IBM v Carnegie Corporation

The centenarians square up

Both IBM and the Carnegie Corporation will turn 100 this month. Has the multinational business or universal philanthropy done more for society?

Jun 9th 2011 | NEW YORK | from the print edition

"ONE simple way to assess the impact of any organisation is to answer the question: how is the world different because it existed?" That is the test set out by Sam Palmisano in the foreword to a new book celebrating the 100th birthday of IBM, the firm he has run since 2002. But another organisation is also turning 100 this month—the Carnegie Corporation of New York, a flagship of American philanthropy. Mr Palmisano's insight is too good to limit to only one of the centenarians. A better question is: which has done more for the world, one of its leading companies or one of its most influential charities?

At first glance, IBM and the Carnegie Corporation seem to be engaged in such different endeavours that comparing them might seem about as sensible as comparing apple orchards and orange groves. Making money has

always been the main aim of the company formed in 1911 by the merger of three small producers of mechanical accounting machines, scales and time recorders, and renamed International Business Machines 13 years later. By contrast, the Carnegie Corporation explicitly set out to create a better world by giving away what remained of the great fortune of its industrialist founder, Andrew Carnegie. Yet both can assert that they have made the world a better place during the past century, and it is far from obvious which claim is stronger.

The answer matters, and not just in order to award the historical bragging rights. Comparing the records of those giants of 20th-century American capitalism—or "philanthrocapitalism"—can shed light on a question that is keenly debated today: whether philanthropy or business is more effective at "Making the World Work Better", to borrow the title of the book The comparison can also help answer an old question about the proper role of business in society. Many people would agree with Milton Friedman's view that the "only social responsibility of business" is to "increase its profits". But Michael Porter, a management guru, recently caused a stir by arguing that firms should seek instead to create "shared value" that simultaneously benefits both the firm and society. Andrew Carnegie would have shared Friedman's view of business, saving the philanthropy until after the money has been made. IBM, at least after Thomas Watson senior took charge in 1914, has arguably been a case study in how to create shared value, both through its formalised giving, which is among the most generous in corporate America, but more fundamentally through its everyday business.

And the comparison can shed light on the role of the wealthy in society. Bill Gates, the Andrew Carnegie of today, is busily giving away the fortune he earned in business—a fact that has irked some prominent critics. A few years ago, Robert Barro, an economist, argued in the *Wall Street Journal* that by switching from making money to giving it away, Mr Gates had failed to appreciate both the good he had done at Microsoft and the waste that he was about to preside over as a philanthropist. "By any reasonable calculation, Microsoft has been a boon for society and the value of its software greatly exceeds the likely value of Mr Gates's philanthropic efforts," concluded Mr Barro.

Yet Mr Gates and his partner in philanthropy, Warren Buffett, are not only confident they can improve the world by giving away their money through a charitable foundation much like the Carnegie Corporation (only bigger). They are also trying to persuade other billionaires in America and abroad to pledge publicly to give away at least half of their wealth during their lifetimes.

Present at the creation

However much their paths diverged, IBM and the Carnegie Corporation were both born at a critical point in the evolution of America's capitalist democracy. Carnegie had built his fortune during an unprecedented period of large-scale industrialisation, the social costs of which were clear by 1911. The legitimacy of the wave of new big businesses and of the wealthy men who created them was increasingly questioned, as trustbusters challenged "robber barons" such as Carnegie and John D. Rockefeller (who created his charitable foundation in 1913).

At the same time, there was growing excitement about the capacity of expert knowledge to transform not just business but society, too. Carnegie and Rockefeller reflected this in calling their thoughtful, long-term approach to giving "scientific philanthropy" (today's donors

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In a way, therefore, IBM and the Carnegie Corporation had similar missions. The Carnegie Corporation's explicit goal was to "promote the advancement and diffusion of knowledge and understanding". Thomas Watson senior, who ran IBM for over 40 years, made "Think" its motto and built the business around "the idea that information was going to be the big thing in the 20th century", according to Richard Tedlow, author of "The Watson Dynasty". He established a research arm in 1917, which went on to generate world-class, blue-sky research as well as more patents than any other corporate laboratory.

By 1911 Carnegie was near the end of his career, whereas Watson's was only starting. But both men were fired by idealism to such an extent that their peers thought them strange. To some wealthy Americans, Carnegie's 1889 essay, "The Gospel of Wealth", with its assertion that the "man who dies thus rich dies disgraced", smacked of socialism. (Ironically, founding the Carnegie Corporation was an implicit admission that Carnegie would indeed fail to give away all his fortune before his death, and thus need an institution to continue his philanthropic work.) Watson senior "struck his contemporaries as a nut and a crank with his policy that 'People who perform are my partners'," according to the late management guru, Peter Drucker.

