startup

because you can.

One of the wonderful things about starting any new venture is the freedom. To have big ideas, breathe life into them, and build them. From scratch. That freedom is appealing, but exists – practically speaking – for relatively few.

Until now.

Because whether you're two friends tinkering in a garage, or you work inside one of the most venerable enterprises on earth, the rise of a globally connected world offers a truly rare opportunity: the chance to start something totally new.

This is what we believe at IBM. And it is the core idea we are taking to customers (and pursuing ourselves): how to seize this unique moment and rethink what you do, reconceive what you offer and, along the way, reinvent who you are.

Louis V. Gerstner, Jr.
Chairman and Chief Executive Officer

Dear fellow investor,

Last year my message to you was one of continuity. We were making our strategic vision of a networked world real, in the marketplace and in the laboratory. We were intensifying execution across all our businesses to produce marketplace wins and consistent revenue growth. I said that we planned to stay the course.

We did that in 1998, and the results were strong. Our market value – probably the most important measure of progress to investors – grew $69 billion. (It has grown by $146 billion since our major restructuring in 1993.) Last year, IBM's share price rose 76 percent. As 1999 began, our Board of Directors approved the second IBM stock split in two years.

There were good reasons for this growth in investor confidence in IBM. For the fourth straight year, we reported record revenue – $81.7 billion. Our earnings rose to $6.3 billion. We set a new record in earnings per share. Customer satisfaction improved measurably. After making substantial investments – $5.6 billion in research and development, $6.5 billion on capital expenditures, and $700 million to acquire companies that strengthened our portfolio of businesses – we still had substantial cash on hand to return to shareholders via dividends and our ongoing stock buyback program (another $6.9 billion of IBM shares in 1998). Even then, we finished the year with $5.8 billion in cash.

We had our difficulties, too. Some were external – the economic distress in Asia and Latin America, soft memory chip prices and a PC price war. Some were of our own making – wrestling with important product transitions in our server line, for example. But overall, in the marketplace and inside the company, IBM remains on track.

You might expect, then, that my message for 1999 would be the same – continuity and staying the course. But continuity is not my message to you this year.

No year is easy to predict, but 1999 promises to be unique for our industry and for IBM. Like every year, we see significant opportunities combined with a truckload of uncertainties. This year, those uncertainties include continuing softness in Asia and Latin America, the impact of the Euro conversion and, of course, the much publicized Year 2000 problem (more on Y2K later).

What makes 1999 different, though, is that a historic shift – something IBM began talking about three years ago – is taking hold, and it's reshaping everything: how we work, how we shop, how we interact with our governments, how we learn, what we do at home. Every day it becomes more certain that the Internet will take its place alongside the other great transformational technologies that first challenged, and then fundamentally changed, the way things are done in the world.

One school of thought says a new mass medium has been born when it's used by 50 million people. Radio took nearly 40 years to hit that threshold. TV took 13 years. Cable TV, 10 years. The Internet did it in less than five. As I write this, more than 140 million people are online. Today the Net is largely a U.S. phenomenon, but that won't last long. Already seven countries other than the United States have about 10 percent of their populations using the Web. In China, which is really just now joining the world economy, Web growth is astonishing.

Figuring out what all those people were going to do when they were linked by the Web has kept the gurus in overdrive. We used to hear a lot about the Information Superhighway, with the Web playing the role of local library. Next, you heard about the Wired World, in which people sent e-mails and then relaxed in chat rooms. All of that has happened, but it isn't where the real action is.

From the beginning, IBM's position has been consistent. Since 1995 we have been saying that the Net is about mainstream business, not browsing – about conducting real commerce, not merely accessing content. At the time IBM articulated this "vision," it sounded downright uncool. And the gurus said so.

Well, today this position is feeling a lot less lonely. In fact, it's getting pretty crowded, as the prevailing opinion swings our way and people talk about this transformation in terms of a "networked society" and a "networked economy."

At IBM we call this "e-business," and it represents an enormous opportunity. We expect the overall information technology industry to grow at an annual rate of 10 percent, to $1.6 trillion by 2002. Of that, the e-business segment will grow to $600 billion, and it will grow twice as fast as the industry overall. (We intend to capture a good chunk of that new business.)

I said that 1999 is going to be unique. Here's why: With this fundamental change just beginning, I believe that the next two years are going to witness a sweeping shakeup. In just about all businesses – including information technology, but also banking and retailing and health care, and in the noncommercial world, too – we will see new leaders emerge, and we will see some old, longtime leaders sink. Competitors will spring up out of nowhere – competitors called "something.com."

Savvy businesspeople know this and are intensely focused on what to do. IBM holds daylong seminars on the new world of e-business for CEOs and CIOs from every part of the world. Of late there have been no empty seats. In the pages of this Annual Report, you will read what we tell these customers about e-business and what it takes to succeed in the evolving networked world. We'll also tell you why we think IBM is uniquely qualified, structured, situated and ready not only to benefit from all this change, but to emerge stronger than ever.
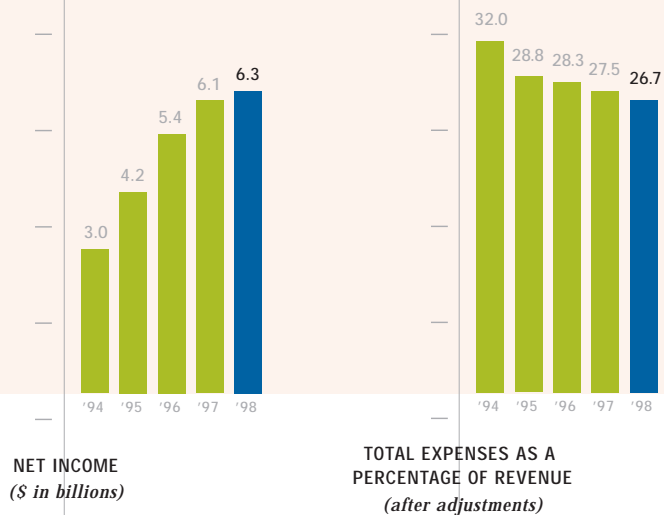
As we stand on the brink of the 21st century, with the mass media full of millennial retrospectives and predictions, there's a strong temptation to make grand pronouncements. I'm going to try to resist that temptation. However, at our CEO/CIO

'94   '95   '96   '97   '98

81.7

78.5

75.9

71.9

64.1

REVENUE
($ in billions)
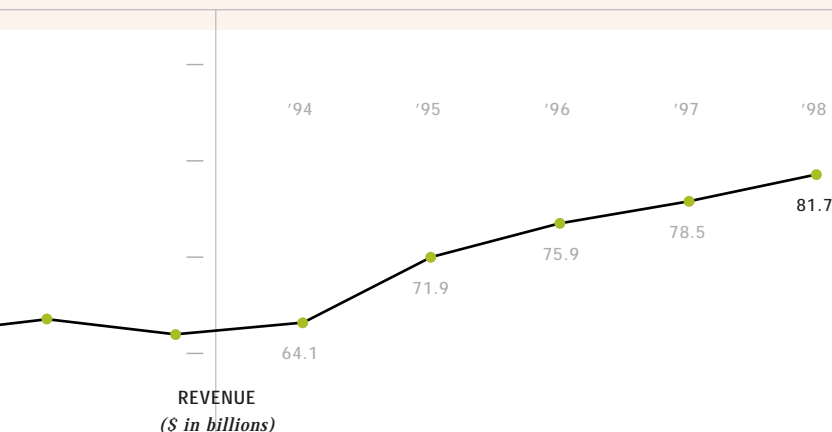
FINANCIAL HIGHLIGHTS International Business Machines Corporation and Subsidiary Companies

(Dollars in millions except per share amounts)	1998	1997
For the year:		
Revenue	$ 81,667	$ 78,508
Income before income taxes	$ 9,040	$ 9,027
Income taxes	$ 2,712	$ 2,934
Net income	$ 6,328	$ 6,093
Earnings per share of common stock — basic	$ 6.75	$ 6.18
Earnings per share of common stock — assuming dilution	$ 6.57	$ 6.01
Cash dividends paid on common stock	$ 814	$ 763
Per share of common stock	$ .86	$ .775
Investment in plant, rental machines and other property	$ 6,520	$ 6,793
Average number of common shares outstanding (in millions)		
Basic	935	983
Assuming dilution	960	1,011
At year end:		
Total assets	$ 86,100	$ 81,499
Net investment in plant, rental machines and other property	$ 19,631	$ 18,347
Working capital	$ 5,533	$ 6,911
Total debt	$ 29,413	$ 26,926
Stockholders' equity	$ 19,433	$ 19,816
Number of employees in IBM/wholly owned subsidiaries	291,067	269,465
Number of common stock holders	616,800	623,537

NET INCOME
($ in billions)

'94 3.0
'95 4.2
'96 5.4
'97 6.1
'98 6.3

TOTAL EXPENSES AS A
PERCENTAGE OF REVENUE
(after adjustments)

'94 32.0
'95 28.8
'96 28.3
'97 27.5
'98 26.7

5

meetings and whenever I meet with customers, I am asked where IBM stands on a wide variety of technology issues. I'd like to cover a few of these, because I believe they are the ones on which the new leaders will be focusing more and more over the next two years. At IBM, we are.

• *The Internet isn't just creating new businesses. It's creating new business models.*

Businesses and institutions are finding that the Net is the most potent tool they've ever had to build competitive advantage. I don't mean just online retailing, which has been getting a lot of attention lately. Many of the most impactful e-business solutions we are building with our customers are aimed at transforming less glamorous but extremely important processes like supply chain management, customer service and support, and distribution.

But the important point is that e-business is not simply a matter of adding another distribution channel or introducing some new efficiencies. It is driving customers to do business in a fundamentally different way.

This feverish search for new business models is having another interesting effect. It's creating a breeding ground for a new generation of startup companies. This may not be surprising. What has been unexpected is that *every* business and institution now has a chance to rethink what it does.

IBM is in a strong position to help. In our solutions business we have amassed thousands of experts who understand the inner workings of 26 major industries, from banking to entertainment to education. In working with thousands of customers, we come to understand which issues are common from industry to industry – and we can leverage that knowledge for our customers very quickly.

• *The greatest competitive advantage in the information technology industry is no longer technology.*

Without question, strength in basic and applied research remains essential in our industry – not only to achieve the breakthroughs that make new products possible, but also because they give the discoverer a unique ability to foresee, and shape, the future.

