

INNOVATION

IBM IN THE UK 2005

Our business

**We see innovation
as the application
of fresh ideas
and new ways of
thinking to deliver
business value**

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INNOVATION THAT MATTERS

Idle computers to tackle disease
2004 - IBM, together with the world's leading science, educational and philanthropic organisations launched



World Community Grid. By tapping into the vast, unused pool of idle computers around the world (estimated at more than 650 million), the Grid will enable researchers to help unlock genetic codes which underlie diseases such as AIDS, Alzheimer's and cancer. Computing time is being donated by thousands of IBM employees, as well as scores of PCs and laptops from computer users from the UK and around the world. In fact, anyone can volunteer to donate the unused time on their computer by simply registering at www.worldcommunitygrid.org

Innovation remains at the heart of what IBM and its Business Partners provide to thousands of clients, large and small, across the UK

Larry Hirst, Chief Executive, IBM United Kingdom Limited.



Welcome to IBM in the UK - Innovation 2005

Innovation might seem a natural theme for a publication from IBM. But we hope we'll surprise you by describing some of the ways we're continually innovating in the UK to help clients unlock business value; how we ourselves are transforming into an increasingly flexible and responsive company; and how we endeavour to develop as a progressive employer. Here, we review some of the ground-breaking work our workforce of around 26,000 is carrying out across the country and how we continue to work hand-in-hand with our communities to inspire a thirst for innovation among future generations.

But what is innovation? One definition I've heard is that it's about 'turning ideas into money,' - as opposed to invention, which has been described as 'turning money into ideas'. For our part, we see innovation as the application of fresh ideas and new ways of thinking to deliver business value.

Call it what you will, innovation is something no company or institution can master on its own. That's why IBM is indebted to its Business Partners; our friends and colleagues in academia; vital Government departments; and other influential communities across the UK who constantly challenge and advance some of our own thinking and ideas. These relationships, some formal, others informal, are at the heart of an 'ecosystem' of innovation, which really help us change the way business gets done and the way we view the world.

Innovation remains at the heart of what IBM and its Business Partners provide to thousands of clients, large and small, across the UK. It's no surprise, therefore, that our clients remain the finest advocates of our work. You'll read about a number of examples of our work with our clients in these pages.

This booklet has been designed to convey the innovative spirit of IBM's business and people here in the United Kingdom. It is neither a definitive history nor a comprehensive round up of our products and services. If you would like more information on these topics - and other elements of our business - please visit ibm.com/uk.

Thank you for taking time to read about IBM's involvement in the United Kingdom.

Larry Hirst
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ibm.com - ten years on

Today, the Internet is at the heart of IBM's transformation to an on demand business. Payroll, human resources, finance, procurement, customer care and marketing all use the Internet to unite data and processes across the enterprise. Worldwide, IBM 'e-procures' over £20 billion worth of goods and services online each year. IBM's online sales amount to over £4 billion and millions of our clients' technical queries are answered via the Internet.

ibm.com - transforming the client experience

ibm.com is the public face of IBM on the Internet and a high performance and cost effective sales channel that participates in every stage of the sales cycle – from identifying leads through to closing the deal.

IBM launched ibm.com ten years ago when the Internet was still a nascent technology and most organisations remained unconvinced of its relevance to the world of commerce and service.

As the e-business era matured, our clients began to expect more and better service from IBM. Ease of doing business became central to how clients judged their supplier relationships and both the Internet and the telephone had a role to play. In response to this IBM merged its telephone-based sales organisation with the Internet management group to form ibm.com as we know it today.

It means that the company's massive Internet operations are supported by a team of thousands of telephone-based personnel to deliver fast, easy access to IBM's entire portfolio – and the human touch – to clients whenever they require it.

Working closely with both Business Partners and Independent Software Vendors, ibm.com is able to respond to client needs with industry expertise, solutions and world-class support. In the UK alone in 2004, IBM identified a large proportion of its business opportunity through ibm.com. Its 200 employees are based in the IBM offices in Portsmouth, Hampshire.

For example, many of IBM's UK clients are now able to purchase from an Internet site personalised to their precise requirements. In the case of Virgin Group, ibm.com was able to deliver a multi-account site customised for 12 of the Virgin companies, providing each with unique pages and capabilities (such as order tracking) while allowing Virgin Group to benefit from Group pricing.

And the innovation does not stop there. In the UK, ibm.com has recently enabled many of its Business Partners to register opportunities online and these can be tracked via their extranet sites (sites which are secure and exclusively accessible only by IBM and the Partner). A process which used to take weeks to finish can now be completed instantly, transforming client satisfaction, reducing costs and improving revenue.

IBM's on demand workplace

Transforming the way we work to be more mobile, more flexible and more client-focused requires a world-class information infrastructure. On demand workplace (ODW) is IBM's leading edge employee intranet. But its role extends way beyond providing our employees with information. Today, the ODW is providing an interactive hub customised to the needs of each employee. From procurement to selling, from training to collaboration, ODW is IBM's integrated platform for getting work done.

ibm.com was launched in 1994. It was up and running 13 days after a successful prototype demonstration

In the UK in 2004, ibm.com generated 900,000 unique visits

One site – many roles

When IBM launched ODW in 2004 it generated 137 million page views in its first week, an all-time high for an IBM internal site. More than an intranet alone, this single portal is where employees come to access the resources they need for their job or to connect with colleagues around the world. >>>



INNOVATION THAT MATTERS

Machine vs Man - checkmate

1997 - IBM's Deep Blue chess computer played a fascinating match against reigning World Chess Champion Garry Kasparov



- and won! Instead of imitating the way humans play, the Deep Blue supercomputer applied a different approach, examining close to 100 million chess positions per second. The match was a major media event, reaching an estimated seven billion people worldwide. Deep Blue contributed to a new philosophical approach to solving complex problems which led directly to the notion of 'deep computing' - a way of developing solutions to previously intractable business and scientific problems.

A new on demand
workplace intranet
site attracted
137 million
page views in its first
week - an all time high

More than
60 per cent
of employees use
self-paced e-learning

Using BluePages,
employees can access
expert advice from
anywhere in the world

>>> Take the manager portal, for example. It makes the important job of being an IBM manager easier. From strategy to suggestions, from tips to tools – they're all there and managers are finding the portal a real time saver.

Connecting people

BluePages is an integral part of ODW. It is IBM's Web-based expert location tool that lists every employee and their particular talents and experience. The ability to find the expert with the right skills in real time is proving highly successful, saving employees on average two hours each month.

From one Web page, this innovative tool allows 320,000 IBM employees around the world to find each other and hook up via phone, email and instant online messaging.

Lifelong e-learning

Meanwhile, the Learning@Work portal opens the door to thousands of courses, books and an extensive portfolio of training and education for all IBM employees. Today, more than 60 per cent of UK employees are regular users of e-learning, which now accounts for more than half of all our education activities, reducing costs significantly.

Shaping our culture

ODW is transforming the way IBM communicates and shaping a new culture of collaboration at the company. Indeed, collaboration is the key to unlocking the innovation and talent of a large, dynamic and mobile workforce, and to transforming this innovation into value for our clients.

Nowhere has the culture of collaboration come alive more than in IBM's online 'Jams' where employees all over the world come together via the ODW to participate in open discussions on a variety of topics important to them personally - or to IBM's business.

Some 57,000 IBM employees took part in the latest 'WorldJam' event, held over two days and nights in October 2004. Thousands of ideas and comments were posted, dealing with issues such as innovation, the client experience, people management, our company's values and opportunities for new growth. In all, some 2.4 million page views were registered.



The way we work

IBM cut the ties that used to bind employees to their desks way ahead of many of the UK's major companies. Equipped with the right technology, our sales and consulting employees immediately saw the benefits of being able to work where they were needed and to spend more time with clients. Today, the majority of IBM's UK employees are mobile, working in flexible teams and enjoying the freedom of the on demand workplace (ODW).

IBM was among the first in the UK to equip client-facing staff with a mobile tool kit - a lightweight ThinkPad and the means to connect with office systems through a remote dial-in. This strategy recognised the true value of time spent working alongside clients, and changed the way we worked, long before the current trend in remote working took hold.

The business benefits were quickly realised. Employees' productivity increased, time was no longer wasted driving into city-based offices, travel costs were reduced, and desk space was used more cost effectively.

83 per cent of IBM UK employees can access the Internet and intranet and collaborate with colleagues when away from the office by connecting to IBM's systems via a phone line, broadband, GPRS or even a wireless hotspot in an hotel or airport.

Flexible choices make good business sense

When the UK Government announced its more family-friendly working policies in 2003, some of the country's largest employers were anxious about how they could absorb this new approach into their working practices. For IBM there was no such concern. Flexible working is well advanced throughout the organisation and people are constantly finding new ways to improve the balance between work and home.

IBM recognises that presence in the office doesn't equal performance, and the company's forward-looking stance on flexible working is based on the convergence of business and personal aspirations.

By enabling individuals to accomplish their goals at work in creative ways - by working fewer days a week for instance, or from a different location - employees are more productive and energised.

