Empowering
THE NEXT BILLION

< BY JOHN E. DAVIES >

When I travel to India, China, and other growing nations, I am visibly struck by the living conditions I hear about; statistically, there is an estimated 4 billion people who live in poverty around the world. It's visible. It's tangible. But I am also hit, with equal impact, by the relentless and imaginative entrepreneurship I witness in these very same places by people who, from my frame of reference, have scarce resources.

Imagine, then, what these same people could achieve if they were equipped with technical tools. Technology should not be seen as a luxury. A computer with Internet access is no more a luxury to a business person than a hammer and wood are to a carpenter. Connectivity can bring the world to a classroom in Nigeria, medical consults to a small clinic in the Amazon, and agricultural market data to farmers in China. It is not an overstatement to say that technology has the power to transform and create the opportunity for betterment for individuals, students, and businesses in developing communities in every country around the world.

Economist and author C.K. Prahalad says society should not view people with little money as a burden, but rather as "resilient and creative entrepreneurs, and value-conscious consumers." When we do this, "a whole new world of opportunity will open" for the people, governments, and businesses.

In the past three years I have visited more than seventy countries to discuss potential economic development and policy with technology and world leaders. When I meet people who work and live without the resources available to me, I think about what I can do to help; I think about what Intel can do. And I've come to this realization: It is more useful to determine how we can empower people—to think about what technology would best serve their particular needs—than to simply check what is in stock or available to give them.

The Intel World Ahead Program embraces the philosophy that the impact of the company's philanthropy multiplies when combined with computer training and alliances with local government and businesses that provide a sustainable model of support and infrastructure.

Over the next five years, the Intel World Ahead Program will endeavor to bring affordable technology to the next billion people in developing communities around the world.

Intel's goal is not only to extend affordable PC access, but also to help develop relevant content, deliver the right PCs tailored to local needs, establish connectivity, cultivate sustainable local capabilities, and provide the education needed to make a meaningful difference in people's lives.

As I've traveled around the world, and as my colleagues have traveled, we have come to believe that there are four foundational components that are necessary to achieve these goals. They are: accessibility, connectivity, education, and content. These ambitious goals can only be reached by joining hands with local governments, local businesses, and NGOs—it will only work in collaboration with industry and political leaders worldwide.

PHOTO: VICTOR M. PARU

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ACCESSIBILITY

Accessibility is more than simple access to a computer. It is also about pricing, ensuring there is relevant content online, and building PCs that stand up to local environmental conditions. Affordability can mean lowering prices, and Intel has an initiative that offers fully functional PCs at prices around 20 percent lower than typical market rates. But access means more than an affordable notebook on one's lap. Several initiatives are under way to address these issues.

Government-assisted PC Programs

Intel is working to create opportunities for widespread PC ownership and use by increasing access to fully capable, affordable PCs tailored to regional needs, and by helping to develop the local infrastructure and support services that will sustain this access. To do this, the company is working with the governments of more than fifty countries on more than one hundred and seventy different initiatives to develop digital inclusion programs, also known as government-assisted PC programs. The goal is to make it easier for people and small to midsize businesses to purchase or lease PCs. Depending on local needs, this may be accomplished by providing incentives like tax rebates, subsidies, low-interest loans, or tariff reductions. The programs focus on people who historically have not been able to afford PCs, and those who do not have the motivation, confidence, and skills to use one.

The hope is to catalyze growth in local IT infrastructure and encourage economic development and career possibilities. The people benefit from access to information. Regional governments benefit from a more educated workforce and economic stimulation. Private businesses benefit from a broader user base that is more inclined and more able to buy technology products.

By working with governments, we can increase PC adoption, help educate children, accelerate job creation, and help people stay healthier.

Popular citizen purchasing programs include the United Kingdom's Home Computing Initiative, launched in 1999, through which employees purchase computers tax free. In Italy, a campaign showed consumers they could buy a notebook for the price of a cappuccino a day with a government-subsidized rebate on PCs, which prompted forty thousand purchases. In Egypt, about two hundred thousand low-income families opted to pay an incremental increase on their monthly phone bill to pay for their computers over two to three years. This was possible because Intel collaborated with the Ministry of ICT in Egypt and

financial institutions on low-risk, low-interest financing.

In 2005, 8.5 million PCs were purchased through government-assisted PC programs.

Discover the PC Initiative

Intel's Discover the PC Initiative provides customized technology solutions, new types of PCs that meet the specific needs of various communities in developing countries. These include low-cost, full-featured, easy-to-use PCs for home and work, community PCs customized for public-access kiosks and low-cost PCs tailored to the needs of schools and students.

For example, the Classmate PC is designed to be practically "kid proof." It's a small, fully-functional notebook that comes equipped with a hard drive and wireless networking capability. With Intel processors inside, it can run world-standard, off-the-shelf applications. The blue-and-white notebook is built with flash memory so the hard drive won't fry if dropped, and an integrated handle so it's easy for little hands to carry.