Idealism was sharpened by feelings of guilt over earlier ethical lapses. Carnegie regretted the brutal breaking of a strike by his workers at Homestead in 1892, which cost ten lives. Watson was chastened by his conviction for antitrust offences at his previous firm, NCR—though the conviction was later overturned.

Both men brought about huge change by building institutions that became role models. The initial endowment of the Carnegie Corporation, at $125m

($3 billion in today's money), exceeded the total value of all American foundations at the time. Over the following 20 years, spanning America's first golden age of philanthropy, rich donors endowed around 250 new foundations with combined assets of $32 billion in today's money, according to *Philanthropy Magazine.* Many of them tried to imitate the scientific philanthropy of the Carnegie and Rockefeller foundations. At IBM, Watson introduced employment practices that became the norm in big business decades later. In 1915 he gave a speech known as "the Man Proposition" declaring all employees equal. That was later expanded to include women, who from 1935 received equal pay for equal work. From 1945, all IBM workers received pensions.

Still, in the first 50 years, the impact of the Carnegie Corporation on society dwarfed that of IBM. When it was created, the corporation's power in some respects equalled or exceeded that of the state. One of Carnegie's goals was to keep things that way, by building a model of society that differed from what he saw as dreadful, big-government socialism that was taking over in Europe. He succeeded only up to a point: the Carnegie Corporation's initial endowment was 27 times bigger than the annual federal government education budget; the much larger endowment of the Bill & Melinda Gates Foundation is about double the annual education budget of New York City.

With its benefactor as its head for the first eight years, the Carnegie Corporation operated largely as a treasury and headquarters for a host of other institutions and philanthropic initiatives that he had started earlier—including his most famous programme, which ended up building some 2,509 libraries, most in America.

After Carnegie's death in 1919 the foundation continued his strategy. It seeded or supported a broad range of strong private institutions, many of which carry his name. Institutions that benefited from his money range from the Carnegie Institute of Technology (now part of Carnegie-Mellon university) and the Brookings Institution to the National Academy of Sciences and the pension fund for university teachers now known as TIAA-Cref. The foundation and sister organisations commissioned research that would help shape entire professions. The Flexner Report of 1910 led to the overhaul of medical education, inspiring similar efforts focused on the law and on teaching.

The Carnegie Corporation also paid for two reports that fundamentally changed America's conception of itself. The first, in 1944, was "An American Dilemma: The Negro Problem and Modern Democracy", by Gunnar Myrdal, a Swedish economist. It showed that African-Americans were being held back by widespread and institutionalised white racism. The second, published in 1959, was "The American High School Today", by James Conant. It played a big part in establishing the idea that large schools are the best way to give students a comprehensive education. John Gardner, president of the Carnegie Corporation from 1955, was also important in developing the Elementary and Secondary Education act of 1965, which provided the first large slug of federal funding for public schools. Carnegie money also financed the discovery of insulin, sparing millions of people with diabetes from an early death.

Even Carnegie's failures say something about the scope of his ambition. The philanthropist built a Peace Palace in The Hague, and funded the Carnegie Endowment for International Peace. That he could not prevent the first world war plunged the septuagenarian steel tycoon into a depression. Still, whether or not the Carnegie Corporation really kept socialism out of America, it is easy to imagine that by the middle of the 20th century, the country would have been a different—and probably worse—place without it.

Big-hearted Blue

Not until its second quarter-century did IBM count for much. But by its 50th birthday IBM was one of America's leading firms, earning profits of $254m on revenues of $2.2 billion and employing 116,000 people. Those jobs, as well as profits are in themselves a measure of IBM's achievement. Because firms sell something that people want, they make the world a better place in ways charities do not. In particular, companies create what is known as "consumer surplus"—the difference between the market price and what a consumer would be willing to pay. This surplus benefits society, not shareholders.