Additional benefits

Our commitment to flexibility and choice helps IBM to attract and keep the best new hires. Today's new recruits seek a relationship with their employer which is constantly evolving and reflects the changes in society and what our employees and clients are looking for in their own lives. >>>

83 per cent of UK employees can keep in touch with
the business when they're on the move or away from the office



Working reduced hours gives me more time for my family, but I also have more energy when I'm at work which helps me focus and really add value

Tim Shercliff, strategy and marketing director, IBM Global Services with his daughter Ellie. Tim has worked reduced hours for the past four years.

>>> There is a partnership to be maintained, where employers require greater flexibility from employees to meet the demands of the on demand world and where employees seek more flexible ways of working and being rewarded. The goal for both is a workforce model that is dynamic and flexible in its capability and also in the opportunities it has for reward, recognition and individual development.

Choices for all employees

Currently, over four per cent of IBM UK's employees work reduced hours. Nearly six out of ten employees have flexible arrangements in place which allow them to work from home or from a variety of locations. Many more have the mobility tools to bring real flexibility to the working day. These employees are men and women from all age groups, and all levels of seniority, and they work this way for a variety of reasons. Some have family commitments, others want to devote more time to voluntary work or a particular hobby.

Flexible working covers a whole range of solutions from job sharing, term-time working and compressed hours, to sabbaticals or leaves of absence, enabling everyone to contribute their full energy and talents to IBM while recognising and managing individuals' different lifestyles.

Employees of all backgrounds are role models for modern ways of working. These include mothers returning from maternity leave but also include professionals and managers, men and women, of all ages, working reduced hours. Their reasons are varied and include the desire to spend more time with family and the pursuit of other interests outside of IBM.

Around **850** IBM UK employees choose to work reduced hours

Nearly **six out of ten** employees work flexibly in a combination of working from home or from several IBM locations

The expectations and aspirations of employees in the 21st century mean that IBM wants to have available a wide range of options to support employees who want to make choices in their working lives. These options cover all aspects of the relationship between employer and employee.

INNOVATION THAT MATTERS

Swansea invests in medical research centre
 2005 - University of Wales, Swansea, announces a £50 million investment to create one of the world's premier



scientific and computing facilities for research into life sciences. The Institute of Life Sciences (ILS) will host a new Deep Computing Visualisation Centre for Medical Applications. The Centre will include a new IBM supercomputer - which the university has named 'Blue C'. The Centre will research new solutions for healthcare treatment, personalised medicine and disease control. IBM provides technical expertise and guidance, as well as specialist life sciences solutions that will enable a joint development programme. The ILS provides support for micro-companies, translating knowledge into commercial opportunities, and enhancing an entrepreneurial culture.

The dramatic growth of services

The story of IBM's services business is the finest example of our commitment to finding new and innovative ways to bring value to the client. In 1991, fewer than ten per cent of IBM's revenues were derived from services. Today in the UK, services accounts for a large proportion of IBM's overall business. What lies behind this dramatic growth? The answer is simple: the emerging needs of clients.

Those needs have changed completely over the past decade. Our clients saw the value that technology could bring in supporting and improving their business processes. They also saw that keeping on top of a bewildering array of technologies was not a core business function. What they needed was a partner to reduce costs, keep their technology fresh, keep it running and, most importantly, make it all work together to deliver sustainable competitive advantage.

Enter IBM and a period of sustained investment in the skills that would eventually bring to life IBM Global Services, as we know it today. It is now the world's largest services organisation with more than 150,000 employees worldwide.

Of course, IBM already had deep experience in IT services. But prior to the 1990s, much of this was closely tied to maintaining and integrating our own hardware and software products. In order to become a true technology partner to our clients, we needed not only to be the experts in integrating and managing our own technology, but also the technologies of the many other IT companies our clients did business with – many of them IBM's competitors.

IBM soon began to take this vision of a closer partnership to another level, investing the resources and skills to make outsourcing a viable alternative for the client. IBM UK's early investments laid the foundation for its continued leadership of what remains today a core element of its business.

Today, IBM Global Services has evolved into the world's largest and most innovative consultancy, systems integrator and strategic outsourcing leader, providing a full range of services to clients around the globe. Our clients in the UK entrust to IBM everything from training solutions to application management; from wireless solutions to full strategic outsourcing.

And we continue to invest in the skills and resources to maintain IBM's leadership in the UK. In April 2004, IBM responded to the increasing client demand for business continuity and disaster recovery services by bolstering its own state-of-the-art capabilities in Europe with the purchase of Schlumberger's business continuity services unit.

The purchase has added around 10,000 seats to IBM's capacity in Europe in the form of call centres, office space, and financial trading facilities that can be deployed in the event of a major business disruption.

Delivering value: IBM Business Consulting Services

Back in 1992, IBM first began responding to the client's need to connect business and technology strategies – unveiling the IBM consulting group with 1,500 consultants to provide management and IT-related consulting services worldwide. The dramatic growth in the scale and range of IBM's consulting business today is the clearest evidence that more than ever our clients value the combination of technical, business process and industry expertise.

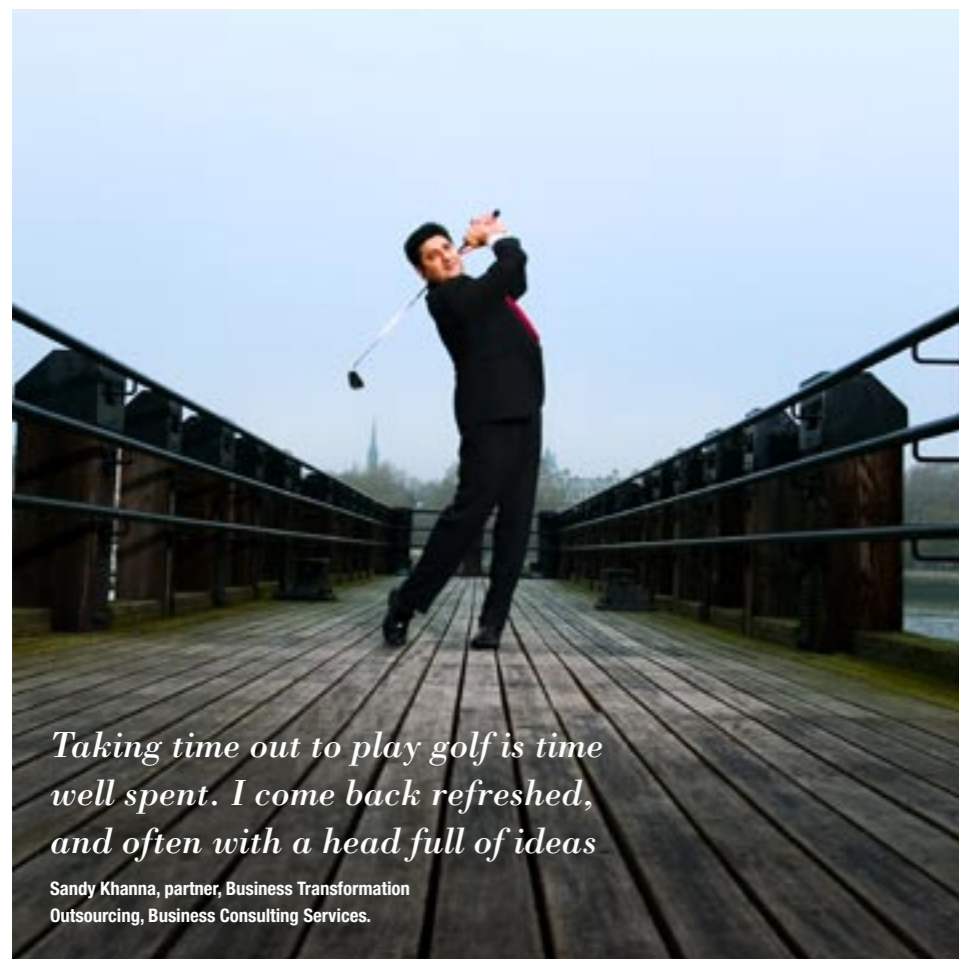
Today in the UK alone, thousands of IBM consultants are working in partnership with clients in all industries to breathe new life into existing business processes, create new capabilities or develop fresh thinking in order to find new ways to uncover competitive advantage.

Be it improving the efficiency of financial management or finding better ways to manage client relationships; optimising the supply chain or unlocking the full potential of employees – IBM's focus on innovation and creating value remains constant.

Today in the UK alone, thousands of IBM consultants are working in partnership with clients in all industries

IBM Global Services is the largest services organisation in the world

IBM responded to the increasing client demand for business continuity and disaster recovery services by bolstering its own state-of-the-art capabilities in Europe



Change agent

IBM's history has been one of constant transformation. It began with the invention of programmable machines and the punch card system, and has led the way through generations of technological change to reach today's networked world of on demand business, wireless communications, supercomputers and nanotechnology.

The company has evolved from a predominantly manufacturing and sales company to an organisation that offers complete business solutions backed by unrivalled industry services and technology expertise.

