For a pioneer of technology, 100 years of 'Think'

June 16 2011, By MICHAEL HILL and JORDAN ROBERTSON , Associated Press

In this Feb. 21, 2000 file photo, a worker installs monitors at the IBM booth at the Cebit fair in Hanover, northern Germany. IBM was formed on June 16, 1911, as the Computing Tabulating Recording Co. in a merger of four separate companies. The new business with a plant in Endicott, N.Y., made scales, time clocks, cheese slicers and _ significantly for its future _ machines that read data stored on punch cards. (AP Photo/Fabian Bimmer, file)

Google, Apple and Facebook get all the attention. But the forgettable everyday tasks of technology - saving a file on your laptop, swiping your ATM card to get 40 bucks, scanning a gallon of milk at the checkout line - that's all IBM.

International Business Machines turns 100 on Thursday without much fanfare. But its much younger competitors owe a lot to Big Blue.

After all, where would Groupon be without the supermarket bar code? Or Google without the mainframe computer?

"They were kind of like a cornerstone of that whole enterprise that has become the heart of the computer industry in the U.S.," says Bob Djurdjevic, a former IBM employee and president of Annex Research.

IBM dates to June 16, 1911, when three companies that made scales, punch-clocks for work and other machines merged to form the Computing Tabulating Recording Co. The modern-day name followed in 1924.

With a plant in Endicott, N.Y., the new business also made cheese slicers and - significantly for its future - machines that read data stored on punch cards. By the 1930s, IBM's cards were keeping track of 26 million Americans for the newly launched Social Security program.

These old, sprawling machines might seem quaint in the iPod era, but they had design elements similar to modern computers. They had places for data storage, math processing areas and output, says David A. Mindell, professor of the history of technology at the Massachusetts Institute of Technology.

Punch cards carted from station to station represented what business today might call "data flow."

"It was very sophisticated," Mindell says.

The force behind IBM's early growth was Thomas J. Watson Sr., a demanding boss with exacting standards for everything from office wear

(white shirts, ties) to creativity (his slogan: "Think").

Watson, and later his son, Thomas Watson Jr., guided IBM into the computer age. Its machines were used to calculate everything from banking transactions to space shots. As the company swelled after World War II, IBM threw its considerable resources at research to maintain its dominance in the market for mainframes, the hulking computers that power whole offices.

"When we did semiconductors, we had thousands and thousands of people," says Donald Seraphim, who worked at IBM from 1957 until 1986 and was named a fellow, the company's highest honor for technical achievement. "They just know how to put the force behind the entrepreneurial things."

By the late '60s, IBM was consistently the only high-tech company in the Fortune 500's top 10. IBM famously spent $5 billion during the decade to develop a family of computers designed so growing businesses could easily upgrade.

It introduced the magnetic hard drive in 1956 and the floppy disk in 1971. In the 1960s, IBM developed the first bar code, paving the way for automated supermarket checkouts. IBM introduced a high-speed processing system that allowed ATM transactions. It created magnetic strip technology for credit cards.

For much of the 20th century, IBM was the model of a dominant, paternalistic corporation. It was among the first to give workers paid holidays and life insurance.

It ran country clubs for employees generations before Google offered subsidized massages and free meals.

"The model really was you joined IBM and you built your career for life there," says David Finegold, dean of the School of Management and Labor Relations at Rutgers University. Transfers to other cities were still common enough that employees joked IBM really stood for "I've Been Moved."

The origins of the company's nickname, Big Blue, are something of a mystery. It may simply derive from IBM's global size and the color of its logo.

IBM's gold-plated reputation was based in part on ubiquity and reliability, as well as a relentless sales force. But its fortunes began to change as bureaucracy stifled innovation. Information-technology managers used to joke that nobody ever got fired for buying IBM. But by the 1980s, Big Blue found itself adrift in a changing technology environment.

IBM had slipped with the rise of cheap microprocessors and rapid changes in the industry. In an infamous blunder, IBM introduced its influential personal computer in 1981, but it passed on buying the rights to the software that ran it - made by a startup called Microsoft.

IBM helped make the PC a mainstream product, but it quickly found itself outmatched in a market it helped create. It relied on Intel for chips and Microsoft for software, leaving it vulnerable when the PC industry took off and rivals began using the same technology.

The PC's casing wasn't as important as the technology inside it, and IBM didn't own the intellectual property inside its own machines. In addition, the rise of smaller computers that performed some of the same functions as mainframes threw IBM's main moneymaking business into disarray.

With its legacy and very survival at stake, the company was forced to

embark on a wrenching restructuring.

One of its major achievements turned out to be re-engineering itself during the upheavals of the 1990s. Viewed as too bureaucratic to compete in fast-changing times, IBM tapped an outsider as CEO in 1993 to help with a turnaround.

Louis Gerstner, a former executive with American Express and RJR Nabisco, had little knowledge of technology or IBM culture. In his first meeting with top IBM executives, he was the only one in the room with a blue shirt.

But he broke up old fiefdoms, slashed prices and eliminated jobs. IBM, which had peaked at 406,000 employees in 1985, shed more than 150,000 in the 1990s as the company lost nearly $16 billion over five years.

Gerstner resisted pressure to break up the company and instead focused on services, such as data storage and technical support. Services could be sold as an add-on to companies that had already bought IBM computers. Even barely profitable pieces of hardware were used to open the door to more profitable deals.

The shift allowed IBM to ride out two recessions: When times are tough, businesses pay IBM to help them find ways to cut costs and handle technology chores that would be more expensive to perform in-house.

The change in strategy was risky for a company that helped create the PC industry, yet IBM rose to become the world's biggest technology services provider.

With around $100 billion in annual revenue today, IBM is ranked 18th in the Fortune 500. It's three times the size of Google and almost twice as

big as Apple. Its market capitalization of around $200 billion beats Google and allowed IBM last month to briefly surpass its old nemesis, Microsoft.

Though transformed, IBM remains a pioneer, the envy of the technology industry. Hewlett-Packard Co.'s new CEO, Leo Apotheker, says one of his primary goals is to strengthen the company's software and services businesses to compete better with IBM.

Some things haven't changed. The company still spends heavily on research, about $6 billion a year. It still comes up with flashy feats of computing prowess, most recently when its Watson computer system handily defeated the world's best "Jeopardy!" players.

And, just as in 1911, it's still in the business of finding data solutions.

While IBM's Watson attracted buzz by beating two human "Jeopardy!" champions, the company wants to put it to real-world use as a medical diagnostic tool that can understand plain language and analyze mountains of information. That's in line with IBM's focus on other big data projects, such as analyzing traffic patterns citywide to predict and stave off traffic jams.

The company that built its success making sense of millions of punch card records sees future innovations in the analysis of the billions and billions of bits of data being transmitted in the 21st century.

"The scale of that enables you to do discovery, whether it's in the case of drugs, medicine, crime - you name it," says Bernard Meyerson, IBM's vice president for innovation.