As well as making an important commercial entry into the public arena, by providing the backbone of a new social-security system introduced by Franklin Delano Roosevelt in 1935, IBM also spent a lot of money on research. By 1935 it employed 300 engineers and, Watson reckoned, some 95% of its profits were generated by innovations introduced since 1917. This effort soon expanded through partnerships with universities and embraced pure research as well as the more applied, commercially driven sort. At one extreme, for instance, the benefits to society include the bar code, IBM's version of which became the standard. The firm also took part in such crucial national initiatives as America's space programme (a newly installed IBM system helped save the stricken *Apollo 13*). And at the other extreme it also helped form the minds of such future Nobel laureates as Benoît Mandelbrot, the pioneer of fractal geometry, and Gerd Binnig and Heinrich Rohrer, inventors of the scanning tunnelling microscope which let scientists see individual atoms.

IBM, like Carnegie, also did its bit for civil rights. In 1953 Thomas Watson junior, a similarly idealistic soon-to-be successor to his father, threatened to cancel plans for plants in Kentucky and North Carolina if they could not be fully racially integrated. After a stand-off, the state governors backed down, and the plants opened three years later.

A game of two halves

Still, not all of their contributions in their first 50 years were positive. Watson senior, as public as Carnegie in his enthusiasm for world peace, believed that this cause was best advanced through trade between

nations, including Nazi Germany. In 1937 Hitler personally convinced him he did not want war. As soon as Germany invaded France in 1940 Watson realised his mistake, and tried to distance IBM from the Nazis, but the company's German subsidiary provided a machine that was used in the Dachau concentration camp. (Lesson learned, IBM was among the first international companies to pull out of South Africa in the late 1970s in protest against apartheid.) The Carnegie name was also linked indirectly with the Nazis, through the Carnegie Institution's funding of research into eugenics in the early 20th century that was later taken up by Germany.

In their second 50 years the two institutions' impact has arguably been reversed. Carnegie had a couple of triumphs in the 1960s, helping the launch of public broadcasting in America and the creation (for educational reasons) of "Sesame Street", the most popular children's television show ever. But since then, Carnegie has seen its influence decline. Among other things, it has suffered from philosophical self-doubt (a report it commissioned in the 1970s in effect urged America to embrace European-style socialism) and the emergence of newer, bigger philanthropies (by assets, it now barely scrapes into America's top 20 foundations). Although Carnegie still does important work, such as its efforts to understand Islam, championed by Vartan Gregorian, its current president, the corporation is showing its age.

IBM, by contrast, is now as influential as it has ever been, with a stockmarket value of around $200 billion and nearly 427,000 employees, many of them in the developing world. It has sponsored—and ultimately benefited from—a continuous series of innovations, from the mainframe to the personal computer, services and cloud computing. Its corporate philanthropy has grown steadily, so that its annual grants now exceed those of the Carnegie Corporation. It has also tackled policy challenges in a head-on, Carnegie-esque way. In 1996 it became the first company to convene a summit meeting on American education. Out of that came a commitment to find ways to measure school performance, which IBM helped to develop.

Judged on the past 50 years, there is a strong case for saying IBM has had more impact than Carnegie—especially if you count its accidental contribution to philanthropy by incompetently failing to stop Mr Gates from creating Microsoft. In part this is because its business, the

management of information, has unusually large social benefits, and causes relatively few social or environmental costs.

In future, IBM expects to play an even greater role in profitably solving social problems by working with governments. "Everybody says they're unsolvable—safe borders, clean water, energy. But the application of technology can solve a lot of these things we wrestle with," points out Mr Palmisano. Firms in other, dirtier industries may not compare against philanthropy so well.

IBM has also been unusual in keeping up its significant investment in relatively pure research, which can have large social benefits. They were seen most recently in the development of Watson, a computer capable of beating human champions at the game "Jeopardy!" just as its Deep Blue computer earlier saw off several human chess grandmasters. In this respect, IBM may be a model for Mr Porter's idea of shared value. But is its approach replicable or is it just an exception? AT&T's Bell Labs and Xerox PARC have left their glorious histories behind them, yet somehow IBM's research culture has survived. What differentiated IBM seems to have been a decision in the late 1970s to create a series of joint projects between product developers and IBM researchers.

Why, by contrast, has the Carnegie Corporation seen its influence decline? There are many possible explanations. While it has stayed the same during the past 50 years, governments and private companies have grown far bigger. Alan Pifer, the foundation's president after Gardner, has likened traditional foundations such as his to the dodo, saying that they now need to develop "slim bodies and well-developed wings". This meant focusing on "critical points of leverage", where a foundation's grants could have a disproportionately large effect by influencing the money and power of other institutions, not least government. Today's leading philanthropists, from Bill Gates down, also talk the language of leverage—but there are grounds to think they are doing better at it than the Carnegie Corporation is.