The constant thread through this journey of transformation has been a consistent focus on innovation and a passionate desire to respond to the needs of IBM's clients.

Perhaps more than any other IBM site, Greenock in Scotland epitomises the company's ability to re-invent itself to meet changing client needs. It has been part of IBM's rich heritage in the UK for more than 50 years.

Thomas J Watson, the founder of IBM, could trace his ancestry back to the banks of the Clyde and some believe his choice of Scotland as a possible site for a UK factory was an acknowledgement of his roots.

Automation pioneers

The factory created through visionary zeal became the manufacturing base for punch cards and typewriter production, then keyboards and computer displays, among others.

During the 1960s, Greenock produced the first desk-sized computer system and the plant doubled in size. In the 1980s, the plant became the manufacturing centre for IBM's ground-breaking personal computer, producing supplies for the whole of Europe, Middle East and Africa. It was one of the first places to use robots on the production line, with its Puma machine becoming the plant's first island of automation in keyboard production.

The last decade has seen impressive, forward-looking developments at Greenock. First, a Technical Help Centre to handle calls from across Europe opened on site, and then a central operation was set up to manage the distribution of goods and services to IBM's substantial network of Business Partners.



Over the years, the changes in culture and mission at Greenock have been profound. IBM Greenock is seen as a microcosm of the IBM Corporation - diverse and multi-skilled, playing host to a number of business divisions including Global Services and the Integrated Supply Chain, with more than two-thirds of employees in client-facing roles.

IBM employees at Greenock provide a direct link with Business Partners and clients buying a range of IBM products. This team responds in 20 languages to customers across 70 countries. Meanwhile, customer services representatives speak to around five million clients a year. They cover 15 countries, and provide a broad range of services to clients in 12 languages.

IBM employs around **2,800** people at Greenock in Scotland - more than **2,000** working in client-facing roles

Customer services representatives speak to around **five million** clients a year

Rewarding innovation

The spirit of innovation at Greenock runs deep and, when an innovation awards programme was set up within the Supply Chain unit, it proved so popular it was quickly extended to cover all the areas on site.

In 2004, the Innovation Awards had five categories, including increased shareholder value and technical improvements. The success of the initiative can be highlighted by the number of innovations generated over 2004 which equates to over 150 innovations across the campus, all contributing to factors such as improved employee and client satisfaction.

The Innovation Awards dinner was a huge success and took place the same weekend that the site opened its doors to employees and their families. More than 12,000 people attended the special gala open day and evening.

IBM founder Thomas J Watson traced his ancestry to the banks of the Clyde and chose Greenock as a major European IBM site



Our heritage and our future

**We strive for
innovation
that matters -
for our company
and the world**



In 2004, we invited the children of IBM UK employees to define what they understood by the term 'innovation'. The winner of the up-to-eight-year old category was Louise James. Her father, Paul James, is a technical solutions manager in IBM Global Services.

Working together on what proved to be a ground-breaking project has been inspirational, challenging, educational - and great fun

From left to right: Peter Lambros, Tony Storey, Graham Spittle, Peter Niblett and Tim Holloway, members of the team behind the development of WebSphere MQ software, that won the highly prestigious Royal Academy of Engineering MacRobert Award for innovation in 2004. This breakthrough features in a display in the Science Museum, London, in 2005.



The great think tank

IBM opened its first research laboratory in New York in 1945. Today, the company operates eight research labs worldwide, complemented by a further ten development labs around the globe. These include the worldwide software development lab based in the UK at Hursley, near Winchester, in Hampshire.

IBM's annual investments of around \$5 billion in Research and Development (R&D) make it one of the largest research institutions in the world, employing over 3,000 scientists and engineers. Take Hursley as an example. It is one of the largest software development laboratories outside of the United States and, on a global scale, the revenues generated by products from this lab alone would make it a significant software business in its own right. The company has an enviable track record in research. Five IBM employees have been awarded Nobel prizes over the last 30 years, for research work spanning superconductivity, the design of the scanning tunneling microscope and tunneling phenomena in semiconductors. IBM pioneered the development of numerous critical breakthroughs in the development of IT - from voice recognition software to nanotechnology; from hard disk drives to the development of new materials for integrated circuits.

In 2004, IBM was granted 3,248 US patents - an average of nine each day. For 12 years in a row, IBM has had more US patents issued than any other corporation. At IBM's UK lab at Hursley, invention disclosures in 2004 exceeded 400 and inventions published stood at around 100.

But IBM's research and development efforts amount to far more than a catalogue of historic breakthroughs and impressive numbers. Combined with business insight, they give IBM an unmatched competitive advantage, as clients seek to use IT to unlock business potential.

Delivering value today... and tomorrow

Increasingly, IBM is helping to solve business problems by taking innovations from our labs out into the marketplace. Employing the massive power of the latest supercomputers is one important example. This topic achieved worldwide recognition in 1997 when IBM's supercomputer Deep Blue beat chess grandmaster Garry Kasparov. Since then, supercomputers have been used to help explore the human genome, accelerate the design of new cars and aeroplanes, and create complex, computer-based models for weather forecasting and experimental simulation.

The fruits of IBM's R&D efforts amount to far more than supercomputers alone. Details of many may be found at www.ibm.com/research

IBM's annual investments of around \$5 billion in R&D make it one of the largest research institutions in the world

When you use an ATM cash machine, the odds are the transaction happens on software developed at IBM in Hursley

On Demand Innovation Services

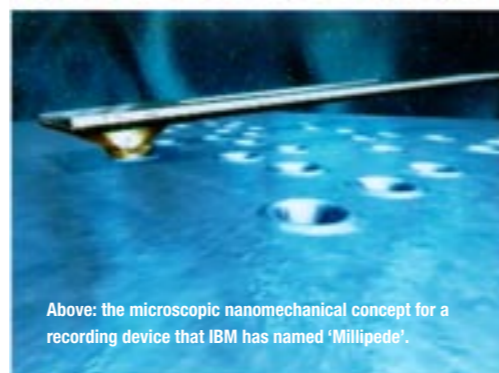
Take On Demand Innovation Services (ODIS), for example. This is a service that provides clients with access to a dedicated team of researchers who specialise in high-end business transformation and technology consulting. Usually engaged through IBM's Business Consulting Services unit, ODIS brings a wide range of research innovations, tools and expertise directly to clients, to resolve uniquely challenging and leading-edge business issues. This new organisation employs 200 research consultants worldwide and is supported by a significant financial investment in emerging areas, ranging from advanced call centre automation to new scheduling algorithms for the airline industry.

Over the past decade, Professional Services has become an increasingly important element of IBM's business and this is reflected in the growing investments in the research and development of services offerings. In fact, IBM believes that the research and development of new types of business services will give rise to a whole new academic discipline in the area of services science.

To this end, IBM is teaming with top businesses and technical institutions from around the world to develop curricula, learn and teach new skills, write papers and conduct studies that will facilitate the measurement of innovation in services in a standardised and scientific way.

In the global economy of the 21st century, it is imperative that we continue to innovate. Innovation is the ability to apply technology in products, services developing solutions that deliver incremental value to enterprises, institutions and society as a whole.

This is an approach that IBM is actively developing through its services business: helping clients to apply technology in a way that transforms their business and the way they work.



Above: the microscopic nanomechanical concept for a recording device that IBM has named 'Millipede'.

Chip technology beyond scaling

Meanwhile, progress in technology continues apace. Fundamental research into new cutting edge technologies remains a crucial area for IBM and provides it with one of its greatest differentiators. Take one development, carbon nanotubes, as an example. In order to continue shrinking chips and offering performance gains, scientists must find a new transistor building block as silicon's physical limits draw near.

Carbon nanotubes hold great potential as a candidate to replace silicon. Essentially, they are tube-shaped molecules made of carbon atoms that are 50,000 times thinner than a human hair - measuring about ten atoms across. IBM researchers have created carbon nanotube transistors that have the potential to outperform silicon and could ultimately lead to more powerful integrated circuits.

Millipede

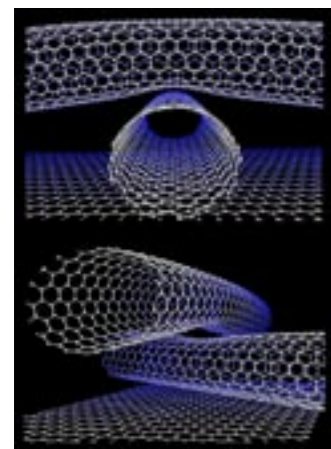
In a separate development, IBM scientists at our Research Lab in Zurich have also written data on a scale small enough for a storage density of a trillion bits (one Terabit) per square inch. This would allow users to store the equivalent of 25 DVDs on a device the size of a postage stamp.

This extremely high density is achieved in a research project codenamed 'Millipede', a nanomechanical concept for a storage device deploying thousands of nano-size 'feet' that punch indentations representing individual bits into a thin plastic film. It's similar to a punch card, but on a fantastically smaller scale and re-writable.