However, technology changes much too quickly now for any company to build a sustainable competitive advantage on that basis alone. Someone is always inventing some software code or device that is a little faster or cheaper. More and more, the winning edge comes from *how you help customers use technology* – to steal a march on their competitors, to implement entirely new business models. That means creating integrated solutions that draw on the full range of products and, increasingly, services. And it means connecting the dots between what you learn in the lab and what you learn in the marketplace.

We understood this when we decided six years ago to keep IBM together. And we've seen it borne out most clearly where all the pieces of information technology come together – in

STOCK PERFORMANCE 1998
End-of-week closing prices

$184.38

$105.63

Jan. 2, 1998

Dec. 31, 1998

information technology services. With its huge current demand, solid fundamentals underlying future demand and lack of a dominant competitor, I/T services has all the earmarks of a classic growth business.

I believe that IBM is well positioned to win a disproportionate share of that growth. IBM Global Services has grown in just eight years from a $4 billion to a $24 billion business, with better than 20 percent annual growth. And its market leadership is increasing, because the 126,000 IBMers who work in services can draw on all the technology and human assets of IBM, including an R&D community with a strong record of innovation (they just marked their sixth straight year of U.S. patent leadership).

- **_The PC era is over._**

This is not to say that PCs are going to die off, any more than mainframes vanished when the IBM PC debuted in 1981. Indeed, IBM's own PC business was an important turnaround story in 1998. But the PC's reign as the driver of customer buying decisions and the primary platform for application development is over. In all those respects, it has been supplanted by the network.

You experience this every time you go online to buy a book or trade stock. Where is the transaction executed? Where is the data managed and stored? Where does the processing take place? A teeny part is handled by your PC. Most of the work is done behind the scenes, in the network, by bigger computer systems.

Businesses deploying network applications have to handle an exponential increase in the volume of interactions and transactions, and they need to do something useful with the tidal wave of information generated from those interactions. Both needs are driving the rediscovery of enterprise computing – that is, industrial-strength servers and the software that runs on them.

As the Net takes over much of the work previously performed by PCs, we're seeing another interesting development: a proliferation of new personal computing devices – personal digital assistants, Web-enabled TVs, screenphones, smart cards and a host of products we have yet to imagine. One market research firm predicts that sales of non-PC Internet devices will surpass PCs within five years. This explosion of "information appliances" will bring computing to millions of new users – perhaps a billion people – faster and more affordably than the PC could ever have taken us.
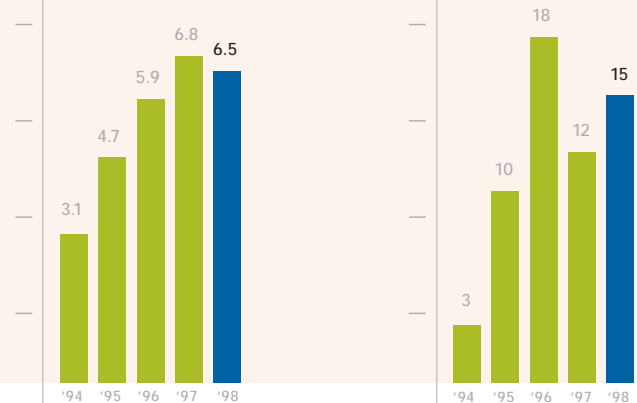
CAPITAL INVESTMENTS
($ in billions)

'94 3.1 '95 4.7 '96 5.9 '97 6.8 '98 6.5

NUMBER OF ACQUISITIONS

'94 3 '95 10 '96 18 '97 12 '98 15

All of this is very good news for IBM – the company that, in many ways, invented enterprise computing. In recent years we've invested heavily to reinvent our server and enterprise software lines. Middleware products like Tivoli systems management, Lotus Notes and Domino, and DB2 Universal Database have been standout performers. The advent of non-PC devices is also benefiting our OEM (original equipment manufacturer) business, where we sell IBM components like chips and disk drives to other technology companies, many of them our competitors. It's a business that's already growing at double-digit rates.

• *We're only at the beginning – more is coming.*

Two more things actually – and they're both extensions of the network computing revolution.

First, the basic components of computing – processors, memory, storage, networking – are becoming so small, powerful and inexpensive that soon computing will be embedded in all kinds of everyday things that don't look at all like computing devices: cars, roads, machine tools, vending machines, houses.

When all these are connected to the Net, they will make possible a new class of applications, invisible to end users but vitally important to businesses and institutions. Imagine this: Automakers will be able to gather real-time information about the performance of their cars. Soft drink companies can tie together their vending machines to learn what's selling (and not selling), at what prices, in what regions, at what temperatures. Imagine not just a billion connected people, but a trillion connected devices. We call this Pervasive Computing.

The second major development looks like the polar opposite of Pervasive Computing, but it's really just the flip side. A new class of heavyweight computing systems is emerging that will make possible new ways to gain insight – and *foresight* – from

both the enormous, underutilized stores of data that organizations already possess, and the sea of information that pervasive computing devices will generate. We call this capability Deep Computing – named after our chess-playing supercomputer Deep Blue, which combined ultrafast processing power with sophisticated analytical software.

In Deep Computing, we're already applying what we learned from Deep Blue to real-world initiatives that were previously inconceivable, like modeling pharmacological agents, simulating weather patterns for more accurate forecasting, and mining databases in retail or insurance for patterns and insights. What the future holds – solutions in everything from genomics to financial markets to disease control – is almost impossible to fathom today. But we're out there pushing the edges and learning.

• *The Year 2000 problem is important, and it's being addressed. But a lot of work remains to be done – fast.*

While no one knows for sure what will happen, we believe the largest companies, institutions and government agencies will be ready, particularly those in technologically advanced nations. They got an early start fixing their systems, and they are using this year to test extensively. Less certain is how smaller businesses and emerging nations will fare. They've got to pick up the pace.

To help our customers worldwide, we have deployed thousands of IBMers and mobilized thousands of our business partners. Most of our client teams are working through specific plans with their customers. We will deploy even more IBMers to the extent we can (we've already asked our people to alter vacation plans). And internally, we are working just as hard to ensure that IBM's own essential operations are ready.

* * *

PATENT LEADERSHIP In 1998, for the sixth consecutive year, IBM was awarded the most U.S. patents, shattering the previous record (our own) by more than 40 percent. We received 2,658 U.S. patents in 1998, 934 more than in 1997, and we eclipsed the next closest company by 38 percent.

As I look at the information technology industry today – its economic fundamentals, its technological underpinnings and even its emotional tonality – I see an industry that looks, operates and trades more like a business at the beginning of a growth cycle than one reaching maturity.

Perhaps even more remarkably, I see the same qualities in IBM.

The thing that most surprises and delights me about our company is not how we've reinvented our internal processes from the ground up. Nor how we're relentlessly improving execution and teamwork. Nor even that we're practicing what we preach, making encouraging strides toward becoming the world's premier e-business – in everything from procurement, where Net-based purchasing should save IBM nearly a quarter of a billion dollars in 1999; to e-commerce, where our online sales in December reached $38 million a day; to using distance learning to improve IBMers' skills.

As important as all that is, the thing that most persuades me that we are at a key inflection point in IBM's history is simply what it actually feels like to be here today.

Given what we have accomplished over the past six years, it would have been natural for IBMers to indulge themselves in well-deserved pride at having turned the ship around, or comfort in resuming a familiar role and stature. When I came to IBM in 1993, frankly, my fondest wish was for the company to return to its former position of leadership.

More and more, however, my colleagues are preoccupied not with our achievements of the recent past, but with the vast prospects opening before us. Not that we're taking anything for granted – like confusing a bull market with personal and institutional success. But it's as if, on our journey back up to a familiar plateau, we shot right past it and kept on going.

This is something I never dreamed of six years ago. Spurred by the extraordinary adventure of building a networked world, this large and storied enterprise now believes that its best years lie ahead of it – that its past, and that of the information technology industry as a whole, were just a preamble. As we move into 1999, with all its near-term momentum and all its external uncertainties, what we are most acutely aware of is the trajectory of this underlying shift, of a company and an industry that feel as though they are just getting started.

And of one more thing: a group of people who can't quite believe their good fortune. To be at this place, and at this time. Count me among them.

Louis V. Gerstner, Jr.
Chairman and Chief Executive Officer

Start up. In the networked world, everyone can. The details are unique for each customer. But the steps – the basics of e-business – are surprisingly consistent. We think there are five. They're also a way of understanding what we're doing, investing in and building across IBM today. It all begins with a commitment, a decision to...

1. Join the MOVEME

A few years ago, it was clear the Net was coming. But at that time it wasn't clear if it would be much more than a planetary chat room and an electronic newsstand. However, back then, IBM was saying the Net would become much more than those things. We said that it would not just change technology. It would spark an all-out revolution in the way the world works.

Many of our customers held the same view. They saw a chance to reinvent everything from the way governments deliver services to citizens and students access the wisdom of university faculties, to the way physicians treat patients and enterprises of all kinds serve customers of all kinds.

It's a powerful idea. And like all new ideas, you can ponder it and possibly miss something big. Or you can start experimenting, learn, and push it for all it's worth. You can be part of the movement.

Gary Briggs
e-business marketing strategist

N T

The Internet is the epicenter of change today...

It took radio nearly 40 years to reach 50 million people. TV took 13 years. Cable TV, 10. Not six years after the birth of the World Wide Web, more than 140 million people are online – and some estimate that **50,000 new users** – workers, students, buyers, sellers, patients and citizens – come online every day in the United States alone. They use the Net both as a medium and as a destination – the largest, most restless, round-the-clock marketplace the world's ever seen.

because the incentives are irresistible...

The Net dissolves barriers that once limited market access and opportunity. It creates new ways to achieve global reach, find new customers, improve service, conceive and deliver new offerings. It fundamentally alters the economics of transactions. The cost of basic banking transactions drops from **$1 to one cent** on the Net. Companies that once spent $35 to process an expense form do it for less than $5 using intranets.

creating opportunities for
all businesses and institutions...

We're watching the creation of nothing less than a new economy. By one estimate, Internet commerce grew from $12 billion in 1997, to more than $30 billion last year, and will surpass **$425 billion by 2002**. You can find other estimates that see a **$1 trillion marketplace in the same timeframe.** What's harder to measure – but even more significant – is the value of the Net as it transforms the internal operations of organizations and redefines the important work of noncommercial institutions.

(and for the information
technology industry).

Our industry is growing about 10 percent a year, and spending on e-business hardware, software and services is growing twice that fast. At these rates, the overall information technology industry should reach **$1.6 trillion by the year 2002,** and e-business will account for $600 billion of that total.

all can play

ONE GREAT THING about experience: you learn. We've worked on nearly 18,000 network computing engagements with customers large and small, in all sorts of industries. From this work we've learned that while online retail sales – "e-tailing," as some call it – is exploding, it's just one aspect of e-business. Prime movers in this revolution also include universities, hospitals, government agencies and nonprofit institutions that embrace the Net to transform what they do. And some of the most astounding results (and returns on investment) come when customers build e-business solutions inside their enterprises to unlock the ideas of their own people. Here, a handful of e-business pioneers.

