The $100 Laptop Moves Closer to Reality

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A novel plan to develop a $100 laptop computer for distribution to millions of schoolchildren in developing countries has caught the interest of governments and the attention of computer-industry heavyweights.

First announced in January by Nicholas Negroponte, the founding chairman of the Massachusetts Institute of Technology's Media Lab, the initiative appears to be gaining steam. Mr. Negroponte is scheduled to demonstrate a working prototype of the device with United Nations Secretary General Kofi Annan on Wednesday at a U.N. technology conference in Tunisia.

Mr. Negroponte and other backers say they have held discussions with at least two dozen countries about purchasing the laptops and that Brazil and Thailand have expressed the most interest so far. In addition, Massachusetts Gov. Mitt Romney recently proposed spending $54 million to buy one of the laptops for every student in middle school and high school in his state.

Although no contracts with governments have been signed, Mr. Negroponte says current plans call for producing five to ten million units beginning in late 2006 or early 2007, with tens of millions more a year later. Five companies -- Google Inc., Advanced Micro Devices Inc., Red Hat Inc., News Corp. and Brightstar Corp. -- have each provided $2 million to fund a nonprofit organization called One Laptop Per Child that was set up to oversee the project. Mr. Negroponte says five companies are bidding to make the laptop, although he declined to name them.

Mr. Negroponte remains eager to place the laptop in the hands of 100 to 150 million students. He says he has learned in educational projects in Cambodia and other developing countries that computers spur children to learn and explore outside the boundaries of a classroom, and share their discoveries with their families. "I do not think of them only in classrooms, but part of an integrated and seamless experience for kids and their families," he says.

Still, the project would require governments in the developing world to come up with $15 billion to supply 150 million laptops, and it isn't yet clear how many countries can afford even a $100 machine. Technical hurdles also remain.

The device that will be shown in Tunisia is still an early version; Mr. Negroponte says the screen alone will require another three months of development. The designers also have yet to bring the overall price down to $100, although they say they are getting close. "Even if the first ones are $118.50, as long as subsequent machines are less and less expensive, that is what counts," Mr. Negroponte says.

Major computer industry players appear to be taking the venture seriously, including companies like Microsoft Corp. that aren't yet participating. Microsoft could be confronting a laptop that could become a standard in the developing world -- one that, for now, would come without its dominant Windows software.

Mr. Negroponte discussed the project last week with Microsoft Chairman Bill Gates and Craig Mundie, chief technical officer of advanced strategies and policy. "We're in serious discussions to determine what the appropriate type of involvement is with us with their project," says Mr. Mundie.

Steve Jobs, Apple Computer Inc.'s chief executive, offered to provide free copies of the company's operating system, OS X, for the machine, according to Seymour Papert, a professor emeritus at MIT who is one of the initiative's founders. "We declined because it's not open source," says Dr. Papert, noting the designers want an operating system

that can be tinkered with. An Apple spokesman declined to comment.

Under present plans, the first production version of the laptop will be powered by an AMD microprocessor and use an open-source Linux-based operating system supplied by Red Hat. Open-source software is not patent protected and can be copied for free. To get the price down, an eight-inch diagonal screen -- smaller than standard notebook computers -- will run in two modes, with a high-resolution monochrome mode for word processing and a lower-resolution color mode for Internet surfing. It will be powered by both a power adapter, if electricity is available, or through a wind-up mechanism. The device will have wireless capabilities and can network with other units even without Internet access.

Mr. Negroponte says the project's supporters are working to provide Internet access in some areas via cellular phone networks. He also believes competition and deregulation eventually will bring low-cost access to even the poorest countries. The designers say they are planning to give the laptop a unique look to discourage sales on the black market in developing countries.

At the same time, they say they are hoping to authorize a commercial version that would sell for around $200, with a share of the profits ideally used to subsidize the educational project. "We are in talks with large, brand-name companies," Mr. Negroponte says, noting it will be up to them to decide where and how to sell it. "I would not hold my breath for it to be in Best Buy," he says.

Software will include a word processor, a Web browser, an email program and a programming system. Governments would decide how to use the machine in classrooms. "We're going to give them general tools so they can make big changes [in curriculum] if they want to," says Dr. Papert, who is a pioneer in using computers in education. "Even using it as a typewriter has a payoff."

Rodrigo Mesquita, a Brazilian entrepreneur and a member of a government working group on the project, says his country believes the laptops could be used both to improve public education and the economy. Brazil is hoping to manufacture three million units, beginning next year, and supply some of them to other countries, he says. He also says money normally spent on textbooks would be used to pay for the laptops for Brazilian schoolchildren. "I'm very optimistic," he says, giving the project a "70 to 80%" chance of being launched in the country.

Daryl Sartain, director of strategic business development at AMD, says his company is "absolutely committed" to the project and that it fits in with its initiative to bring Internet and computing access to half the world by 2015. "I have no doubt that this will happen," he says of the laptop project, adding, "It will, like everything else, have bumps in the road and some evolution that occurs." He declined to say how much the company would charge for its microprocessor, but says, "Certainly we expect this to be a business for AMD. We also expect it to be a business for many other companies, not just us."

Meanwhile, Intel Corp. says it isn't worried about the thought of millions of laptops in developing countries powered by a competitor's chips. "Our view is that whatever it takes to get computer power to places where it hasn't been before is a good thing," says spokesman Chuck Mulloy. "But there will be different flavors of these kind of devices." Noting that Intel is involved in other projects to bring low-cost computers to developing countries, he says the company has learned from experience that "functionality is equally important to cost."

Gretchen Miller, director of world-wide marketing for mobile systems at Dell Inc., said she didn't think a $100 laptop would be powerful enough to meet students' needs. "We don't believe it's feasible at this point to manufacture a $100 notebook that meets our quality performance standards. Those things are all customer driven," she says, adding, "It's important that a computer prepare students for the applications they'll be using after they get out of school."

But Mike Evans, vice president of corporate development at Red Hat and who has been working on the laptop project for nine months, disputes the suggestion that the machine will be inadequate for students. "There are people in developing countries who have never seen computers so it's not like, 'How is this better than Windows?'" he says.

Mr. Papert, who is critical of the computer industry, says one of the project's goals is to challenge the notion that a

laptop must be expensive. "They've followed a policy of stuffing more and more into it which most people don't really need and keep the price up. I think it's quite amazing that they managed to convince the world to accept that, but they did."

He also says Microsoft, which is a financial contributor to MIT and a backer of its Media Lab, has undergone a change in attitude about the $100 laptop. "Their first reaction was to laugh at the idea, then the next reaction was kind of antagonistic," he says. "Recently, they're very friendly."

Microsoft's Mr. Mundie says he wasn't aware of any antagonism, adding, "At the end of the day, I think we have fundamentally the same objectives that the Media Lab project has relative to the kids." And Mr. Negroponte, after meeting with Mr. Gates, now says, "The machine will run anything, including Windows."

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