IBM's software development lab in Hursley

Despite IBM's breadth, the company endeavours to build environments that nurture some of the most innovative thinkers in the world.

The Hursley lab, for example, stands near the site of an Iron Age hill fort, in an estate once owned by the son of Oliver Cromwell, amid the rolling hills of Hampshire. During the First World War, it had been made a nursing hospital for soldiers. In the Second World War, Vickers Aviation relocated from bomb-strewn Southampton, in order to continue its aircraft development, of which the Spitfire is the most famous. The history is a unique aspect of what is now a cutting-edge development lab.



Carbon nanotubes (above) are essentially tube-shaped molecules made of carbon atoms that are 50,000 times thinner than a human hair

Carbon nanotubes are widely believed to be the best candidate to replace silicon

Around 70 new graduates have started work at the Hursley lab every year for the past ten years

INNOVATION THAT MATTERS

Back to the Future
2004 - IBM marked the 40th anniversary of System/360, the mainframe that sparked a revolution in computing and business around the world. Until the early 1960s, computers had been either commercial or scientific machines, but the System/360 - named after the number of degrees in a circle - was to change the world of information technology forever. It offered a versatile family of computers that could respond to enquiries and messages in billionths of a second. At the time, it was believed to be the largest privately-financed commercial project undertaken, and gave rise to the barcode, cashpoint transactions and the US manned space programme - among many other developments.



IBM acquired Hursley House as the home for its development laboratory in 1958. Since then, IBM has developed the site to accommodate new work and growing numbers of employees. Today, the site is home to over 3,000 IBM employees.

The Hursley lab made an important and lasting impact on IBM's - and the world's - development, as it played a key role in the creation of the mainframe computer System/360. Until System/360, almost every model of computer was unique; that is to say, it required a bespoke operating system, new language compilers and application programs specially written for it. For the first time, a complete range of machines was designed in which each model could run the same applications and use the same peripherals. This mainframe computer entirely transformed industry and academia worldwide, with banks, airline companies and research bodies - among many others - employing it to transform their operations.

In 1988, and again in 1992 (this time jointly with Oxford University Computing Laboratory), the lab was honoured with the Queen's Award for Technological Achievement. Today, it leads in the development of software in Messaging, Transaction Processing, Voice Systems, Java Technology, Storage Virtualisation and Grid Computing.

A nanometre is **one billionth** of a metre. It's also the estimated length your fingernails grow each second

The ultimate Blue Gene system will be capable of performing more than **1,000,000,000,000,000** operations per second

How IBM innovates

Given that all innovation stems from people, it's no surprise that the IBM Hursley lab has an active community of people supporting innovation. Numerous events take place to encourage innovative thinking, from the Hursley Institute of Technology, which brings together elite guest speakers from inside and outside the company; to the Hursley Innovation Programme (HIP) which encourages employees to submit new ideas for technologies and solutions. The HIP review teams are made up of volunteers from around the lab who contribute their time to examine the submissions received. This scheme has generated over 200 submissions, of which around a third have been implemented.

Working with schools and universities

IBM in the UK also plays a key role in stimulating interest in science and technology among students in schools and universities.

The company has established links with many of the UK's universities, but enjoys particularly close relationships with eight - Cambridge, Edinburgh, Glasgow, Imperial College London, Manchester, Oxford, Southampton, and Warwick. Through strategic partnerships on specific projects and individual involvement - often fulfilling roles as visiting professors - IBM has developed working relationships across the country that blend the strength of academic and commercial work.



HRH The Duke of York was one of hundreds of visitors to IBM's Hursley lab in 2004. Picture shows Paul Kettley demonstrating to him the m-Health enabled blood pressure cuff.



Nothing clears my mind better and gives me fresh perspective, than being out in the open air with Derwent, my bearded collie

Adrian Colyer, senior technical staff member, IBM Hursley, whose work has led to his inclusion in the *MIT Technology Review's* world's top 100 young innovators.

Extreme Blue

To engage with a wider range of students and researchers, the Extreme Blue Programme runs across IBM worldwide. Exceptional graduate or postgraduate students apply to the programme and, if successful, have the opportunity to collaborate on cutting edge projects working with senior technical experts within the company.

Students are given real business problems to solve - for example, devising a solution to the perennial problem of broken links on the Web. In 2004, one team developed a tool called Peridot, named after a green gemstone with mythical properties that helps people find the things they lose, to automatically maintain the integrity of Web links within a network. If implemented, the system could mean the end to broken Web links across the enterprise. Peridot has received widespread international press coverage.

This idea was among several to be patented by student teams last year. Others included using speech recognition to help call centre agents find solutions to callers' queries more quickly and ways to employ advanced mobile technologies to personalise shopping trips.

In 1990, IBM researcher Don Eigler positioned **35 xenon atoms** into the shape of the IBM logo, the first time single atoms were manipulated in this way

IBM has topped the US patent list for the past decade. It is the **third largest** receiver of patents in the UK

Blue Fusion is Hursley's contribution to National Science Week. This annual event has run for a decade and provides 15-16-year olds with a unique opportunity to increase their awareness of leading-edge technology by participating in science-related activities, encouraging them to think of IT as an attractive and attainable career. In 2004, it was held over five days and attended by 400 students from 70 schools, attracting interest from members of parliament and local dignitaries.

The company also runs a UK-wide mentor scheme to link students with IBM employees, which is particularly helpful to students who are the first in their family to go to university, or who have no relative they can talk to about future career opportunities.

Blue Gene at Edinburgh

Five years ago, IBM announced a \$100 million research initiative to build the world's fastest supercomputer, Blue Gene, to tackle fundamental problems in computational biology. The ultimate Blue Gene system will be capable of performing more than one petaflop/s (1,000,000,000,000,000 operations per second).



The e-Diamond project - or the digital mammogram national database - is a high profile application of grid computer technology in the UK, with a goal of improving the success of breast cancer screening.

In 2004, the Blue Gene/L supercomputer became the world's most powerful supercomputer, leaping ahead of the Japanese Earth Simulator in Yokohama, which had held the top spot for the previous three years - and significantly, with a design that is 1/100 the physical size and which consumes 1/28 the power.

The University of Edinburgh has ordered a commercial version of IBM's Blue Gene/L supercomputer. The university's system, which will be the first Blue Gene system to run in Europe, will be a smaller version of its much faster prototype, yet will still be in the top five most powerful systems in the UK. University researchers hope that the computer will eventually provide an insight into various key scientific fields, including the development of diseases such as Alzheimer's, cystic fibrosis and CJD. Edinburgh University, in collaboration with IBM and the Council for the Central Laboratory of the Research Councils in the UK, already manages the largest supercomputer service for academic use in Europe, through the High Performance Computing (HPCx) initiative.

e-Diamond: grid technology in action

The e-Diamond project - a prototype, national database for digital mammography - is one of the highest profile applications of grid computer technology in the UK. Launched in late 2002, the project focuses on improving access to digital x-ray data, enabling faster and more reliable retrieval of information. The challenge of digitising mammogram images and automating their analysis is significant; about three million UK women go for breast screening every year, with each individual visit to the radiologist generating around 128Mb of data.

The e-Diamond grid provides the capability to connect every screening centre together securely. The project team includes IBM, Oxford University, e-Science Centre, Mirada Solutions, University College and Kings College London, together with the Radcliffe Infirmary, Oxford, and the Ardmillan House Breast Screening Centre, Edinburgh.

WHERE ARE WE HEADING?

IBM is focusing on a number of key strategic areas in its research:

- **Autonomic computing describes the need to shift the burden of managing IT systems from IT professionals to the systems themselves. The term comes from the autonomic nervous system of the human body. That's the system that regulates your body's basic functions without your conscious awareness.**
- **IBM has a strategy of delivering e-business 'on demand.' On demand computing means enabling enterprises to have business processes - integrated end-to-end across the company and with key partners, suppliers and clients - that can respond with speed to any customer demand, market opportunity, or external threat.**
- **Pervasive computing extends the e-business infrastructure to new devices, making access to information simpler and interaction easier. The number of pervasive devices - smart phones, PDAs, automobiles, set-top boxes, and even home appliances - will eventually outnumber PCs. As the devices proliferate and computing is embedded in new places, all kinds of new interactions and transaction become possible.**
- **Deep Computing - a term inspired by IBM's Deep Blue chess-playing computer - combines super-fast processing capabilities, sophisticated software and algorithms, and extensive domain knowledge, to address complex problems previously beyond the reach of information technology.**

We have work going on in many other important areas. Some projects are linked to near-term results but solving real-world problems that our clients face today. Much of IBM's exploratory work defies categorisation because its final potential is hard to imagine.

Our clients

IBM employees around the world are dedicated to every client's success



In 2004, we invited the children of IBM UK employees to define what they understood by the term 'innovation'. The winner of the nine-to-12-year old category was Laura Tomkins. Her father is Glyn Tomkins, Solution Project Manager in IBM Global Services.

Boots is the UK's largest health and beauty chain, with annual sales of over £5.3 billion, and is one of the most respected high street brands. It is also the first UK retailer to embrace a new way of working with IBM.