STATE OF ARIZONA
ServiceArizona is used by 7,000 Arizona residents a month to renew vehicle licenses online, saving the state $325,000 a year. Online renewals cost the state $1.60 versus $6.60 for an in-person transaction.
www.servicearizona.ihost.com

AIR CANADA
Site provides travelers with the convenience of secure online ticketing for 545 global destinations. First-year bookings soared to 25 times the anticipated volume, and Air Canada is seeing major reductions in distribution costs – its second largest expense.
www.aircanada.ca

SAAB CARS USA
Extranet connects 225 dealers and 20 service centers. Dealers and technicians go online to order parts, trace deliveries, check warranties and maintain service histories. Saab estimates this Web-based system will lift productivity by up to 25 percent at each dealership.
www.saabusa.com

FEDERATED DEPARTMENT STORES
In 1998, Federated Department Stores created its online subsidiary, macys.com. The site offers 250,000 items for sale, from socks to diamonds. In the fourth quarter, volume increased 700 percent and traffic across the site jumped 550 percent.
www.macys.com

RECREATION EQUIPMENT INC. (REI)
REI's fastest-growing business: online sales. E-commerce revenues rose 360 percent over 1997. Revenue through the Web site exceeded per-store volumes generated by most of the chain's largest physical stores, and online orders averaged twice the amount of traditional purchases.
www.rei.com

SHELL CHEMICALS

This extranet application automates delivery of chemical products, allowing for just-in-time shipments to customers, electronic billing and payment. Sales of chemicals increased at 45 percent of Shell Chemicals' accounts, and its customers eliminate costly excess inventory.
www.shellchemicals.com

AMWAY OF AUSTRALIA

8,000 distributors now access sales and product information over the Net. In its first year, the Web system reduced order processing costs by nearly $2 per order.
www.amway-au.com

SCHNEIDER AUTOMATION

A global extranet at Schneider Automation, the U.S. subsidiary of France's Groupe Schneider, gives sales and service staff in 130 countries instant access to customer and product information. The industrial automation equipment manufacturer says the networked application was instrumental in a 60 percent jump in customer satisfaction.
www.schneiderautomation.com

TIENDAS E.WONG

Peru's first online supermarket offers 15,000 items for sale. Operating costs are half those of traditional stores, and profit margins from online sales are 35 percent higher.
www.ewong.com

**LEHIGH VALLEY
SAFETY SUPPLY**

This small business once sold industrial work boots off a truck in a few eastern U.S. states. Its Web site now lists 250 varieties of boots and fields orders from Malaysia, Pakistan, Thailand and offshore oil rigs.
www.safetyshoes.com

**M.D. ANDERSON
CANCER CENTER**

This secure Net-based disease management tool at this Texas hospital allows doctors to track treatment outcomes and measure appropriateness of tests, prescriptions and procedures. For one major surgical procedure, test costs were reduced 35 percent, and the length of patient hospital stays came down 30 percent.
www.mdanderson.org

**KOREAN NATIONAL
OPEN UNIVERSITY**

More than 200,000 students – at 13 regional and 31 remote education centers throughout the Republic of Korea – use the Web and digital library technology. The Web site will soon hold 10,000 hours of broadcast lectures and learning materials.
www.knou.ac.kr/imsi1.htm
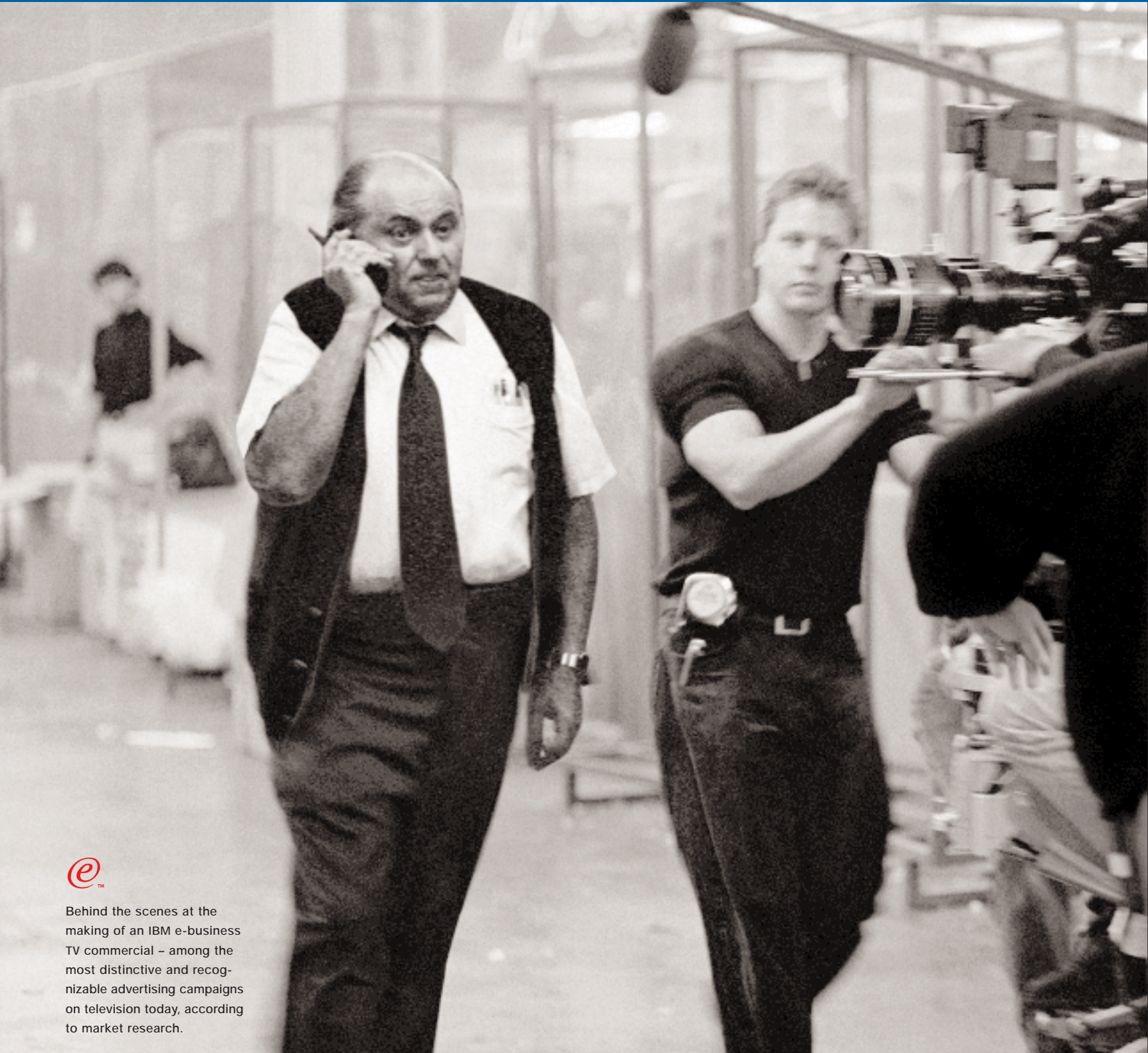
Behind the scenes at the making of an IBM e-business TV commercial – among the most distinctive and recognizable advertising campaigns on television today, according to market research.

it's called **e-business**

BUT IT'S A LOT MORE THAN A NAME, or the tag line in an ad campaign. It's true that over the last two years we've invested hundreds of millions of dollars to promote our point of view on what the Net is all about. And our ads do introduce a lot of customers to the idea of e-business. But that's just where the conversation starts.

When customers decide to use the Net to transform time-honored ways of working, they have to ask and answer some very big questions. Where do we start? What kind of applications and infrastructure should we build? How are we going to use all the information we'll capture – analyze it, extract new insights and apply them?

So in 1998, we started to move beyond broadband marketing to define in detail the business and technology implications involved in becoming an e-business. We created a methodology – a model describing the nature of this transformation – and we began taking it to customers and business partners. The response has been encouraging, as more and more customers are joining the movement – the e-business movement.

Suzanne O'Connell
industry solutions expert

2.
LEA
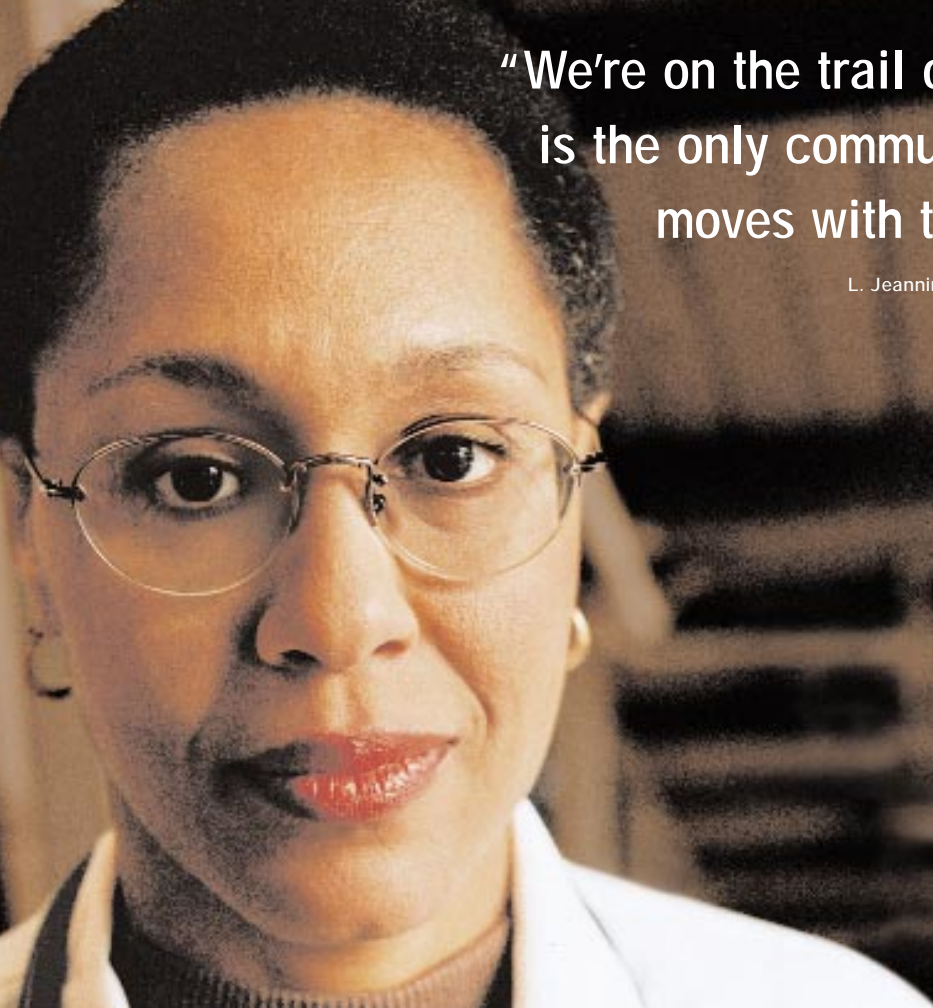
Because in a movement like this one – global, hair-trigger fast and playing out on largely uncharted terrain – there will be leaders. People with some courage, and a restless bone or two.

