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They were ahead of the pack with the first mobile machines. A look back at the early laptops.

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TOKYO - Twenty years ago this month, in April 1985, Toshiba Corp. put on sale the T1100, the world's first IBM-compatible laptop computer. The machine was one of the sparks that ignited a multibillion-dollar industry but the T1100 almost didn't happen.

Toshiba executives in Tokyo were initially skeptical of the company's ability to successfully launch the machine and a lack of software led one of the project's leaders to repeatedly visit a major software vendor until they agreed to release applications that could be used with the machine.



In 1985, the idea of portable computing wasn't new. A series of machines from companies including Osborne Computer Corp., Radio Shack Corp. and Seiko Epson Corp. had already been on the market. But the T1100 was the first machine that included a basic feature set that would become the standard for portable computers for the next 20 years: it ran off internal rechargeable batteries, had an LCD (liquid crystal display) screen, a 3.5-inch floppy disk drive and, perhaps most importantly, was compatible with the IBM Corp. PC.

Toshiba already knew the importance of compatibility with the IBM PC. It's entry into the U.S. desktop PC market a few years earlier ended in failure because it's machine lacked IBM compatibility.

In the wake of this failure, a team of three Toshiba employees was sent to Los Angeles in 1983 for two months to plan Toshiba's reentry into the U.S. computer market. The three executives -- a project leader, engineer and assistant -- worked with McKinsey & Company Inc. on the project, called "Brighter Blue," and concluded that a new desktop PC was not the way to go.

"Back then, transportable computers were becoming popular but they were very, very big," said Atsutoshi Nishida, who led the project at the time and is now a corporate executive vice president at Toshiba. Nishida will become president of Toshiba in June this year, pending approval of company shareholders. "Our plan was for a clamshell-type transportable PC with an LCD and IBM compatibility," he said.

The team returned to Tokyo but their proposal was met with skepticism. Toshiba's senior management didn't believe that such a computer would be accepted by the market under the Toshiba brand name. Nishida offered the PC to other companies for them to sell under their brands, on an OEM (original equipment manufacturer) basis, but they all declined, he said.

The rejections didn't dent Nishida's confidence and he persisted in pushing the idea of a laptop computer. In the end he got approval for the project -- but only after promising he could sell 10,000 of the machines in a year. "That is not many today but back then it was a very large quantity," he said.

Despite granting approval, Toshiba's management wouldn't provide any cash for development of the project. Toshiba's PC division couldn't afford to finance the project and so Nishida committed funds from his international sales and marketing budget, said Nobuyuki Tanaka, who was one of 10 engineers that worked on the T1100 project and today is senior vice president of Toshiba Digital Media Engineering Corp.

Tanaka's team began work on the T1100 in April 1984 and had a prototype finished by August of the same year.

Prior to commercialization, the project faced another hurdle. Toshiba's experience with desktop PCs had taught it that nobody would buy a PC without software and while the T1100 was to be IBM compatible, it was based on 3.5-inch floppy disks. At that time, the industry was standardized around 5.25-inch disks and there was no software available on the smaller floppy disks.

"With no software it could run, our product would be just a box," Nishida said.

So Nishida went to meet with Lotus Development Corp. (now a unit of IBM Corp.) in Windsor, west of London. A request to the European sales manager for a version of Lotus 1-2-3 on the new floppy disk was met with refusal. A second visit resulted in refusal again, as did a third visit. Undeterred, Nishida visited the offices for a fourth time with the same request.

"By my fourth visit he was fed up with my persistence in the face of refusal," Nishida said. "He told me he would talk to an engineer as a personal favor, not anything official. I next visited Lotus in my personal capacity and the man migrated Lotus 1-2-3 to 3.5-inch floppy disks. It worked perfectly."

His next call was on Ashton-Tate Corp. (which was later acquired by Borland International Inc.), one of Lotus' competitors and maker of the dBase II software. This time, agreement came a lot faster and was helped when Nishida mentioned Lotus 1-2-3 was being migrated to the new floppy disk format. Lotus later also agreed to make a version of Symphony although that required two floppies and so had to wait for release until Toshiba released a subsequent laptop with two drives.

Software compatibility made up a large part of the T1100 development work, said Haruhiko Banno, who was the engineer that accompanied Nishida to Los Angeles and today serves as president and chief executive officer of Toshiba Digital Media Engineering Corp.

That was still an age when IBM-compatibility didn't always mean an assurance that all software would work. A major headache for Toshiba was trying to get Microsoft Corp.'s Flight Simulator to run on the new machine, Banno said. At the time, Flight Simulator was one of the most popular applications. In the end, the team succeeded in getting it to work on the T1100 but an early magazine review noted that some other applications wouldn't run.

The T1100 was launched in Europe at the Hanover Messe trade fair in April 1985 and went on sale soon afterwards in Germany.

The T1100 was based on an Intel Corp. 80C88 processor, had 256K bytes of memory as standard, a 640 pixel by 200 pixel reflective LCD capable of displaying 25 lines of 80 characters, and a single 3.5-inch floppy disk drive supporting both the 640K-byte and 720K-byte disks. The computer measured 31.1 centimeters (cm) by 6.6 cm by 30.5 cm and weighed 4.1 kilograms. The computer was based on an IBM-compatible operating system developed by Toshiba and used a BIOS (basic input-output system) from Microsoft.

It cost 6,480 German marks, which was US\$2,090 using the exchange rate of the time.

Nishida spent the following summer visiting major European companies to promote the machine. Early sales gave Nishida the ammunition he needed to drive further deals because, just like with the software companies, he could use T1100 purchases by competitors to tip the scales in his favor. In late 1985, the T1100 its first appearance in the U.S. at the Comdex trade show and went on sale in early 1986.

By the end of 1985, Nishida had sold almost 10,000 units. "In fact, I was 230 units short [of the 10,000-unit target] but I sold those soon after. I kept my promise," he said.