Under an innovative outsourcing programme, Boots has signed a ten-year agreement that goes way beyond the straightforward provision of computer services. This special relationship means that IBM will bring its depth and breadth of industry resources to support major transformation projects, help solve business problems and drive innovation. A contractual focus on business, technical and operational innovation brings experts from our retail consulting unit to work alongside their counterparts at Boots to develop and deliver fresh uses for advanced technologies. These include wireless and mobile solutions aimed at increasing stock availability, driving up customer service levels and encouraging brand loyalty among Boots' customers, so helping the company to gain competitive advantage.

New generation systems

As part of the agreement, which is helping to create a new vision for Boots stores, IBM is managing Boots' entire computing infrastructure, including its data centre, in-store systems, data networks and telecommunications.

More than 13,000 new generation, faster Point of Sale systems with Chip & PIN readers have been installed in more than 1,000 stores, along with a new, flexible, high-bandwidth network. The intuitive till operation makes it easier for staff to sell more complex products at point of sale, including travel insurance. The new tills have also reduced staff training time from six hours to 45 minutes.

A wireless system that integrates critical store information such as stock levels and daily sales, has been integrated into the store operational process. The shelf-edge management system relies on handheld PDAs. It has given staff greater accuracy, has helped stores meet shelf availability targets and is delivering budget savings.

Another success is the development of an electronic workplace for employees that can be accessed via back office PCs, point of sale screens and other devices such as PDAs. Through My StoreNet, employees can now easily access operational changes, sales plans, HR matters, and health and safety news. They can also see product sales data on promotional products at the point of sale. IBM also provides database management and applications maintenance to support Boots' Advantage Programme, the world's largest smart card loyalty system with over 16 million UK members.

AT A GLANCE

Under a ten-year strategic outsourcing agreement, IBM manages all of Boots' computing infrastructure - from data centre to telecoms, and collaborates to develop fresh uses for advanced technologies.



The Department for Environment, Food and Rural Affairs (Defra) touches just about every corner of British life. Its remit is the pursuit of sustainable development, bringing together economic, social and environmental interests. It oversees all aspects of the environment, rural matters, farming and food protection. It is the base point for all rural policies and those that relate to people, the economy and the environment. It also has a European role and is involved in global policy decisions.

Despite its wide-ranging remit, the Department's interactions with the public have sometimes been outdated and costly. These are mostly paper-based and rely on a massive amount of form filling. The Department has now taken a significant leap forward by signing a seven-year agreement with IBM. This modernisation programme, part of the much wider drive towards eGovernment, is shaking up both internal processes and the way Defra deals with its public.

More flexible workforce

In this strategic partnership, IBM is managing, supporting and improving Defra's desktop IT infrastructure and business systems, while developing a new range of business systems. IBM is also providing the infrastructure to help facilitate a more flexible and mobile workforce. About 330 Defra IT staff have transferred to IBM.

Written into the contract is a focus on innovation, which will lead to the physical creation of an innovation centre. Here, Defra professionals and IBM specialists will study business problems and look to develop holistic business-based solutions. They will also be using IBM and other appropriate technologies to develop the eventual solution, making the whole process more efficient and ensuring the delivery of high-quality results.

Another unique aspect of the contract is IBM's ability to include every level of service - from the high end strategy, through to business transformation, technological review and deployment, right down to the smallest level of IT detail.

As David Myers, the Programme Director at Defra, comments: "This agreement brings immense benefits to our customers and staff. IBM's ability to match industry insight with world-class technology expertise and genuine business innovation is key to the foundation of our transformation."

AT A GLANCE

Defra is the first government department to sign a seven-year strategic partnership with IBM, which will revolutionise both its internal processes and the way it deals with the public.



AT A GLANCE

Customers can now reach UK lottery provider Camelot via the Web site, interactive television, mobile phone or retail outlets - more channels than any other lottery company.

The UK National Lottery was one of the first lotteries in the world to become fully interactive on the Internet, digital TV and mobile.

Opening up electronic access to the UK National Lottery was a major part of Camelot's bid for the second National Lottery licence, and IBM's technology was an important element in helping Camelot to launch the Web site successfully. This is now proving extremely popular, with revenues ahead of plan. IBM also helped Camelot to develop a service to sell National Lottery games via digital TV.

Right first time

Playing the National Lottery via digital TV at home is seen as an important application that will help drive the usage of interactive TV for purchasing products and services. It was therefore essential that Camelot got it right first time.

A key element of the new service, delivered through Sky Active, is that viewers' set top boxes had to be able to communicate directly with Camelot's server. But Sky's set top boxes did not support the usual end-to-end security model and protocols. IBM was able to plug this gap by creating a new solution called Third Party Security (TPS). This allowed transactional communication to bypass Sky's infrastructure, enabling viewers to reach Camelot directly and making the interactive TV channel secure.

The innovative solution behind the new service was developed with the knowledge gained from the Web site project. First, it meant Camelot developing a televisual interface to allow players to complete registration and make their game selections, and then bringing in TPS to provide the vital end-to-end security layer.

Uniquely in the IT industry, IBM has the technological capabilities to meet Camelot's needs and was prepared to make the investment needed to develop a robust solution. Other companies had developed various responses to the problem, but there were no end-to-end solutions to match TPS.

Rapid exchange

TPS is a classic IBM solution with open standards and runs on Java. It can be moved across different business platforms relatively easily and, because it is modular, its functionality can be expanded to suit different business needs. Since providing it for Camelot, other organisations that need the rapid exchange of information and high speed messaging have been keen to find out how it can help them.



AT A GLANCE

Vanguard Animation is based at the oldest film studio in the world, but it brought in the most advanced technologies when it needed to create a blockbuster on a modest budget.

The first full length animated film made entirely in the UK - the story of a little bird that becomes a homing pigeon hero - had a cast of 200 silent 'extras'. A network of IBM computers running advanced applications helped create this engaging film that features the voices of Ewan McGregor and Ricky Gervais. John Williams, producer of Shrek and Shrek 2, and his co-producers Curtis Augspurger and Buckley Collum, relied on an IBM solution to create Valiant, the story of the pigeons that flew vital messages across enemy lines.

Vanguard Animation, formed in 2002 by Williams, is based at Ealing Studios in London. Its latest project has been the creation of a blockbuster to rival Hollywood's best - on half the budget.



David Fowler (left) and Curtis Augspurger (right) in front of a still from the animated film Valiant.

Pre-production took place in Los Angeles, and the film company then moved to London to develop the digital content, create sets, the texturing for characters, environments, animation layout, lighting and then - finally - rendering. Rendering animation requires vast amounts of processing power and can become the bottleneck of the animation process. To produce the film cost-effectively, Vanguard needed to find the right tools for the job without having to worry about the technology that sat behind the scenes.

A request from Vanguard brought together IBM and its Business Partner European RAID Arrays to implement an IBM Digital Content Creation solution that not only achieved a staggering increase in rendering performance, but also kept the film on schedule and within budget.

Fast forward

The computers were installed with the help of ERA, which develops and manufactures a wide range of data storage and protection equipment for the creators of digital content. The 200 systems make up a 'render farm'. Here, when the animators and lighting specialists have finished on the characters and the background, the rendering side of production was carried out, combining all the other processes to create a final image.

IBM's technology meant performance was increased 12-fold and animators had exactly the right computing power available when they needed it. The time spent waiting for traditional rendering processes to finish was significantly reduced and the ability to reuse the many digital assets created in the process helped speed production.

AT A GLANCE

Every year, the All England Lawn Tennis Club transforms itself from a small business with 100 employees to a large enterprise providing real-time information to millions.

The All England Lawn Tennis Club (AELTC) is the home of lawn tennis and host to the world famous Wimbledon Championships that attracts millions of tennis fans around the globe. It is also a pioneer of advanced technologies and an enthusiastic innovator - earning The Club a place at the forefront of technology in sport.

Wimbledon was the first sports event to run outside broadcasts for TV and radio, an early user of electronic scoring and TV graphics, and one of the first to embrace the Internet. Importantly, The Club was probably one of the first businesses to recognise the advantages of being an organisation that responds to customer needs in an on demand fashion.

This flexible approach to computing has enabled The Club to achieve its annual transformation from a relatively small business with 70 office employees and 30 groundsmen to a large enterprise providing real-time information to millions, and handling the needs of players, guests, thousands of ticket holders and the world's media.

Advancements have been constant, with Wimbledon continually introducing and testing new applications that have then become core services in subsequent years. The reason behind this continued innovation is the long-standing relationship it has with IBM - its technology partner since 1990.

Integrity of the brand

A crucial element to this partnership is that IBM fully understands the integrity of the AELTC and its brand values. IBM's core technology team - some of whom have been with the project for the entire 15 years that IBM has been the Official Information Technology Supplier and Consultant to the Club - is completely integrated with its IT department.

