, surveys and interviews of approximately 130 top executives. As a result, we updated our enterprise-level risk map and refined senior management focus for 2015.

In 2014, IBM introduced a structured assessment approach for risk scenario planning. The changing business context, including global expansion, integration and associated interdependencies, has increased the risk landscape. In response to these dynamics, we are using this practice to evaluate the implications of a range of plausible future conditions so that we can be better prepared to adapt IBM to meet society's changing needs.

Enablement

IBM is also focused on applying technology, tools and analytics to support risk management. This past year we built upon the success of the award-winning Country Financial Risk Scorecard, which leverages big-data automation to monitor trends and help develop intelligent and actionable insights. We introduced focus-country risk summaries to provide just-in-time, robust, end-to-end views of situations of emerging risk. These summaries combine financial insights with actions taken by crisis management, business continuity, supply chain and finance to help reduce the likelihood of our impact on IBM's clients and operations. Together, these leverage IBM's analytics solutions, such as Cognos and SPSS, to integrate more than 120 internal and external inputs, which can provide an integrated view of country and regional risk on a near-real-time basis for more than 160 countries. Analytics is the next big

frontier for risk management, which when coupled with the abundance of data, provides the ability to infuse insight into risk management. 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 success in mitigating 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 raised the bar on its evaluation of its ERM practices and focused on more senior-level enterprise risk, business unit and country representation in 2014. Additionally, we continued our benchmarking with other leading organizations.

Culture

The success of the framework is predicated on a strong culture of risk awareness, identification, analysis and mitigation. In support of this, IBM continued to expand its risk education and training, segmenting our population and providing customized resources for targeted audiences. For example, following the risk workshops with teams in Africa, Asia and the Middle East, we held sessions in 2014 with teams in Latin America and Europe and extended our employee risk certification process. We are also leveraging IBM's social capabilities as a means to ingrain risk management and risk consideration practices deeper into the fabric of the organization and build institutional knowledge, strengthening the risk culture.

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 collaborated with the Resilience Action Initiative to develop a framework to apply a resilience lens for enterprise risk management.

Public policy

IBM is committed to making a positive and meaningful impact on the countries and communities in which we do business. 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.

Several years ago IBM began a major expansion of its business in Africa and in 2014 announced an investment of $100 million in South Africa, to be made over a period of 10 years. The investment is known as an Equity Equivalency Investment Program (EEIP) and is part of IBM's contributions to Broad-Based Black Economic Empowerment, an initiative of the South African government aimed at promoting economic transformation to enable meaningful participation of disadvantaged people in the economy.

The EEIP represents a first-of-its-kind integration of academics, enterprise development and research into a holistic program. Investments are intended to provide a vehicle for advancing science and technology by developing critical information and communications technology (ICT) skills in new, disruptive technologies such as cloud, big data and analytics, mobile, social business and security. The goal is to build a cadre of next-generation entrepreneurs in these disciplines and foster innovation essential for South Africa's economic growth and digital competitiveness. IBM is partnering with University of the Witwatersrand in Johannesburg and the Council for Scientific and Industrial Research on this project.

The EEIP is comprised of three initiatives:

- Enterprise Development Program (EDP)
  EDP is focused on developing black-owned and black-women-owned businesses with an emphasis on small- and medium-sized enterprises (SMEs) and South African youth. The goal of the program is to help facilitate development and provide opportunities for aspiring entrepreneurs, SMEs or mature enterprises looking to acquire new skills and capabilities.

- Academic program
  IBM will work with University of the Witwatersrand to help provide funding and curriculum development that can be used with students at various levels, from undergraduate and bachelor's degrees in ICT and engineering through master's and Ph.D. candidates.

- New IBM Research — Africa Lab
  The new IBM Research — Africa Lab will focus on pressing business and societal challenges that can be best addressed through advanced information technologies such as big data, cloud, and mobile to help support South Africa's national priorities, drive skills development in science and technology, and foster innovation-based growth. We plan for researchers to work with local universities, research institutions, innovation centers, start-ups and government agencies to help bolster South Africa's emerging innovation ecosystem and develop next-generation technology skills.

The new lab will be located in an inner-city area of Johannesburg, which will allow researchers to explore the role of advanced digital technologies and big-data analytics in urban renewal. They will also look at helping to improve health care in resource-constrained environments in South Africa and across the continent.