Be one OF THE DERS

We consider ourselves fortunate to count thousands of them among our customers. They're captains of industry – or plan to be soon. And they're worth watching.

They're found across all industries, and their organizations come in all sizes. But they have a lot in common. They don't settle for incremental improvement. They dream about breakthroughs, and search for entirely new models – new ways to build competitive advantage, sell, enter markets, learn, and win.

They share one more trait. A sense that in this movement, disproportionate rewards will be earned by those who strike first.

"We're on the trail of a killer. The Internet is the only communications medium that moves with the URGENCY WE NEED."

L. Jeannine Bookhardt-Murray, M.D., HIV Treatment Data Project
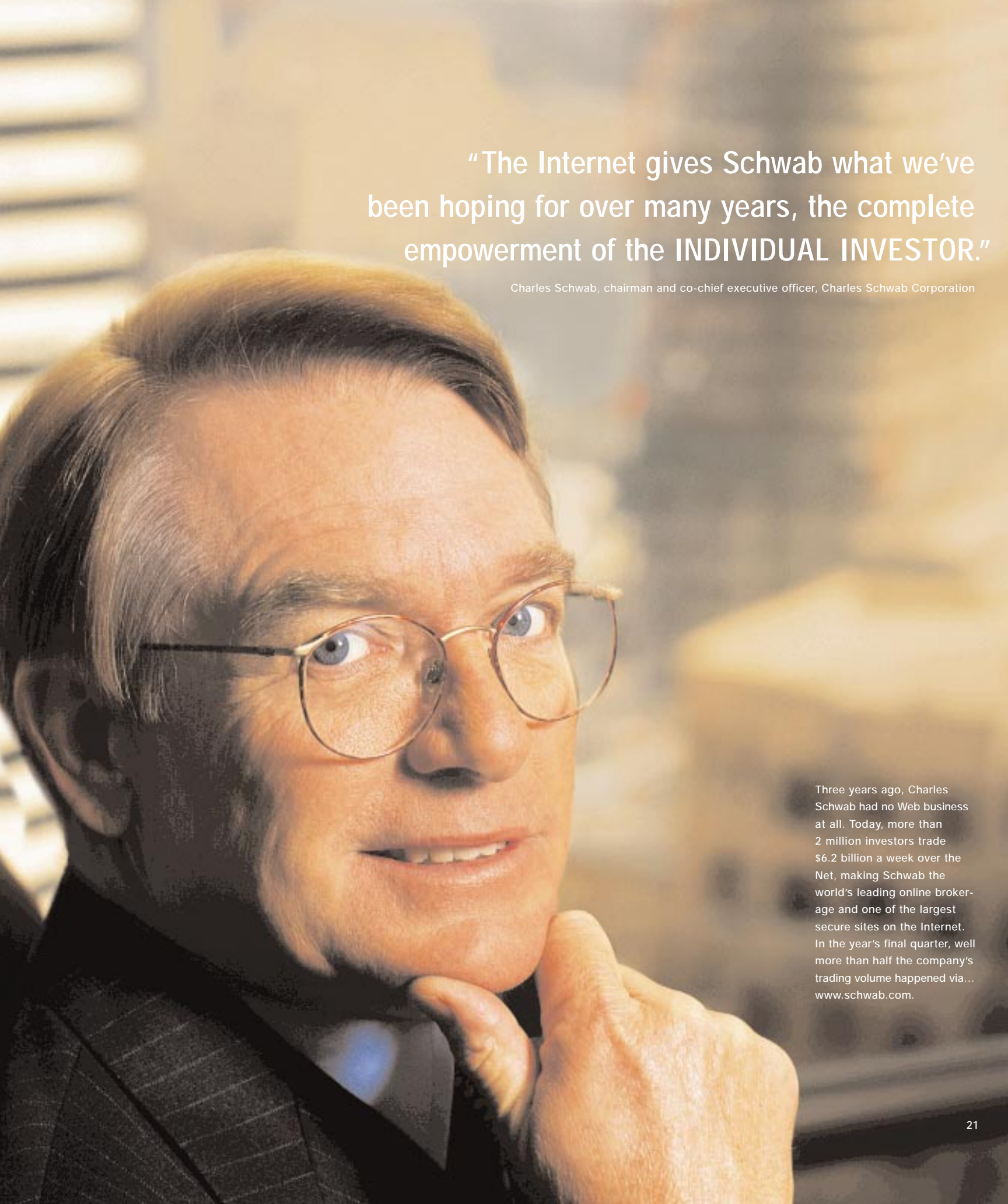
In the battle against HIV and AIDS, researchers are learning that combinations of drugs succeed where individual medications fail. The HIV Treatment Data Project is a collaboration between the American Association of Health Plans and Lotus to create a safe, secure Web site where information on possible drug therapies is compiled and shared. The results are instantly available to doctors and researchers who have committed themselves to end this modern plague.

Chrysler generated more than $2 billion in cost savings in 1998 with a Net-based application that tightened the partnership with its suppliers by inviting them to offer cost-saving ideas. The suppliers weighed in with more than 13,000 suggestions. In three out of four cases, Chrysler took action – and shared some of the savings with the idea's originator.

"We turned to the Net to create the world's most PRODUCTIVE suggestion box, and speeded up the implementation of a ton of great ideas."

Susan Unger, chief information officer, DaimlerChrysler

"The Internet gives Schwab what we've been hoping for over many years, the complete empowerment of the INDIVIDUAL INVESTOR."

Charles Schwab, chairman and co-chief executive officer, Charles Schwab Corporation

Three years ago, Charles Schwab had no Web business at all. Today, more than 2 million investors trade $6.2 billion a week over the Net, making Schwab the world's leading online brokerage and one of the largest secure sites on the Internet. In the year's final quarter, well more than half the company's trading volume happened via… www.schwab.com.

"The old model of TEACHING built around the 'sage on the stage' has to be rethought – has been rethought – and I don't think there's any going back."

Dr. Rafael Rangel, chancellor, Monterrey Institute of Technology

With 30 campuses in Mexico and seven field offices across Latin America, the Monterrey Institute of Technology knows the value of distance learning. Mexico's largest private university uses a Collaborative Education System (based on Lotus LearningSpace software) to support 2,500 courses at 81 remote sites – and to put digitally delivered education within the reach of some 43,000 students.

In the quaint Scottish hamlet of Lugton, a four-person cooperative called Scottish Craft Brewers is online with an e-business Web site and is fulfilling orders from around the world. They built the site – and its secure ordering system – in hours. Since August, sales are up nearly 1,000 percent.

"The RESPONSE is almost frightening. I thought it would die off after Christmas, but it just keeps coming. I shipped to Slovakia, and I don't even know where that is."

Christopher Lynas, director, Scottish Craft Brewers Cooperative. www.lugton.co.uk

"It's true that we're not a big company, and we're no bigger in terms of staffing than we were before we put up the Web site. If this is DAVID VERSUS GOLIATH, then we're David.com."

Lynne and Alan Kuwahara, owners, Hawaiian Greenhouse. www.hawaiian-greenhouse.com

On the volcanic plains of the big island of Hawaii, the Kuwahara family has grown and sold world-class tropical flowers since 1965. But when massive international growers started to squeeze its sales, Hawaiian Greenhouse turned first to mail order, and then to the Internet. Today, 10 percent of all new orders originate on the Net and this small family business has found a way to compete with the big boys.

We're watching the end of the PC era. That's important. **But the PC isn't going to dry up and blow away.** Its role is being redefined to serve as a key point of access to the Net – but not the only point of access.

3. Get BIG (and SMALL)

A panoply of new network access appliances is coming to augment the world of PCs – hand-held computers, Web-enabled TVs, screenphones. By some projections, these new devices will account for 40 percent of all devices connected to the Net by 2002. This will bring computing and the Net to millions of new users quickly. IBM will build some of these devices, but our main play will be the technologies – like chips and disk drives – that power them.

We think things get even more interesting at the other end of the network connection. As personal computing is redefined, customers are rediscovering the importance of enterprise computing to handle their escalating e-business workload – everything from industrial-strength software like transaction systems and databases to highly reliable, secure, scalable servers.

As a result of these shifts, value is being redefined in information technology. It's changing where customers invest, and it's changing what leading technology companies work on. At IBM, this view of the future of computing is shaping all our product development plans, from super-computers to ThinkPads, as well as our work in creating the core underlying technologies that power them.

Mark Anzani
S/390 hardware developer

personal computing is being redefined…

(From left to right) **Aptiva:** award-winning PC family delivers superior technology – both for the under-$1,000 market and for those seeking the power and performance of a 450-megahertz processor and DVD multimedia. **ThinkPad iSeries:** introduced in October, it quickly became our fastest-selling notebook ever. **CrossPad:** jointly developed by IBM and Cross Pen Computing Group, it creates a digital copy of handwritten notes. **Screenphone:** we're working with companies like Deutsche Telekom to build new computing and communications devices and new ways to conduct networked transactions. **WorkPad:** it adds IBM technology to the base 3Com product, enhancing PC-syncing and network functions. **Smart Card:** applications range from secure user authentication to "e-cash" – and we're working on Java-based solutions. **Wearable PC:** in September, IBM researchers in Japan prototyped a computer with the power of a ThinkPad 560 yet small enough to carry in your pocket; the main unit attaches to a headset with a one-inch display and a hand-held controller with a "TrackPoint" and microphone.

MAKE NO MISTAKE. There will still be PCs – millions and millions of them. But the PC is going to be joined, augmented (and ultimately outnumbered) by a vast array of information appliances, a few of them shown here. This will bring computing and access to the Net to hundreds of millions of people very quickly. IBM will build some of these devices, but our presence will be most evident under the covers – in the leading-edge chips and disk drives (like those at the bottom of this page) that will power all these new personal computing devices.