Ten years ago, for instance, the Internet was just emerging as a business tool, but many organisations were standing on the edge, unsure of their digital futures. The AELTC, however, responded enthusiastically to a proposal from IBM. Its site was created, designed and built in a matter of weeks and proved an instant hit with both tennis fans and The Club. Since then, the technology has moved on apace. In 2004, the site attracted 3.6 million unique viewers and recorded 202 million page views over the duration of the Championships.

The AELTC has also been quick to grasp the potential of wireless technologies for the Wimbledon site, improving the quality of the event for players, tennis followers and the media. Sports writers can return real-time reports to the office via Web-enabled laptops using IBM's wireless hot spots on the main courts and in the media centre.



Photographers can edit and transmit their best Centre Court and Number One court photographs within minutes. These developments have proved immensely popular with journalists and agency photographers, who tend to travel from one Grand Slam to another and have come to expect the same standards at other tournaments as they enjoy in SW19.

A campus-wide wireless LAN enables officials, the media and hospitality guests to log on to Wimbledon's PDA version of the intranet - the Wimbledon Information System (known as Pocket Wimbledon) - throughout the grounds.

IBM has also optimised the Web site for PDA display over GPRS, so that fans worldwide can keep up to date with matches via mobile phone networks and, for the first time last year, IBM carried out an on-site pilot of video streaming of live action from the main courts to wireless devices.

The next three years

Behind these constant improvements is a deep understanding of the AELTC's business. Having spent time in detailed discussions with The Club's executives and staff, the core IBM team has completed an IT strategy for the next three years, which is already underway.



AT A GLANCE

Mobile workforce solution equips NGT's 7,000 field workers with technology to provide real-time data into an automated back-office

National Grid Transco (NGT) owns and operates the high-voltage electricity system in England and Wales and delivers gas to more than 21 million homes, offices and factories across the UK.

It operates more than 276,500 kms of pipeline and spends more than £600 million each year on maintaining the UK's gas network.

Delivering its extensive services is a huge team of more than 7,000 field workers who - among other tasks - respond to reported gas escapes, service gas lines, repair and replace gas mains, maintain the gas distribution network and carry out meter work.

They are now doing these tasks more efficiently, cutting travel by several million miles a year, saving fuel and doing away with thousands of paper forms, all through a revolutionary mobile workforce solution put together by IBM.

The new system means staff will be able to free up several million working hours every year, giving them time to respond to thousands of extra gas escape calls and meter appointments.

Always in touch

At the heart of this new way of working is an innovative IT system. Field engineers are now equipped with ruggedised laptop PCs and PDAs with GPRS connections, so that real-time data from the field can be collected and fed into automated back office functions. All work orders are handled electronically, supervisors can see where engineers are at any time, and make changes to job schedules. Maps can be sent with job information while engineers can complete closure reports from the field. The remote workforce also has intranet access, to keep in touch with what's happening within the organisation, wherever they are.

The robust system, developed by IBM Business Consulting Services, is enabling NGT to comply with demands from the regulatory body, Ofgem, for a reduction in operating expenses by 25 per cent over five years. It also delivers NGT's ambitious business transformation plans, achieving a remarkable change in operating performance and efficiency.

On demand procurement

NGT is enjoying the benefits of a successful on demand procurement solution, created by a cross-IBM team. It integrates and standardises corporate procurement processes, providing consistency in contract structures and spending. According to David Thomas, director of procurement and logistics, "This has taken procurement forward a decade and will be a superb platform for the future."



AT A GLANCE

Using IBM equipment, Hidden Hearing are able to offer the over seven million UK sufferers of hearing loss the option of accurate hearing tests and diagnosis at home

One of the largest suppliers of hearing aids in the UK has done away with paper-based hearing tests and is relying on IBM equipment to provide digital diagnosis and product programming in people's own homes.

Around 200 of Hidden Hearing's nationwide team of highly-trained hearing aid specialists are now equipped with IBM ThinkPad notebook PCs, which are not only providing digitally-produced hearing test results, but are also enabling the team to make much more effective use of their time while mobile.

Hidden Hearing is the UK retail sales division of William Demant, a global hearing aid manufacturer, and is a leading retail hearing aid supplier in the UK. The company was about to introduce a new range of digital hearing products, which relied on tests being carried out at people's homes. They also wanted to find a way to give their dispensing team access to patients' records and company information while they were working away from the branch network.

The answer is a solution comprising an IBM ThinkPad, calibration tools and an audiometer in a specially designed carry case. Now, audiology graphs that used to be plotted by hand are produced automatically, and patients' records are updated and stored electronically.

Low noise levels

Having been trained to use the new equipment, the dispensing team hasn't looked back. They can now access product information; the order placement systems and corporate e-mail when they are on the move.

The ThinkPads are also configured with IBM Rapid Restore PC technology which gives users maximum system availability. By simply pressing a button, users can recover to the last saved setting of a file or an entire disk. It requires little intervention to ensure the availability of critical data and systems. It also means the dispensing team avoids having to take their computers back to the office for restoration. Another special feature of this model of PC is its extremely low running noise level. This is critically important, as any background noise when testing is under way will impact results.

More than seven million people in the UK suffer from loss of hearing, and they can now request a digital test at home or call into one of Hidden Hearing's High Street branches across the UK.



More than seven million people in the UK suffer from loss of hearing, and they can now request a digital test at home

Our people and the community

**We are committed
to trust and
personal
responsibility
in all our
relationships**



In 2004, we invited the children of IBM UK employees to define what they understood by the term 'innovation' in an art competition. The winner of the 13-to-16-year old category was Ross Couper. His father, Scott Couper, is a Quality and Development Effectiveness consultant, based in the IBM Hursley lab.

In addition to my IBM work, I am a member of a lifeboat crew. Doing something that makes a real difference with my life is incredibly rewarding and inspiring

Ken Baker, volunteer for the Portishead lifeboat and a member of the IBM marketing team in Bristol.



The things people do

When IBM launched the global On Demand Community (ODC) employee volunteering programme, more than 400 UK employees signed up immediately. One year later, that number has trebled. During 2004, the UK became the first IBM country to include its retirees in this imaginative scheme.

The ODC programme continues the tradition of IBM employees giving their time and experience to make a real difference to the community. It recognises that many organisations value the time and know-how of an IBM professional to support their activities as they would a cheque or donated equipment. That is why volunteers register to volunteer their time and skills via an IBM intranet site and log their activities and hours as they go.

Among the resources the ODC intranet offers is a planning framework for voluntary groups wishing to develop their technology strategies. Similarly, employees working with schools have access to a portfolio of solutions, including free equipment and software, to help promote a better understanding of science, engineering and technology.

Through the imaginative use of IBM's intranet, retirees can also access the same information and support online, using their home computers to link directly to IBM's ODC intranet.

Retiree volunteers

Amidst the many examples of employees using their IT expertise to help organisations, there are also many examples of retirees putting the management and communications skills they developed at IBM to good use. For instance, Christopher Bowers became a carer for young people when he left IBM. He initially joined Kingston Foster Carers' Association and was then elected Chair and, with support from IBM, helped set up its Web site, using the presentation and organisational skills he had acquired in his former role. The lively site carries information on training courses, practical advice such as providing homework help for foster children, and news of social events. It also helps to build a community for people who would otherwise feel isolated as foster parents. It links into the Borough of Kingston upon Thames' Web site, creating a feeling of belonging to the wider community. >>>

Over 1,400 employees have signed up for the On Demand Community volunteering initiative in the UK within just one year of its launch - representing over seven per cent of the IBM UK workforce

IBM in the UK became the first IBM country to include its retirees in the community support initiative

Saving lives at sea

>>>> Employees and retirees who've signed up for the ODC programme are encouraged to log the amount of time they give, in order to meet the eligibility criteria for nominating their voluntary organisation or school for receipt of an IBM Community Grant. IBM volunteers can make a nomination if they've given at least 40 hours of their time over five months. So far, more than 35 awards have been donated, with a value of more than £50,000.

One such Community Grant went to support the work of the Portishead Lifeboat crew, a voluntary rescue service that covers one of the most tidal and dangerous stretches of water in the country. The lifeboat crew are on call day and night, helping to save lives and rescue people in danger in the Severn Estuary, near Bristol.

Among the 20-strong team is Ken Baker, an IBM marketing manager, based at IBM's Bristol location. When Ken's pager goes off, it could be a call for him to drive immediately to Sugar Loaf Beach, on the banks of the Estuary, where the lifeboat is kept. The call could concern a fishing boat or a day-tripper in trouble, or a walker or his dog that has fallen from the cliffs into the sea. Ken has been a lifeboat volunteer for five years, fulfilling his belief that giving something back to society is just as important as taking from it. The stretch of water that Ken and his crew mates watch over is notorious for the height of its tides. But as Ken says: "I hope that my children and their friends see what I'm doing and realise the good that comes from voluntary work. I don't want to be seen as some kind of hero. I just think being a member of the crew is a great way to make a real difference with your life."

Education initiatives

The innovative use of technology in education - from pre-school nurseries to sixth form colleges - is a central focus for IBM's community programmes, as shown by our receipt of three *Big Tick's* in 2004 from the *Business in the Community* (BITC) organisation. BITC *Big Ticks* are widely acknowledged as a leading recognition of corporate responsibility.