Another reason for Carnegie's relative decline may be that 100 years is too old for a philanthropic foundation. The absence of an existential threat may have made it too comfortable. IBM transformed itself under Lou Gerstner when it nearly ran out of cash in the early 1990s, and again more recently under Mr Palmisano when Indian rivals threatened to steal

its business. By contrast, it is not clear what, if anything, keeps the people in charge of the Carnegie Corporation awake at night. The passage of time saps a foundation of the unique energy of its founder. Carnegie said of the unknown future leaders of his foundation that "they shall best conform to my wishes by using their own judgment." That much they have done, but he would probably have fared better.

No wonder many of today's philanthropists aim, as Carnegie did, to give away all their money by the time they die, or at least put a time limit on the lifespan of their foundation after their death. The Gates Foundation will have to be wound down 50 years after the second of Bill and Melinda Gates dies.

The achievements of IBM and the Carnegie Corporation are impossible to quantify mathematically. What seems clear, though, is that as it enters its second century, IBM can plausibly hope that its best years lie ahead. Alas, that seems most unlikely for Carnegie.

IBM

1100100 and counting

The secret of Big Blue's longevity has less to do with machines or software than with strong customer relationships

Jun 9th 2011 | ARMONK | from the print edition

THE long passage that connects the two wings of IBM's headquarters in Armonk gives a new meaning to the expression "a walk down memory lane". From punch cards to magnetic tapes and disk drives to memory chips, every means of storing information since the advent of modern calculating machines is on display, either as an exhibit or as a photo. Other relics of computing can be found in the building, an hour's drive north of New York City. Near the boardroom sits a desk-sized calculator with hundreds of knobs. Visitors can also wonder about a tangle of wires connected to a metal plate—an early form of software called a "control panel".

No other information technology (IT) company could boast such a collection and also claim to have built each of the items on display. The history of computing cannot be conceived without IBM, which celebrates its 100th birthday on June 16th. Remarkably, even though to many minds Big Blue, like the objects on show at Armonk, is a relic of the 20th century, the firm remains one of the IT industry's leaders. Its market capitalisation again almost matches that of Microsoft, its archrival for many years (see chart 1).

The firm's centenary is an occasion to reflect on many things digital, but one question stands out: why is IBM still alive and thriving after so long, in an industry characterised perhaps more than any other by innovation and change? This is not just of interest to business historians. As IBM enters its second century in good health, far younger IT giants, such as Cisco Systems, Intel, Microsoft and Nokia, are grappling with market shifts that threaten to make them much less relevant.

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To grasp why it is so difficult for IT firms to stay on top, picture the computer industry as a never-ending enterprise to create digital "platforms", both large and small. These are the foundations on which others build software applications or services. Every ten years or so, a new dominant platform emerges to elevate computing to another level. First came mainframes. This was followed by "distributed" systems: mini-computers, personal computers (PCs) and servers. And now there are computing "clouds" and mobile devices.

Migrating from one platform to the next, explains Michael Cusumano, a business professor at the Massachusetts Institute of Technology, means questioning everything a firm stands for: the technical skills, the brand, how money is made. So big companies mostly try to defend their existing domains rather than to explore and conquer new ones. Microsoft, for instance, remains firmly attached to its Windows operating system (see article). Only a few have managed even one platform shift, let alone, like IBM, pulled off three. And either of its first two could have easily done Big Blue in.

Or should that be 1111101?

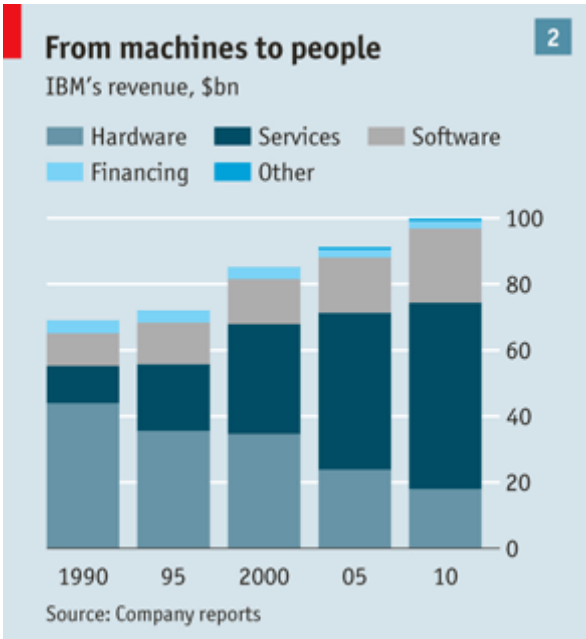
Official history notwithstanding, the company's true age is 125. In 1886 Herman Hollerith, a statistician, started a business to rent out the tabulating machines he had originally invented for America's census. Taking a page from train conductors, who then punched holes in tickets to denote passengers' observable traits (eg, that they were tall, or female) to prevent fraud, he developed a punch card that held a person's data and an electric contraption to read it. The technology became the core of IBM's business when it was incorporated as Computing Tabulating Recording Company (CTR) in 1911 after Hollerith's firm merged with three others.