IBM UNDER THE COVERS

Microdrive (shown actual size)
The world's smallest and lightest hard disk drive debuted in September. The Microdrive holds 200 times more data or images than a floppy disk, and stakes out a leadership position in the market for compact storage devices for digital cameras, cellular phones and hand-held computers.

Silicon-on-insulator
In August, IBM announced a breakthrough in semiconductor technology that "turbocharges" transistors so that they can run faster or use less power. This advance paves the way for development of more efficient hand-held computing devices and more powerful network-based computers.

Silicon germanium
In October, we announced production of chips using our patented silicon germanium manufacturing process. Virtually every telecommunications company is racing to incorporate silicon germanium to reduce production costs and sharpen the performance of high-speed data links, cell phones, pagers, and other wired and wireless products.

because enterprise computing is being rediscovered

WHEN YOU TAKE A BUSINESS TO THE NET, you stake a lot on the strength of your information technology infrastructure. Things like your reputation, brand and customer relationships. Your online systems have to be able to handle – not just the population of employees inside your business – but the population, period. And never go down.

So critical e-business applications have to run on enterprise servers and equally burly software called "middleware." In combination, they make sure your application (and your reputation) can handle unprecedented stress, unpredictable spikes in usage, and that you're ready when the world comes calling.

HARD FACTS
ABOUT ENTERPRISE SOFTWARE
IBM ranks among the leaders in each of the key middleware segments, and our products run on all the industry's leading operating systems – including HP-UX, Solaris, Windows NT, AIX, OS/2, OS/400 and OS/390.

MESSAGING AND
COLLABORATION
Lotus Notes and Domino are leaders and enjoy double-digit growth rates. New installations totaled more than 14 million in 1998.

APPLICATION
DEVELOPMENT
To become an e-business, a customer must extend its investment in existing technology to the Internet. In 1998, we maintained our number-one position in application development software and tools, such as VisualAge for Java.

DATA
MANAGEMENT
More than 70 percent of the world's data resides on IBM systems. IBM's DB2 Universal Database is a top choice among customers, and grew faster than the industry in 1998.

S/390 The workhorse and performance leader among enterprise servers. Last year, we cracked the performance milestone of 1,000 MIPS (millions of instructions per second) and notched more than 350 competitive wins.

AS/400 It's quick to deploy and easy to run (requiring little or no support staff). That's one reason 20 percent of new orders in the fourth quarter of 1998 were from new customers. We shipped AS/400s in record numbers last year, and delivered a 94 percent performance improvement.

NETFINITY In 1998 – its first full year in the marketplace – Netfinity set industry performance standards and began delivering enterprise-class technology to the industry-standard marketplace.

🔴

TRANSACTION PROCESSING
Transaction systems enable disparate applications to connect and interact. IBM's MQ Series is the *de facto* message queueing standard.

🟡

SYSTEMS MANAGEMENT
IBM's Tivoli subsidiary is a leader in systems management software and technology – and continues to grow faster than the industry.

⚪

SECURE NETWORKING
With our SecureWay family of products, IBM is the market leader in secure networking software, enabling users to connect to the network, authenticate their identity, and do business with security and reliability.

4. Get even BIGGER and DISAPPEA

Even as they carve out a place in the world of e-business, the leaders – our customers – cast an eye over the horizon, searching for the next big movements. We're looking with them. And right now, we see two.

The first is called Pervasive Computing. It is the inevitable extension of the networked world – to connect not just individuals and institutions, but lots of everyday things that will contain a little embedded computing and networking capability.

The second trend is at the other end of the wire, what we call Deep Computing. It's the union of ultrafast processors with advanced algorithms and software to create very powerful systems that can attack problems and challenges previously beyond computing's reach.

For us, pinpointing the next shift is fundamental to our business. It's why we invest billions in exploratory research and technology development every year. This isn't a dreamy, speculative look ahead. We see what we are uniquely able to see – and, often, see first.

R

Bernie Meyerson
IBM Fellow and pioneer of silicon germanium
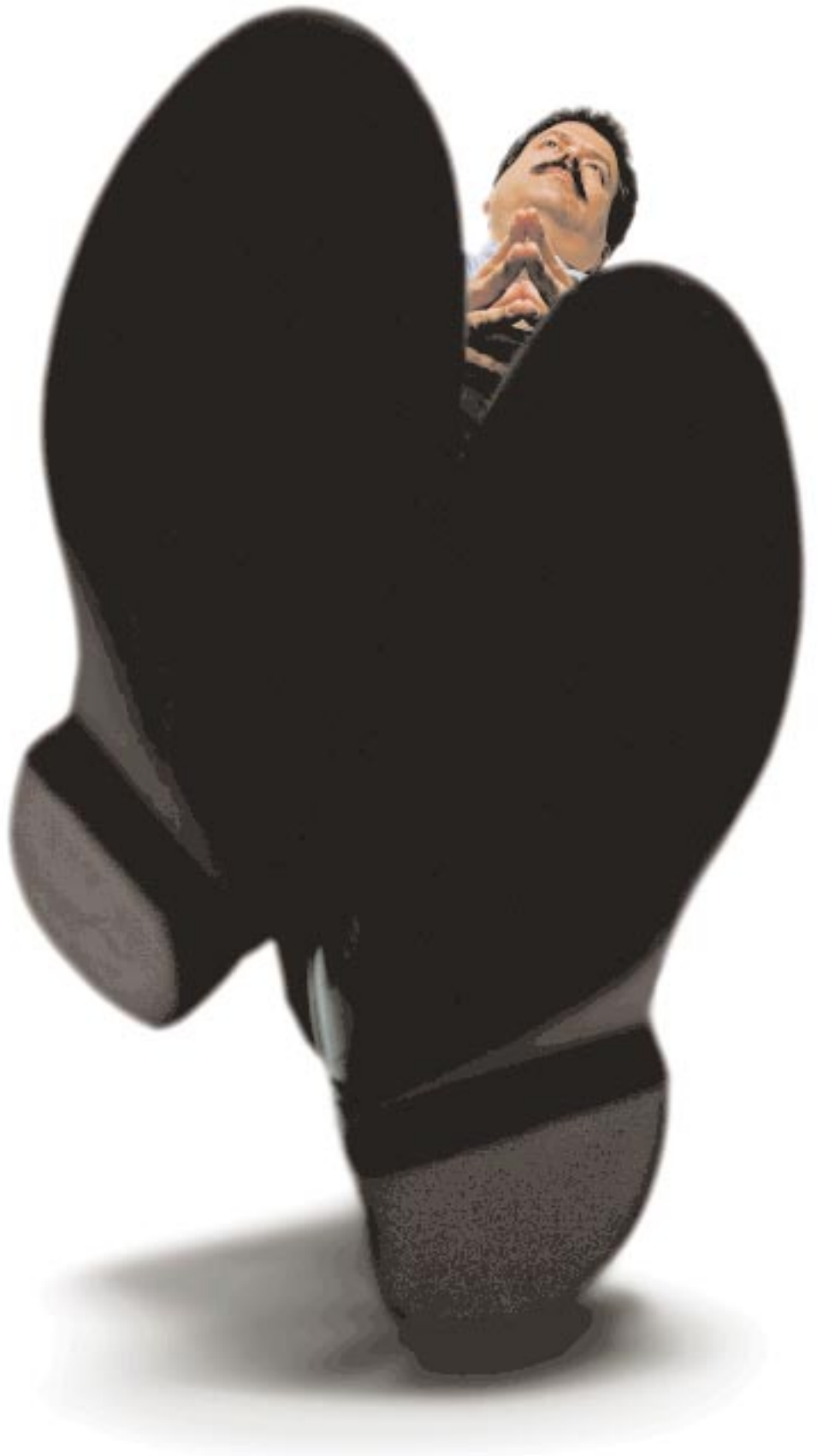
computing takes on the mysterious...

MEN WALKED on the moon three decades ago, but there have remained myriad challenges beyond the reach of technology - problems too expensive or too time-consuming to be practically solved with even the most powerful computers. But now that's changing. A new capability began with Deep Blue, a chess-playing supercomputer that could consider 200 million possible moves per second, coupled with analytical software so sophisticated some said it began to mimic the workings of the human mind. Today, the lessons of that chess match are helping us create a new market opportunity we call Deep Computing.

This capability is now being applied to monumental challenges - endeavors far more important than chess: modeling financial markets and weather patterns, challenges in biomedicine, data mining and genomics. In the area of pharmaceutical research, for example, Deep Computing allows researchers to reduce significantly the time required to design new drugs.

Michelangelo's second Pietà is a work of undeniable sorrow – said to be unique in its ability to move people to tears. Perhaps that dark power overcame the sculptor the day he took hammer in hand and smashed chunks out of the work he intended as his tomb monument. He was stopped by a servant. The piece was never completed, but was repaired by an undistinguished sculptor.

Now, IBM researchers and art historian Jack Wasserman are using Deep Computing techniques to create a near-perfect replica – a digital one – based on analysis of nearly 2 billion bits of data. They hope their work will lead to new theories about Michelangelo's concepts of proportion and dimension, and what the work looked like before pieces were reattached.

A special six-lens camera originally designed for cosmetic surgeons captures hundreds of digital mesh "shape photos." From these, a computer using a special mathematical algorithm reconstructs a wireframe model of the sculpture. Though crude, this model contains millions of points and triangles to define surface contours.

Mastering the geometric complexity of the Florentine Pietà generates new techniques for digitizing very large real-world objects. These techniques allow scholars to make computer models of objects to which they ordinarily would have no access, and to examine them in exquisite detail.
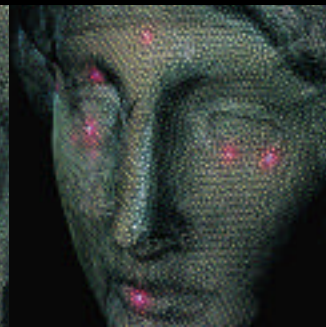
the unthinkable...

PERHAPS EVEN MORE PROFOUND than what Deep Computing lets us do, is what it lets us avoid. For the first time, these technologies allow us to create digital solutions where the physical alternatives are no longer acceptable. With these tools, thoughtful people have a way to solve problems that aren't merely hard, or time-consuming, or expensive. They can apply massive amounts of computing power to address some of the previously intractable quandaries of humankind.