IBM was successful in three categories of the 2004 BITC awards. The *Reinventing Education* programme was recognised in both the 'Innovation and Education' and 'Life Long Learning' awards sections for its part in helping develop a methodology for sharing best practices between schools. KidSmart - a scheme that donates computers, to nursery schools - achieved success in the 'European Community Impact' category.

Reinventing Education is IBM's ambitious, worldwide programme, which has been remarkably successful for more than ten years. In the UK, it has been running for over four years in partnership with the Department for Education and Skills, and has involved more than 70 schools. The programme supports and encourages schools to share their expertise with others. Key to its success is IBM's software platform, *Learning Village*, which helps teachers capture and share fresh ideas.

In an exciting development last year, a teacher in Nottingham started using the software platform to improve reading skills among young children. The *Book Buzz* scheme encourages children to read a book, write a review and then post it on the *Book Buzz* Web site for other children to read and discuss.

IBM has donated **650** KidSmart Young Explorer units to nurseries in the UK and provided training for more than **6,000** nursery staff

IBM was ranked **number one** for community relations programmes in a benchmarking study of 14 international firms

The early years

KidSmart focuses on nursery school children. The KidSmart Early Learning Centre consists of an IBM PC encased within colourful, specially-designed "child friendly" housing, supplied with early learning software from IBM Business Partner, RiverDeep. More than 4,000 units have already been donated to nursery schools, playgroups and similar locations across 19 European countries. In the UK, over 650 KidSmart units have been installed in nurseries, largely in disadvantaged communities. Recently, a team of almost 100 volunteers, many of whom came from the Financial Services section of IBM's Business Consulting Services, helped set up a fresh delivery of KidSmart centres, so that teaching staff could start using the equipment immediately.

Winning over tomorrow's innovators

Today's teenagers are tomorrow's innovators, scientists and business leaders. IBM's varied programme of education initiatives therefore aims to inspire young people about their future careers, helping them understand the dynamic mix of business and technology. IBM has established strong relationships with organisations keen to help young people better understand business.

Engaging with schools: left, IBM's Eileen Moran demonstrating how TryScience offers online 'field trips' and other activities worldwide. Picture shows students from Henry Fawcett school getting to grips with the fun in IBM's London office. Right, winners of the Schools Web site challenge in IBM's Portsmouth office.



Career crossroads

Recognising that science, technology and engineering are critical to the future competitiveness of the UK, IBM has helped set up www.tryscience.org, a partnership between IBM, the New York Hall of Science and the Association of Science Technology Centres. The TryScience Web site is used daily by thousands of schools, offering field trips, professionally-run experiments and live Web cams. There are also interactive sessions, science news and opinion polls to encourage youngsters to debate science issues. IBM also runs 'camps' in various UK locations to bring science to life for 13-14-year old girls, who are about to choose their GCSE options.

EXITE Camps (Exploring Interests in Technology and Engineering) consist of workshops that focus on the fun side of maths and science. The result is that many girls change their minds on which subjects to study and appreciate that careers in technology are not only the prerogative of boys.

Continuing support

Students studying the sciences can be given continuous help through their GCSEs (or equivalent) via our MentorPlace scheme. This online initiative brings students and teachers together with IBM employees, who offer guidance and study support. More than 800 employees have been matched with pupils from 33 UK schools.

Below left: children engage with IBM technology in IBM UK's London office.
Below right: IBM has made the fantastic content of the Hermitage museum in Russia available worldwide via a number of special kiosks in major cities around the world, here shown in Manchester.



United by diversity

When IBM decided men and women should be paid equally for doing the same job, and should have equal responsibilities and career opportunities, it made headline news. Not surprisingly - it was in 1935. This early recognition of the importance of an inclusive workplace laid the foundation for today's focus on diversity, where every employee is encouraged to perform at their best, and where different opinions are both welcomed and appreciated.

IBM demonstrated clear leadership when it recruited black salesmen, women managers and people with disabilities, many years before other major employers. It was among the first UK companies to offer pension rights and healthcare cover to same sex couples and its multi-layered programme of support for a more diverse workforce frequently wins external praise. A recent survey of MBA students by *Fortune* Magazine revealed that IBM was among the top five companies where they wanted to work and one of the main reasons for this was IBM's focus on an inclusive workplace.

This recognition of the value we place on diversity is built on the forward-looking policies that have helped shape the company we are today. Some 20 years ago, for instance, we became one of the first employers to include sexual orientation in our Equal Opportunities policy. This pioneering stance was extended when we included gender identity and expression in 2002. In 2004, IBM held the first gay, lesbian and bisexual, transgender (GLBT)

career empowerment seminar for employees across Europe, the Middle East and Africa. Staged in London and hosted by Larry Hirst, Chief Executive, IBM UK, this reinforced the belief that employees should be accepted and valued in IBM for the quality of their work without having to hide their sexual orientation. Some 150 employees participated in the event.

Our support for the wider GLBT community had been formalised earlier when we became the foundation partner for the *Diversity Champions Scheme*, which is run by Stonewall, the highly-respected voice of the GLBT community in the UK. This scheme brings employers together to discuss best practice and it now engages with many of the UK's major organisations. IBM's view that everyone should have the same life chances is clearly illustrated by its decision to become a main partner in Stonewall's UK-wide programme to tackle homophobic bullying in schools. This often-ignored issue can lead to lesbians, gay men and bisexuals leaving school at the earliest opportunity to escape from the taunts of their fellow classmates. In doing so, their career opportunities can be damaged - often for life. >>>

IBM was one of the first employers to include sexual orientation in its Equal Opportunities programme - 20 years ago

In 2004, IBM became a foundation partner for the *Diversity Champions Scheme*, which is run by Stonewall

I love animals and relating my hobbies to work has inspired me and helped me to learn. I teach children and Brownies computer skills and have found that illustrating elements of computing around the life of a zoo is something to which they can relate

Helena Pugsley, software group team leader and test architect, who was a winner of the British Computer Society *Women in IT* awards in 2004. Helena sponsors one of the animals at Marwell zoo.



>>> Stonewall's campaign - called *Education for All* - will help and support victims, teachers and education authorities. It will create an effective communication programme to boost awareness throughout all schools and sixth-form colleges, which are still considered to be unsafe for gay, lesbian and bisexual pupils by almost half of today's sixth-formers. IBM is providing a mixture of technological and consultative support for the campaign. As Ben Summerskill, Stonewall chief executive says: "IBM's involvement gives us access to consultancy services and technology in areas where we simply don't have the resources or necessary skills."

The face of technology

It was IBM's skills in software development that led to an innovative piece of software that is already helping many people who find the Internet a confusing place. People with dyslexia or impaired eyesight can get lost among all the advertisements, photographs and brightly coloured, flashing text.

IBM's Web Adaptation Technology (WAT) enables users to dynamically manipulate the content they are looking at, by changing fonts and the size of the text. They can magnify the whole page, change the appearance to suit their own preferences and even convert text to speech.

WAT is being delivered through AbilityNet, a leading provider of expertise on computing and disability which has a long standing relationship with IBM. The software tool is also proving popular at learning centres run by Remploy, the UK organisation that provides meaningful employment for disabled people. The new software is a simple idea, but it goes a long way to help people who might otherwise be left behind in the digital networked world.

Like many of IBM's outstanding inventions, it is the result of the company's commitment to make technology accessible for people with disabilities. The *Internet Drivers Licence for the Blind*, for instance, was developed with IBM's accessibility centre in Germany and IBM's *Homepage Reader* was invented by a team led by a blind researcher in Tokyo.

Within the company, disabled employees are working together to identify best practices and raise awareness of the issues they face in the workplace. Initiatives they are working on include: making sure training is available to them and their manager; ensuring all software and hardware is technically supported; and helping improve the number of job applications made to IBM.

External achievements

IBM became the first to win a new British Computer Society Award that applauds employers who are improving IT career opportunities for women. *The Women in IT Award* recognises the work IBM does in attracting, developing and retaining women in the industry, starting with teenagers and continuing through to executive level. >>>

**Why is nurturing an interest in IT in young women important?
Girls are twice as successful as boys at A level standard IT, yet women only account for 20 per cent of the IT workforce**

400 girls gained first hand experience of IBM during the national *Take your Daughter to Work* day

>>> Why is the issue such an important one? First, girls are twice as successful as boys at A level standard IT, and yet women only account for 20 per cent of the IT workforce - so there is a clear mismatch between ability and career choices. Second, the number of women-owned businesses is growing rapidly, with a 22 per cent increase in the UK over four years.

Reflecting this demographic shift is clearly important to IBM. So is nurturing an interest among young women in information technology as a career.

One of the ways IBM does this is by running *Women in Technology* workshops in schools and universities up and down the country, encouraging girls to choose maths and science early on. Some 400 girls got first hand experience of this when IBM opened sites during the national *Take your Daughter to Work* day.

