IBM takes starring role as a tech hero

101-year-old giant's results put many youngsters to shame.

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One of the hottest centers of scientific and technological innovation on earth sits about an hour north of the city.

It sure doesn't look the part, though. The faded modernist building looks vaguely reminiscent of the old TWA terminal at Kennedy airport, which, as it turns out, was designed by the same architect back in the early 1960s. It's also in such an isolated corner of Westchester County that the supersmart folks who work inside the sprawling building complain that their cellphone calls routinely get dropped on the woodsy lanes surrounding it.

But don't be fooled. Since the center moved up from its original home on the Columbia University campus in the 1960s, a stream of products have been developed there that today are woven deep into the fabric of everyday life. They include the computer disk drive, the chips that make video games possible and the technique of Lasik eye surgery—just nothing quite as sexy as the iPad. It's also true that the company that pays for all this groundbreaking research has been around for so long that it's easy to take it for granted and to forget about its key role in making New York the nation's biggest tech hot spot after Silicon Valley.

Such is life at IBM.

Of course, "innovative" is the last word that applies to a lot of what the company, still formally known as International Business Machines, does. The majority of its approximately $100 billion in annual revenue comes from consulting, software maintenance and other vital but mundane businesses. But in many ways the spiritual heart of the global enterprise beats in IBM's Watson Research Center in Yorktown Heights, the place where the company constantly redefines the meaning of "cutting edge" in the tech world.

The figures tell the tale. Big Blue has been awarded more patents than anybody else for 19 straight years, and the 6,180 it pulled in last year was the most ever by a single company. Meanwhile, the firm controls 50,000 patents worldwide, requiring an army of 100 in-house lawyers just to track and protect them all. Those patents also come at a high
price. IBM lavishes more than $6 billion annually on research and development—more than twice as much as Apple does.

Unsurprisingly, it irritates people at IBM to no end that Silicon Valley darlings like Facebook and Google have become, in the minds of most people, the paragons of innovation, even though both of these companies have bought hundreds of IBM patents in the past year.

"I love Apple. I used to supply Apple. Their products are beautiful," said Bernard Meyerson, IBM's vice president for innovation. "But I'd rather work on changing the world than invent a great-looking something that is bound to be replaced by something else."

Mr. Meyerson, who has a Ph.D. in physics from City College of New York and is a graduate of the Bronx High School of Science and Manhattan's P.S. 187, has done his bit to change the world over his more than 30 years at IBM. Among other things, his research led to the development of silicon germanium, the material that made Wi-Fi possible.

For Mr. Meyerson, the way to tackle knotty problems is to have mountains of information analyzed by supercomputers like Watson, the 92-server, 20-foot-long Goliath housed in the Yorktown Heights lab that defeated the reigning human champs on Jeopardy! last year.

The game-show triumph was good public relations. Mostly, though, IBM's data crunching involves coming up with far more practical answers that can save time or even lives.

In Toronto, the company is working with a children's hospital to help analyze the information generated by monitoring the vital signs of premature babies. Their heartbeats range from fast to very, very fast, but sifting the data showed that if the rate doesn't vary significantly, it can be a sign of serious trouble looming within 24 hours.

In Singapore, IBM motion sensors measure how many cars are on a highway and how fast they're moving. Then IBM uses that data to predict how soon a traffic jam is likely in any particular stretch of the road, and alters the sequencing of traffic lights on streets feeding into any clogged section. The goal is to keep traffic flowing smoothly.

Closer to home, the same kind of sensors are used in the Cloisters, the medieval-art museum in the far reaches of northern Manhattan. By measuring changes in temperature, air flow, door positions and light levels, the museum can map out and control microclimates to better protect its centuries-old tapestries, sculptures and paintings.

"As a society, we're generating a lot more data than ever, and it's blinding," Mr. Meyerson said. "Our job is to light a match and help see what we have."
Lighting these kinds of matches happens to be terribly profitable. IBM's gross margins have grown to about 45% from around 35% in 2003, according to CreditSights, a tremendous feat for such a large company. What helps is that IBM exited high-profile but low-margin businesses, including personal computers, to complete a shift in strategy that began 20 years ago.

But it's the company's R&D efforts that are most responsible for moving the needle. Products and ideas flowing out of IBM labs generate $1 billion in earnings annually. Even better, this income stream can last for years as IBM applies patents to its own products or licenses them out.

"Once you've developed the intellectual property, there's very little cost to maintaining it," said Chief Patent Counsel Manny Schecter.

IBM's focus on R&D hasn't gone unnoticed on Wall Street, with its share price more than doubling in the past five years. That is triple the pace of Google and more than any other big tech concern except Apple and Amazon.com.

The rising stock price in part reflects IBM's impressive 50% growth in earnings since 2007, but also aggressive spending by the company to ensure there's less stock, which has helped drive the price up. Over the past five years, IBM has reduced its share count by 16%, or more than 200 million shares. Last year, it actually spent nearly as much acquiring its stock ($15 billion) as it generated in earnings ($15.8 billion).

"It's tough to grow revenue much for a company as large as IBM, so the way for them to reward shareholders is focusing on high-margin business and buying back stock," said Ed Maguire, a technology analyst at brokerage firm CLSA.

Using that formula, CEO Virginia Rometty, while keeping a close eye on costs, has promised investors that earnings will rise another 50% by 2015. "IBM is confident about this road map in the decade ahead," she told investors at a conference earlier this month.

Local footprint

Despite its success, IBM is coy about revealing details about its clout in New York, where it was founded 101 years ago. It won't say, for example, how much of its global workforce of 440,000 is located in the area, though it acknowledges 1,500 employees in its Watson lab in Yorktown Heights and at a sister facility in Hawthorne.

Still, the company's visibility in New York took a bit of a hit in 1994, when it sold the 41-story tower formerly known as the IBM Building at the corner of East 57th Street and Madison Avenue. It remains a tenant, and its logo is displayed at the building's entrance.

But its armies of sales staffers, consultants and analysts can be found throughout Manhattan working with Citigroup, Memorial Sloan-Kettering Cancer Center and dozens of other big-league clients.
"The image is that we're a bunch of propeller heads stuck in our offices," said Katharine Frase, IBM's vice president of industries research. "But we're out there talking to people all the time, trying to change the world in little and big ways."

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