The first atmospheric test of a thermonuclear device near the Enewetak atoll in the Pacific Ocean, in 1952.
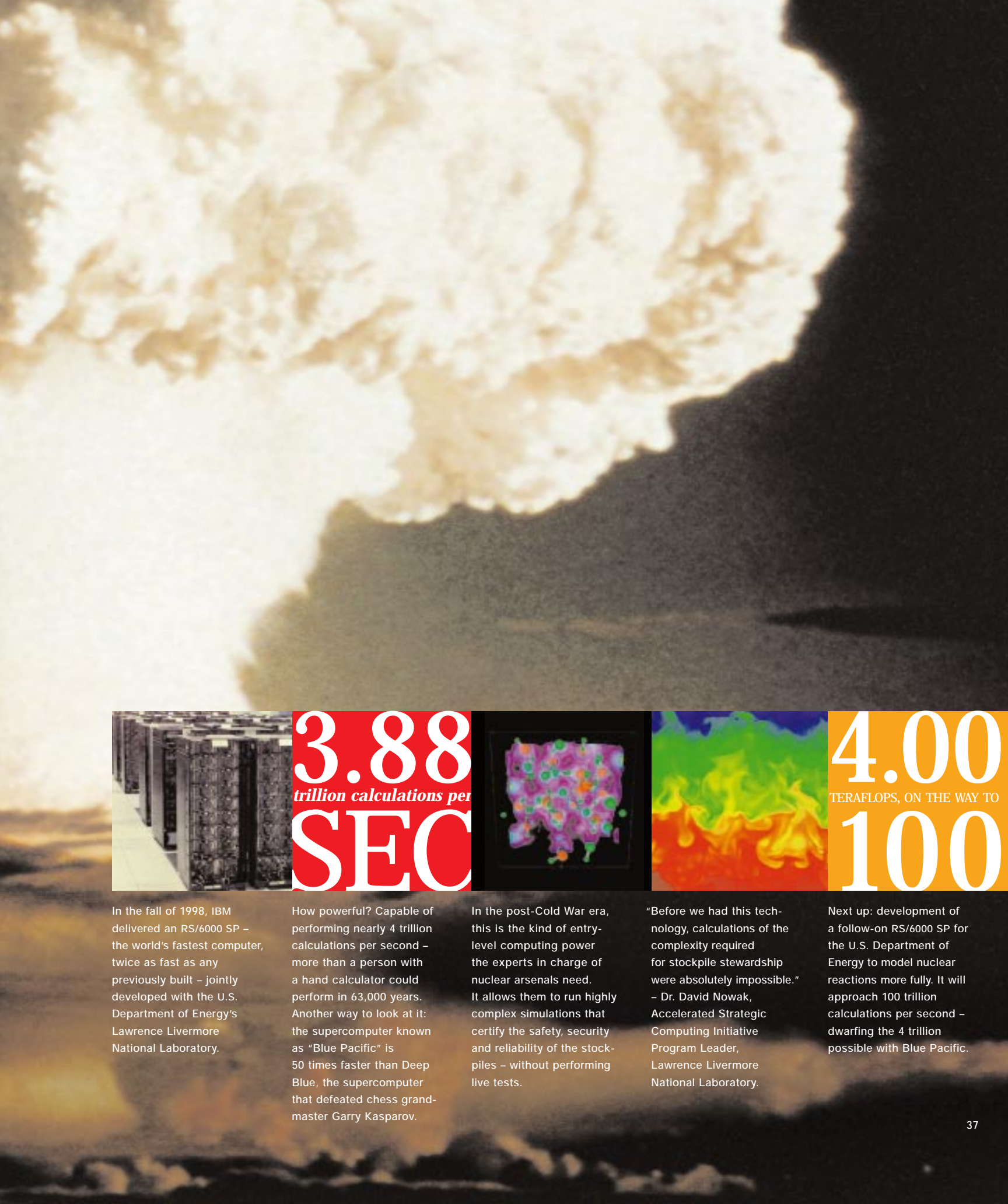
3.88
trillion calculations per
SEC
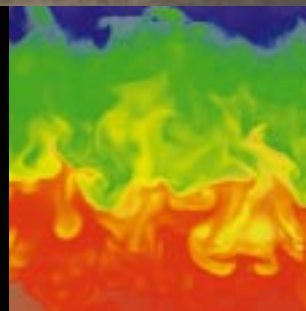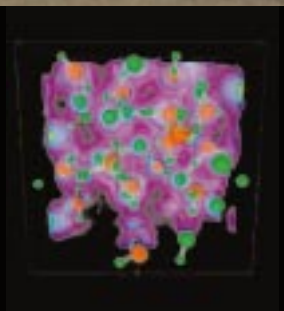
4.00
TERAFLOPS, ON THE WAY TO
100

In the fall of 1998, IBM delivered an RS/6000 SP – the world's fastest computer, twice as fast as any previously built – jointly developed with the U.S. Department of Energy's Lawrence Livermore National Laboratory.

How powerful? Capable of performing nearly 4 trillion calculations per second – more than a person with a hand calculator could perform in 63,000 years. Another way to look at it: the supercomputer known as "Blue Pacific" is 50 times faster than Deep Blue, the supercomputer that defeated chess grandmaster Garry Kasparov.

In the post-Cold War era, this is the kind of entry-level computing power the experts in charge of nuclear arsenals need. It allows them to run highly complex simulations that certify the safety, security and reliability of the stockpiles – without performing live tests.

"Before we had this technology, calculations of the complexity required for stockpile stewardship were absolutely impossible." – Dr. David Nowak, Accelerated Strategic Computing Initiative Program Leader, Lawrence Livermore National Laboratory.

Next up: development of a follow-on RS/6000 SP for the U.S. Department of Energy to model nuclear reactions more fully. It will approach 100 trillion calculations per second – dwarfing the 4 trillion possible with Blue Pacific.

and becomes invisible

THE EVOLUTION of information technology is as irresistible as a force of nature. The basic elements of computing – processors, storage, memory – all grow inexorably faster, smaller and cheaper. That renders a few things pretty clear.

One is that e-business is just phase one of this networked transformation. What's next is an explosion – from a world of a million e-businesses, and a billion connected users to a trillion connected things – cars, clothes, household appliances, machine tools, each emitting a little information and all of them interwoven in the global information infrastructure.

Imagine intelligent vending machines sending regional distribution centers reports on what kind of soda is selling, what's not, even the optimal time to send a route driver to empty the coin box.
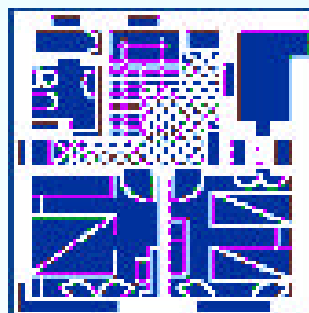
YOUR HOME
Home buyers can now move into a clean, spacious… computing device. We're working with partners in the home construction industry and with Bell Atlantic in the United States to deliver IBM Home Director, which integrates everything from Internet access to control of security and lighting systems, heating and air conditioning – all from any PC or TV screen.

YOUR GROCERIES
Even the weekly ritual of grocery shopping is being transformed. Safeway UK and IBM are piloting hand-held devices that let shoppers make up grocery lists and submit the order from home. The supermarket fills the order and has it ready for pick-up. Or shoppers can cruise store aisles scanning groceries and tracking their total. Customers like the convenience. The super-market likes the fact that high-spending families are doing more of their shopping with Safeway.
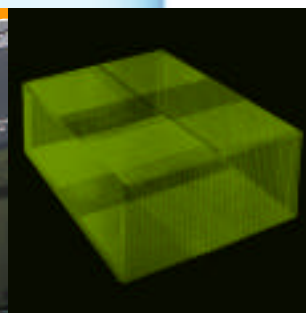
YOUR PACKAGE
Today, you can track the status of any overnight package from depot to depot. Tomorrow, parcels with embedded computing and communications capability might be tracked mile by mile, street by street and block by block, until they reach your door – and you.
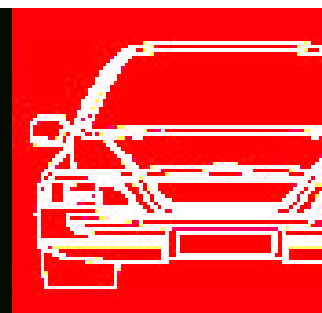
YOUR CAR
We're working with automakers to prototype wireless links from the car to the Net, combined with IBM voice technology to give drivers e-mail (voice-activated), driving directions and updates on road condi-tions. Onboard sensors would alert drivers – and the nearest service center – if a problem were brewing. And imagine the benefits to automakers when these links beam continuous information on engine performance directly to manufacturing and product development.

There is a relentless drive in the information technology industry to make things more powerful, less expensive – and always faster. **But for customers, the most important measure of speed isn't found in the machines.** It's in how fast marketplace opportunity arises, and vanishes – and with it, the chance to lead.

5. Fast FORW

The question they ask is: If everyone has access to the same technology (and they do), what's the real source of competitive advantage? Here's the surprising answer they get from the world's largest information technology company: there is no unique competitive advantage in technology alone.

Today, real advantage is found only when technologies are applied to solve problems, to create new capabilities for customers, quickly and cost-effectively. This requires skills, insight and knowledge – in other words, great people. This is the intensely human business of information technology services. It is the fastest-growing segment of our industry and, not coincidentally, the fastest-growing business in IBM.