Mindset workshops

Inside IBM, our *Women's Leadership Team* oversees a range of activities, including 'mindset workshops' to encourage a better understanding among men and women of why the advancement of women is so important.

Meanwhile, IBM's *Women in Blue* network, provides a forum for women to network more successfully, while the company's *Maternity Buddy* scheme prevents women from feeling isolated while they are away from work after having children. These programmes now come under the umbrella of IBM's Diversity Council. This has four constituencies: women; gay, lesbian, bisexual, transgender (GLBT); ethnic minorities; and people with disabilities.

The clear commitment from the company has impressed the Department of Trade & Industry (DTI). Its spokeswoman for women and equality, Sarah Barrow, has also cited several innovative approaches by IBM in her recent study of diversity best practice among 21 of the UK's leading firms.

The use of high profile female role models to boost recruitment and the mentoring process which encourages the most able women to progress towards leadership roles was singled out for comment.

"Ensuring that managers are accountable, by including diversity objectives within the performance management system, sends a clear signal to staff that diversity is taken seriously across all parts of the business. So does ensuring each of the business groups is represented on the Diversity Council," she says.

How to succeed

Members of IBM's Diversity Council are all volunteers and run workshops, events and forums on top of their jobs at IBM. Christine Alexander-Smith, who represents the ethnic diversity network group, put the time into gathering together a group of seven employees to help her run an event for 160 children in the South London area. The children, all from ethnic minorities, were extremely motivated to hear from IBM role models that it is possible to succeed in a system where they might sometimes feel they don't belong.

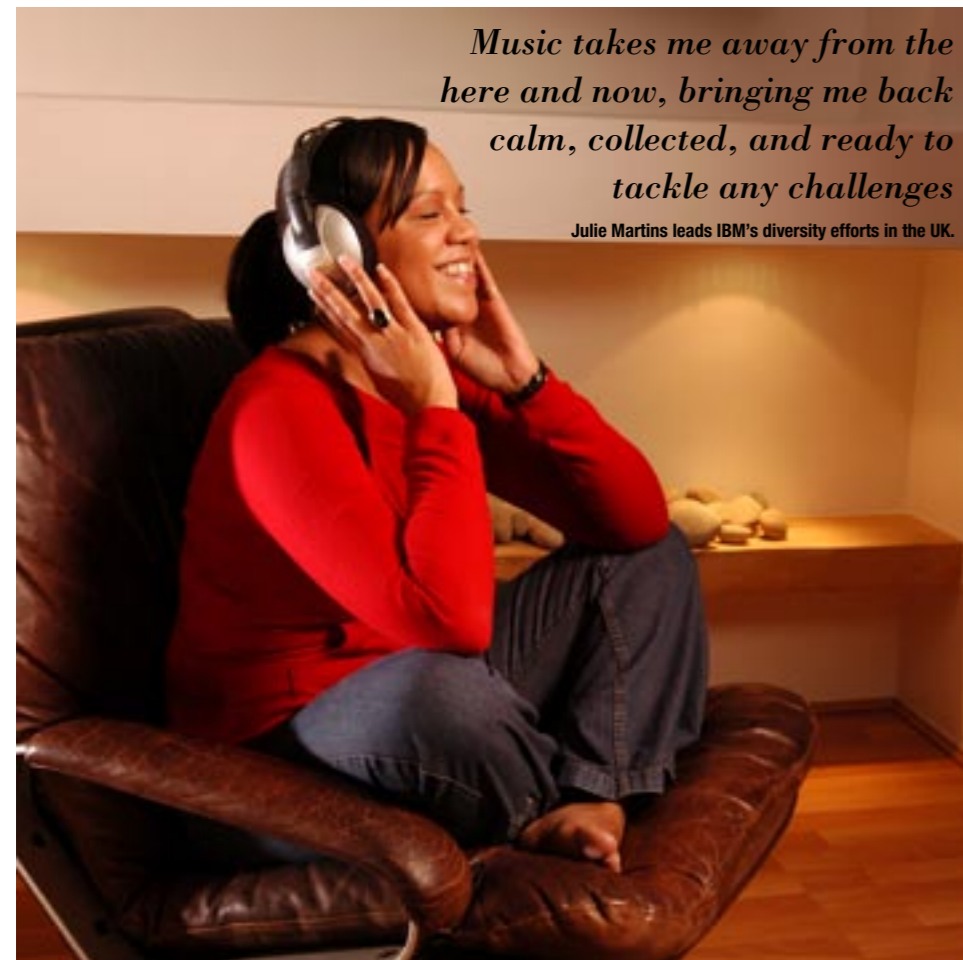
The event was so successful that there are plans to repeat it in other parts of the UK. The seven professionals who gave up their time to attend the motivational event have all been assigned to a secondary school in the Croydon area. They have maintained their mentorship relationship with the schools, supported by IBM's MentorPlace scheme.

Christine believes part of her role is to 'pass the baton' on to the next generation, so they can succeed where others have struggled. Making life easier for those that follow was also one of the reasons Jenny Joseph, who represents the ethnic diversity group with Christine, was chosen as a 2003 finalist in the 'Corporate Mainstream' award of the *European Federation of Black Women Business Owners* awards.

The enthusiasm and dedication shown by IBM's diversity volunteers was praised by Larry Hirst, Chief Executive IBM UK, when he gave a keynote address to members of the Asian Business Development Network at their annual awards in 2004. Larry focused on the need for continued investment in education and skills and encouraged Asian businesses to take up the mentoring system that IBM has advocated for some time. This scheme matches students with a suitable IBM employee and can make a real impact on social inclusion.

Competitive strengths

As *Business in the Community* confirms, in about six years, only 20 per cent of the UK workforce will be white, able bodied men aged under 45. The impetus for diversity at work is therefore changing. What began as a moral and just quest for equal opportunities has become critical for business success.



INNOVATION THAT MATTERS

In the face of diversity IBM has taken a very public stance on diversity issues and is among leading British employers who are backing a 'Diversity Champions' scheme run by Stonewall - the highly-respected voice



of the gay, lesbian, bisexual and transgender (GLBT) community in the UK. The scheme provides a forum for employers to work with Stonewall to promote diversity in the workplace. Stonewall was founded to prevent attacks on GLBT people, and also promotes new research on discrimination in the workplace, homophobic violence and sex education. IBM UK is focusing on the challenges and opportunities of delivering diversity; and scored second out of 150 major employers in Stonewall's first Corporate Equality Index.

Safeguarding tomorrow's world

IBM in the UK has driven ambitious environmental policies and objectives for decades. These have evolved over time and provide the foundation for the programmes IBM works on today, including initiatives on waste minimisation, energy conservation, chemical management, sustainable development and product take-back.

IBM was among the first major companies in the UK to incorporate respect for the environment within its business operations and was a founding member of *Business in the Environment*, part of the business-led charity *Business in the Community* (BITC), which now has a membership of more than 700 companies.

This commitment to reduce waste, save money and minimise the impact on the environment is illustrated in many ways. Most importantly, all IBM products are designed to use energy efficiently and can be re-used, recycled or disposed of in the most environmentally-friendly manner. IBM recycles 96 per cent of its own computer equipment and offers to take away clients' old computers, faxes and printers - from any manufacturer - and to then dispose of them in accordance with environmental legislation.

Through 2003 and 2004, one hundred per cent of the company's electricity supply in the UK came from renewable energy sources, and this continued purchase of 'green energy' puts IBM way ahead in the UK's league of top green energy users.

Through negotiating the purchase of renewable energy, IBM UK took some 230 GWh of electricity from bio-fuels, wind, hydro sources and qualifying combined heat and power. If the 230 GWh had come from a regular fossil fuel fired power station, then 103,000 tonnes of carbon dioxide would have been produced in the generation process. This not only makes a significant contribution to IBM's global conservation target of four per cent year on year, but enables the company to take advantage of full exemption on the Government's Climate Change Levy. IBM's continual improvement in energy management and conservation has been recognised nationally by the retention of the National Energy Foundation's accreditation award.

IBM's zeal for minimising waste means that whenever the company moves office locations, the contents are recycled and furniture is either taken to other IBM locations or donated to charitable groups in the local area. Employees are equally keen to embrace environmentally-friendly initiatives and a recycling scheme in 2004 led to seven tonnes of Christmas cards being collected and donated to the Woodlands Trust, the UK's leading conservation charity. This effort alone will mean that carbon dioxide emissions are reduced by 14 tonnes. Meanwhile, flexible working is allowing people to work closer to home. This is continuing to reduce work-based travel and those who do drive can use a dedicated online car share database. This scheme has proved so popular that it has been adopted by other IBM countries and other organisations.

During 2003, IBM UK recycled **four** tonnes of aluminium drink cans, **20** tonnes of waste paper and **174** tonnes of project waste

A clothes recycling bank at IBM's North Harbour location has contributed in donating more than a tonne of clothes to TR Aid, a recycling charity

Working on environmental issues has literally changed my life. I am inspired daily by something in which I have a passionate belief

Carole Redman, IBM's UK environment manager.



Our business

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