The first platform shift became necessary when electronic "calculating machines" and magnetic tapes came along in the late 1940s. IBM's management, including Thomas Watson senior, who took the helm at CTR in 1915 when it had 400 employees and built it into a global force with tens of thousands, was hesitant. "You young folks remember, IBM was built on punch cards, and our foundation will always be punch cards," a veteran IBMer is reported to have said to one of the developers of the first tape-drive. Some say that it was only because Thomas Watson junior, who took over from his father in 1956, had made the new technology his cause that IBM fully embraced the electronic age.

Under the younger Watson, IBM became by far the world's biggest computer-maker. He did the trick by betting the company on the System/360, IBM's first family of mainframe computers, which took years and $5 billion (in 1960s dollars)—more than the Manhattan Project that led to the atomic bomb—to develop. Launched in 1964, the System/360 became the first dominant computing platform, mainly because all the family's machines, big or small, were "compatible", meaning they could run the same software.

By 1969 IBM's market share had grown to 70%. It thus became the first IT company to be called an "evil empire" and aroused the ire of America's antitrust authorities. The Reagan administration eventually dropped the case in 1982, asserting that it had been "without merit".

The second platform shift—from costly mainframes to "distributed" computing systems, including PCs—was a much closer shave. Even while the antitrust case was dragging on, technological progress had begun to undermine IBM's near-monopoly and, more importantly, its business model of renting its expensive machines to customers. Since this was highly profitable, IBM was very slow to deliver cheaper and distributed computing systems, made possible by new processors. When these systems took off in the early 1990s, IBM's business collapsed. Mainframe revenues dropped from $13 billion in 1990 to $7 billion in 1993 and losses of $16 billion piled up. "Only a handful of people understand how precariously close IBM came to running out of cash," wrote Lou Gerstner, who was brought in to turn the company around, in "Who Says Elephants Can't Dance?", his book about the revival. He fired 35,000 employees to cut costs.



Compared with that, the third (and continuing) platform shift is a doddle (see chart 2). IBM spotted sooner than many competitors that computing would increasingly become a service produced in vast data centres and delivered over networks, rather than something done on in-house desktops or mainframes. It also anticipated that such cloud computing would accelerate the emergence of "big data": huge piles of digital information that can be mined for valuable knowledge. Since 2005, for instance, IBM has spent $14 billion to buy two dozen firms offering all kinds of gear for "business analytics".

A big blue dancing elephant

So how has IBM done it? People who have been watching the company for a long time give similar answers. "From the beginning, IBM had a concept of itself as an institution, not just a technology company," says Rosabeth Moss Kanter, a professor at Harvard Business School and author of "SuperCorp", a book partially about IBM's prowess. "IBM is not a technology company, but a company solving business problems using technology," says George Colony, chief executive of Forrester Research, a consultancy.

This self-image was evident even in the older Watson's day. He renamed the company International Business Machines (in 1924) because he found the original name too limiting. He also invested a lot in research and allowed his scientists to roam widely, not least in electronics. Drawing on his experience at National Cash Register, his previous employer and a pioneer in these matters, he quickly established a well-trained sales force

and, later, a service organisation. Both not only helped customers make the best use of IBM's products, but gathered valuable information about customers' needs. By the late 1940s their message was crystal clear: firms wanted faster computing, which only electronic computers could deliver.

However, these feedback channels had become seriously clogged by the time distributed computing emerged in the 1980s. The huge success of its mainframes had made the company "internally focused", in the words of Irving Wladawsky-Berger, a retired IBM technologist. IBM's internal communications had broken down, too: the company had become a collection of national fiefs, each with its own way of doing business and independent management. The firm had also diversified in all directions, including helicopter avionics and consumer online services.