ARD
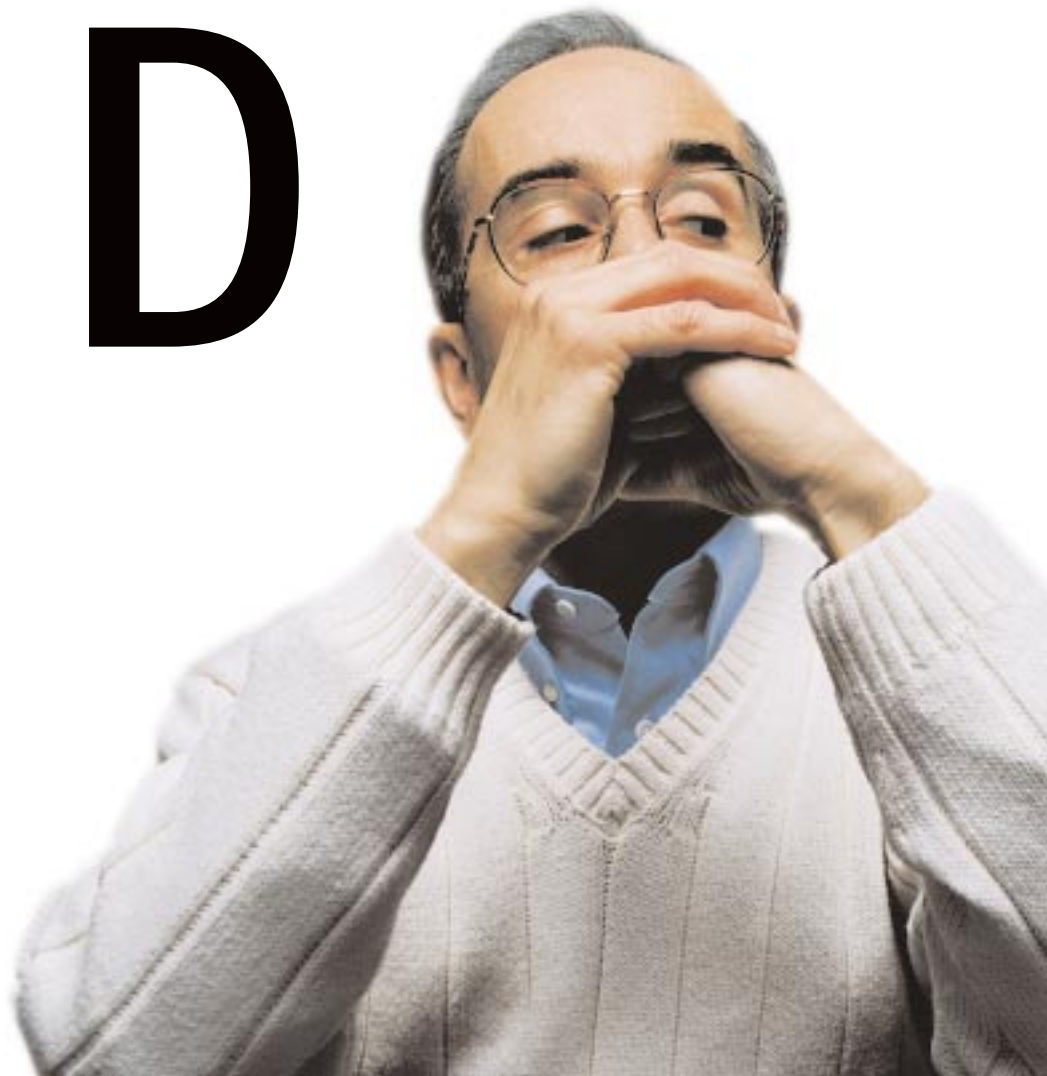
Anthony Rizzi
global services professional

close the gap

CUSTOMERS SPENT ABOUT $1 BILLION A DAY on information technology services in 1998. Why? Because there's a yawning void between a big idea - or even a well-crafted strategy - and marketplace execution. To get from one to the other, as quickly and cost-effectively as possible, customers increasingly draw on service providers like IBM Global Services for assistance in areas spanning consulting and systems integration, application development and Web site hosting. We believe this trend will continue, for some of the reasons described here.

The world is embracing new models.

New models of retailing, distribution, banking, education. One consultancy estimates that customers will dedicate fully half their e-business investments to services that help them make their moves to the Net. Over the past year, IBM has introduced more than 30 new e-business services – from Web site hosting, to e-commerce, to offerings for employee training and knowledge management.

Demand outstrips supply.

It's a persistent dilemma that's getting more acute. Many of our customers lack the in-house information technology staff they need, and they can't hire sufficient skills. In the United States alone, want ads for hundreds of thousands of information technology jobs are going unanswered. IBM's 126,000 services professionals – who garnered the industry's top customer satisfaction ratings – are ready to help, and we're hiring more every week.

Strategic partnerships catch on.

Customers seeking a competitive edge often decide to concentrate on their core business, and entrust the management of the information technology infrastructure to an expert partner. This model, strategic "outsourcing," is well known in the United States. And it's now sparking the imagination of customers like Cable and Wireless in the United Kingdom, Daiwa Bank in Japan and Caricentro in Italy. Of 38 outsourcing contracts we signed last year worth $100 million or more, nearly half were with customers outside the United States, more than double the percentage of two years ago.

A premium on security and privacy.

When businesses send valuable intellectual property over the Net, they have to know they can control access to their content, validate the ID of all participants in the transaction and provide a high level of security for the data. That's why five major music labels are using the IBM Electronic Music Management System to test the highly secure sale and digital distribution of CD-quality music over the Internet. This is just one of many IBM e-business solutions across dozens of industries – all backed by services that make e-commerce safe, secure and very real.

Speed without sacrifice.

Speed or customization? It's not an either-or decision. Through thousands of services engagements, we build insights in one industry, and use them to create tested, proven solutions that can be replicated (and customized) in others – to get our customers going very quickly. In fact, seven of our 10 fastest-growing global offerings – built around opportunities like enterprise resource planning – are less than two years old.

Not by services alone.

Customers who engage with our services business find they've also tapped a direct pipeline to solutions development teams in 26 industries, as well as the resources of IBM Research. Often, this can provide a competitive edge for our customers – and for IBM. Monsanto's decision to sign a long-term, strategic outsourcing agreement with IBM was based, in part, on the opportunity it saw to team up its genomics scientists with our pattern recognition researchers.

Five years at IBM. Of course, IBM is no startup, and we had our initial public offering more than 80 years ago. But in many ways our story over the last five years testifies to the transformational nature of our times.
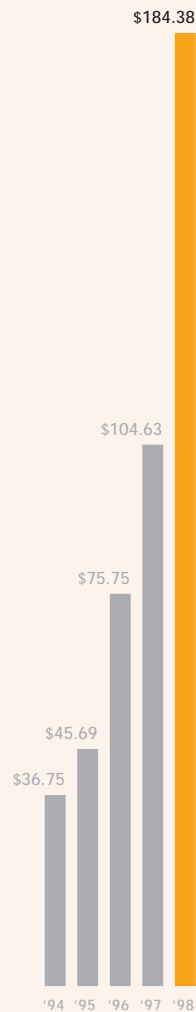
creating
shareholder value
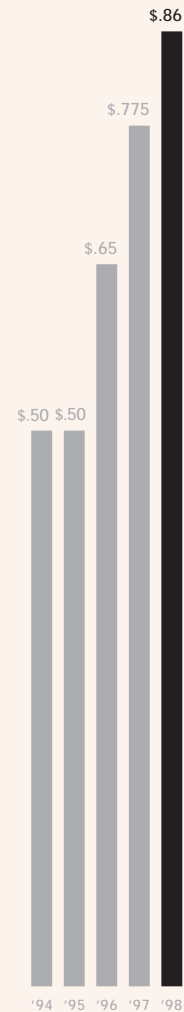
IBM MARKET VALUE
($ in billions)

$169

$100

$77

$50

$43

'94 '95 '96 '97 '98
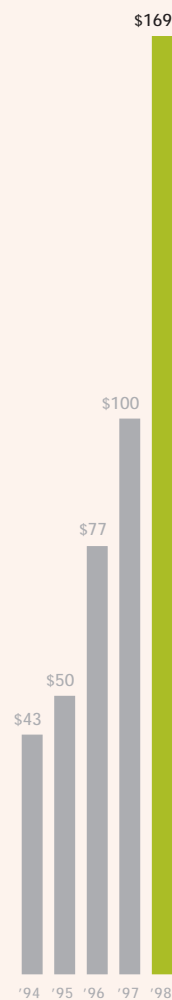
STOCK PERFORMANCE
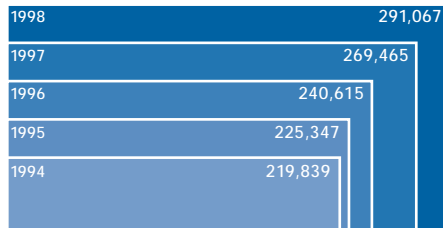*Year-end closing prices adjusted to reflect a two-for-one split of the common stock effective May 9, 1997*

$184.38

$104.63

$75.75

$45.69

$36.75

'94 '95 '96 '97 '98

DIVIDENDS
Adjusted to reflect a two-for-one split of the common stock effective May 9, 1997 ($ per share)

$.86

$.775

$.65

$.50 $.50

'94 '95 '96 '97 '98

NUMBER OF EMPLOYEES

Year	Employees
1998	291,067
1997	269,465
1996	240,615
1995	225,347
1994	219,839

WOMEN AND MINORITY EXECUTIVES AT IBM

Since 1994, the number of women executives worldwide has increased 128 percent. And the number of minority executives in the United States has increased by 84 percent.

EMPLOYEE GIVING

Individual employees in the United States contributed more than $190 million from 1994-1998 through matching grants and donations to nonprofit organizations and educational institutions.
($ in millions)

'94	'95	'96	'97	'98
$35.6	$35.9	$36.7	$39.2	$43.9

PERFORMANCE-BASED PAY

In order to attract and retain the best professionals, IBM has increased its investments in performance-based pay programs.

Variable Pay

IBM employees share in the company's success through IBM's variable pay program. Variable pay is a pool of cash distributed to employees, based on the performance of the company, each business unit and each individual employee. Since 1994, the variable pay pool has grown by more than 60 percent, to $1.6 billion in 1998.

Stock Options

The number of employees receiving stock options has grown substantially from 1994 to 1998. IBM nearly doubled the number of employees who were granted stock options in 1996, doubled that number again in 1997, and then tripled it in 1998. Options give a significant financial incentive to employees whose skills and expertise are critical to IBM's business.
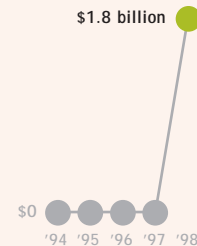
FROM A STANDING START in 1997, IBM turned itself into a multibillion dollar e-business during 1998, taking core business processes – like the way we sell and the way we buy – to the Net.

IBM E-COMMERCE REVENUES

'94	'95	'96	'97	'98
$0				$3.3 billion

IBM E-PROCUREMENT WEB PURCHASES

'94	'95	'96	'97	'98
$0				$1.8 billion

IN DECEMBER 1998 ALONE, IBM bought more than $600 million in goods and services over the Internet.

By streamlining procurement processes and taking them to the Web, IBM will save $240 million this year.

In 1998, more than 14 million customer questions and problems were resolved via online support systems, avoiding more than $300 million in call-center and field-specialist support costs.

TOTAL IBM U.S. PATENTS

- Software
- Network Computing
- Other

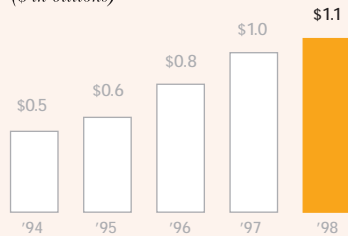| Year	Value
'94	1,298
'95	1,383
'96	1,867
'97	1,724
'98	2,658
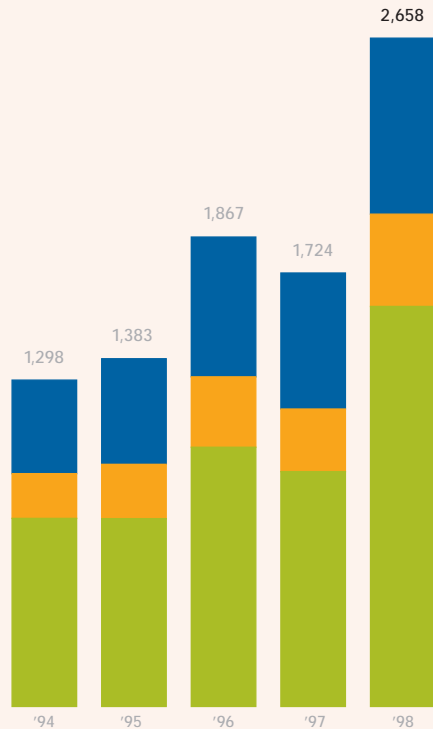
RESEARCH AND DEVELOPMENT INVESTMENTS
($ in billions)

Year	Value
'94	$6.1
'95	$5.3
'96	$5.2
'97	$5.5
'98	$5.6

INTELLECTUAL PROPERTY AND LICENSING ROYALTIES
($ in billions)

Year	Value
'94	$0.5
'95	$0.6
'96	$0.8
'97	$1.0
'98	$1.1

RESEARCH LABORATORIES

Three new laboratories were opened in the past five years.

- San Jose
- Yorktown
- Austin (1995)
- Zurich
- Haifa
- Beijing (1995)
- Delhi (1997)
- Tokyo
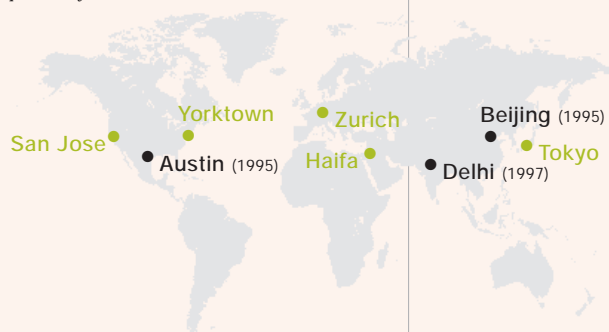
$9.5 BILLION
IN SAVINGS

Since 1993, IBM's reengineering efforts have generated $9.5 billion in overall savings.

FROM 4 YEARS
TO 16 MONTHS

Hardware development cycle time has been reduced from 4 years to 16 months, and for some products, it's as fast as 6 months.

$\frac{1}{3}$
NEARLY 1/3 LESS

Since 1993, IBM's internal information technology expenses have been reduced by nearly a third.

engines of
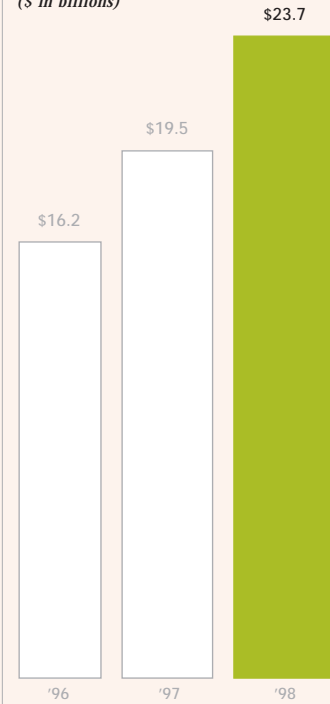# growth

TOTAL OEM HARDWARE REVENUE
($ in billions)

$2.8 '94
$4.0 '95
$4.1 '96
$5.6 '97
$6.8 '98
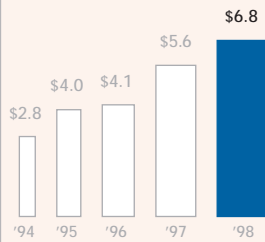
SOFTWARE REVENUE
($ in billions)

$11.4 '96
$11.2 '97
$11.9 '98
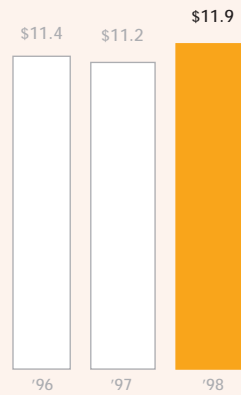
SERVICES REVENUE
Excluding maintenance.
($ in billions)

$16.2 '96
$19.5 '97
$23.7 '98

OEM STORAGE REVENUE
($ in billions)

$1.1 '94
$1.5 '95
$1.9 '96
$2.7 '97
$4.1 '98
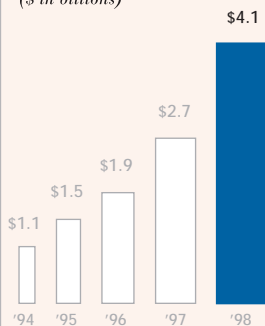
WORLDWIDE LOTUS NOTES SEATS
(in millions)

1.35 '94
4.5 '95
9.3 '96
20 '97
34 '98
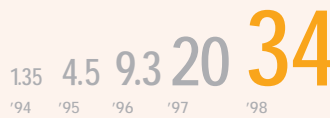
SERVICES BACKLOG
End of year, excluding maintenance.
Backlog represents the total amount
of revenue remaining on signed contracts.
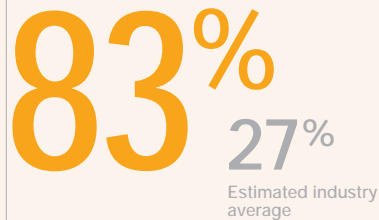*($ in billions)*

$38 '96
$43 '97
$51 '98
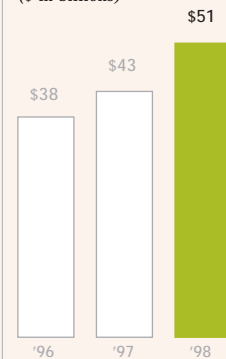
NUMBER OF OEM CUSTOMER DESIGNS IN ASICs
Since 1994, the number of customer designs in ASICs (Application-Specific Integrated Circuits) has grown at an annual rate of 52 percent.
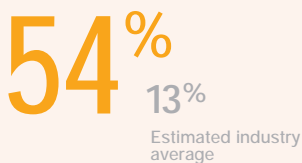
29 '94
32 '95
64 '96
77 '97
158 '98
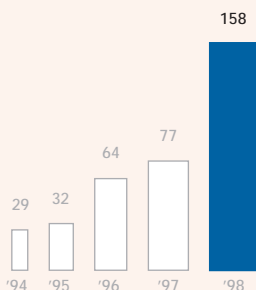
TIVOLI DISTRIBUTED SYSTEMS MANAGEMENT PERCENTAGE REVENUE GROWTH (1996-1998)
compound growth rate

83%

27% Estimated industry average

DISTRIBUTED DATABASE MANAGEMENT REVENUE GROWTH (1997-1998)

54%

13% Estimated industry average

NUMBER OF SIGNED STRATEGIC OUTSOURCING DEALS VALUED AT MORE THAN $100 MILLION
Excluding maintenance.
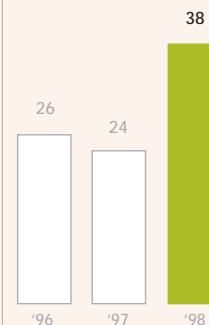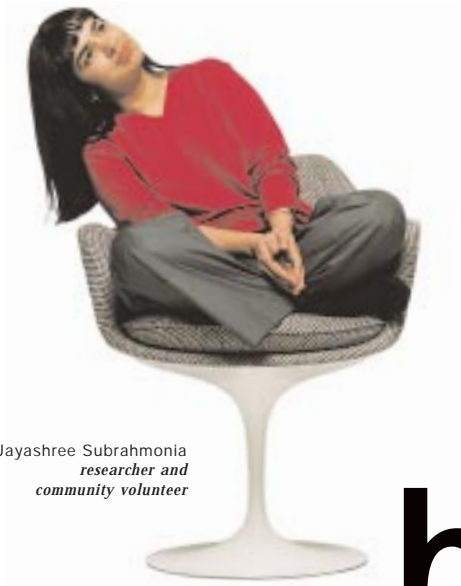
26 '96
24 '97
38 '98

47

because
we CAN

AT IBM, we believe leadership is earned in multiple dimensions – marketplace performance, customer satisfaction, innovation, growth. But we also know that being a company that matters in the world means stepping up to the truly important problems we face as people.

For 16-year-old Nathaniel Marquez, the problem was how to solve thousands of painful puzzles he encountered every day in the form of written words. Extremely bright but severely dyslexic, Nathaniel struggled through elementary and middle school. Frustration turned to embarrassment and then resignation – until an elegant little speech recognition program called IBM ViaVoice created an outlet for his ideas, and allowed Nathaniel's creative thinking to become stories, essays and term papers.

Today, IBM technologies are at work meeting many special needs – of the blind and visually impaired, and the deaf and hard of hearing – for people inside our company and far beyond its borders. This belief – that our technologies can help all people contribute to their fullest potential – is one dimension of our definition of leadership. There are others.

In 1998, we increased the number of women executives in IBM by 18 percent; we increased the number of minority executives by more than 15 percent in the United States. Our commitment to workforce diversity was recognized last year when U.S. President Clinton presented Lou Gerstner with the first annual Ron Brown Award for Corporate Leadership.

IBM is perennially one of the world's most generous corporations. We dedicated $116 million last year to benefit people in need. Individual employees contributed nearly $44 million through matching grants, and donations to nonprofit organizations and educational institutions.

Our most visible commitment to the communities where we live and work is IBM's Reinventing Education initiative – which was recognized last year in a Harvard Business School case study as a model for corporate philanthropy in education. The program contributes $35 million to 15 school districts and six states in the United States alone, and was expanded in 1998 to include projects in Brazil, British Columbia, India, Ireland, Italy and Vietnam. Last year, IBM and the United Way of America launched the KidSmart Early Learning Program, a project to install computer learning centers in more than 1,000 nonprofit preschool sites across the United States.

At the heart of IBM's philanthropic activities are IBM people, who last year volunteered 4 million hours of service to local causes – from tutoring youngsters in math and science to teaching PC skills to single parents. Our people understand that, in a world still beset by timeless and intractable problems, we are in a position to help. In fact, we are products of a corporate culture that was built to do just that.

At IBM, we strive to lead in the creation, development and manufacture of the industry's most advanced information technologies, including computer systems, software, networking systems, storage devices and microelectronics.

We translate these advanced technologies into value for our customers through our professional solutions and services businesses worldwide.