Mr Gerstner—who joined IBM from RJR Nabisco, a food and tobacco conglomerate, and admitted to not knowing much about IT—managed to turn things around mainly because he was able to put IBM's old DNA to a new purpose. His bet was that in the confusing world of distributed computing, with its many moving parts, firms would need not only the right tool but also trusted advisers. So he turned IBM's service organisation, hitherto a sub-unit of the salesforce, and its software business, until then part of the hardware division, into standalone businesses. Thus the old IBM, which sold integrated mainframes, gave way to a new one. Its raison d'être is to help customers manage their electronic jungles, explains Steve Mills, head of IBM's software business, which has sales of $22.5 billion. That is only a few billion less than Oracle, the world's second-biggest software firm (the biggest is Microsoft).

Mr Gerstner and Sam Palmisano, who succeeded him in 2002, also took less visible measures to avert another brush with oblivion. The first aim was to maintain IBM's connections to its customers. Today the main conduit is the huge services organisation, which employs more than half the total workforce of nearly 427,000. It often "co-creates" products with customers, says Bridget van Kralingen, the firm's general manager for North America. With the state of New York, for instance, IBM developed a method of detecting tax evasion, which it claims has saved taxpayers $1.6 billion since 2004.

Second, IBM has become much less hierarchical and more open. Its Smarter Planet initiative (which is intended to inject more intelligence into, say, power grids and transport systems) is said to have originated in one of IBM's "jams", online brainstorming sessions where all employees and sometimes even family members are welcome. And whereas the old IBM made, sold and jealously guarded its own technology, the new one champions open standards and open-source software. This makes life easier for its services unit.

Third, IBM tries to ensure that the output of its 3,000-strong research division remains relevant to its business. Researchers are regularly embedded with teams from the services unit to give them on-the-ground experience. Sometimes they co-operate with customers, for example in creating a system that constantly monitors the vital signs of newborn babies to indicate when they acquire an infection. They are also prodded to look ahead, explains Robert Morris, who helps devise the firm's research strategy. Once a year, they must produce a "Global Technology Outlook", an attempt to spot important trends early.

Fourth, IBM is no longer a collection of independent national subsidiaries, but a globally integrated company. It has a common IT infrastructure, which allows it to use the same accounting, procurement and other business processes all over the world. Code developed by services teams is shared too: whenever they start a new project, one of their first steps is to log on to a service called AssetHub, a global repository for software building-blocks. Staff are trained to work in global and often virtual teams. In one programme, Corporate Service Corps, every year about 500 staff volunteer to spend a few weeks in small groups in developing countries working on specific problems, such as advising the city of Rio de Janeiro how best to fulfil its pledge to use sustainable technologies for the 2016 Olympic games.

The last bit of insurance against disaster is financial planning. One rule is to ditch businesses that are about to become commoditised and no longer yield a sufficient profit margin. This is why IBM has since 1999 sold half a dozen businesses, including PCs and printers. It is also why in 2002 it

bought the consulting arm of PricewaterhouseCoopers, an accounting firm, and is constantly trying to push its services business into higher-value territory and even created something called "services science" to study ways to automate them.

IBM has a financial "roadmap" telling investors how profitable it intends to be in the next five years and how it will get there. By 2015 the firm wants its earnings per share almost to double, to "at least" $20. The roadmap also helps, according to Mark Loughridge, the chief financial officer, "to keep the same level of intensity" as during the near-death experience of the early 1990s. "If you ask executives about the roadmap 2015, they can tell you immediately how their plans are lined up to that longer-term goal," he says.

When I'm 64 (in hexadecimal)

IBM, 100 years after its incorporation, appears to be fairly well in control of its destiny. Yet its history can be read as the result of business constraints as much as of managerial genius. From the beginning, as a maker of complex machines IBM had no choice but to explain its products to its customers and thus to develop a strong understanding of their business requirements. From that followed close relationships between customers and supplier.

Over time these relationships became IBM's most important platform—and the main reason for its longevity. Customers were happy to buy electric "calculating machines", as Thomas Watson senior insisted on calling them, from the same firm that had sold them their electromechanical predecessors. They hoped that their trusted supplier would survive in the early 1990s. And they are now willing to let IBM's services division tell them how to organise their businesses better.

The human platform has an important drawback: it is expensive to maintain and to extend, says Carl Claunch of Gartner, a market-research firm. That also means, however, that it is costly for others to replicate or invade. And given the complexity of the world and how much of it is still to

be digitised, IBM's human platform looks unlikely to reach its limits soon. Perhaps not for another 100 years.