In Nigeria, where Tope Poopola instructs the students at the Government Junior Secondary School Jabi in Abuja, the students crowd eagerly around these specially-designed PCs used during their math and science lessons. With these PCs they can access online resources like http://skoool.co.uk and http://www.learnthings.co.za, which were not previously accessible to them.

Intel engineers led the design of the small form factor notebook PC to be used in rural areas and developing communities. Teachers like Mr. Poopola can use the Classmate PC notebooks to make presentations, distribute class materials, and even give online quizzes to their students.

Inequitable computer access is not only an issue in developing countries, but also in pockets of economically depressed people in some of the richest nations around the world. For example, in Arizona, United States, a Navajo Initiative is underway to provide laptop computers with Internet access and specialized software to help an initial group of fifty at-risk farmers track agricultural assets and make investment decisions.

What I haven't yet mentioned are all the challenges involved with establishing access to computers. There are many, and they are varied. The challenges, like determining what a specific group of people want and need from their computers, can only be discovered through in-depth research, often funded by large corporations. Providing ongoing technical support can only be achieved with local business models in place, and continued incentive and education can only be accomplished through government policies and solutions and NGO insights and actions.

TODAY, A PC IS ALSO AN ENTRY POINT INTO A VAST SET OF GLOBAL RESOURCES AND INFORMATION.

CONNECTIVITY

In today's connected world, a computer without Internet access is of limited use. Yes, one can write documents, crunch numbers, or even play some games—ten years ago, that was great. Today, a PC is also an entry point into a vast set of global resources and information.

The importance of connectivity is especially real for rural users, who are geographically isolated from many of the services and resources readily available to city dwellers.

Many rural and remote residents can benefit from access to online services—services like filing government forms, communicating with financial institutions through email, or researching the latest theories on crop rotation and planting tips.

And perhaps of more immediate concern for governments and citizens who live in remote areas around the world is broadband's capability to deliver telemedicine. Specialists can perform diagnostic consults to remote clinics through the use of webcams, and provide life-saving opinions on treatment. Connectivity lessens the many location-based disadvantages faced by people who live in remote areas by providing access to these services and resources.

Currently, less than 5 percent of the world's population has access to broadband. Intel is working to change this. We continue to expand wireless low-cost broadband Internet access by working with industry partners to develop local infrastructure and support networks, and through the deployment of WiMAX technology.

WiMAX technology provides wireless Internet access over an almost 50-kilometer radius. You can think of it as a big brother to Wi-Fi. WiMAX can be used in locations that cannot easily be connected using physical cables. More than two hundred WiMAX trials are now in progress worldwide.

The nearly six hundred thousand inhabitants of Lao Cai, a remote

province in northern Vietnam, do not have access to a telephone. Landlines are scarce and unreliable due in part to surrounding mountains. Cellular phone service is a costly alternative. Together with the Vietnam Data Communication Company and the United States Agency for International Development, WiMAX delivers a cost-effective Internet dial tone and connection to the world for this community. Residents can use voice-over-internet-protocol (VoIP) telephony to talk with family and conduct business. The goal is to foster economic development in this growing community; as a border province to China, trade is increasingly important, and its success relies on good communication.

Intel recently partnered with the city of Parintins, Brazil, to provide online wireless access to its one hundred and fourteen thousand citizens. Parintins is located in the heart of the Amazon region and can only be reached by plane or an eighteen-hour boat ride.

The mayor of Parintins emphasizes how isolated his community is, with limited access to specialized medical care, teaching resources, and business information. He also stresses how difficult it would be to lay cable, making a wireless solution with satellites and antennas using WiMAX the most effective approach. As a result, Intel worked with the government and local businesses in Parintins to connect the city.

Two schools, the Amazon University, a community center, and a healthcare facility in Parintins now have broadband wireless Internet. Where possible, Intel worked with local businesses to set up the infrastructure and services. The government was instrumental in creating regulatory policies to support the project, which is necessary for WiMAX deployment. It was truly a public-private partnership, and it wouldn't have worked without the cooperative efforts of both.

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According to Brazil's Ministry of Education, Parintins has more than thirty-seven thousand students in one hundred and ninety public schools, mostly rural. Of these schools, fewer than one third have power, and just one had a computer lab with Internet access. The Parintins WiMAX project changed this.

Intel expects 100 million students across the region will benefit from the Intel World Ahead Program by 2011.

EDUCATION

Education is a priority to every government around the world. Educated children grow up to be skilled workers, and a skilled workforce can stimulate economic growth, both on individual and societal levels. It's no longer enough to be fluent in reading, writing, and arithmetic; one must also be PC literate. "Computing" is key to improving one's own competitiveness and that of a country.

Intel and the Intel Foundation have a long history of working to improve education worldwide, and its ongoing programs prepare teachers and students for success in the global economy.

Since 1999, the Intel® Teach program has trained over 3 million teachers in thirty-five countries on how to use technology in the classroom. The goal is to train another 10 million teachers over the next five years—with the possibility of reaching another billion students.

The digital divide and the need for PC literacy is not only an issue in developing countries but also, as I mentioned earlier, in communities in some of the richest nations around the world. Vanessa Jones is a teacher in the Austin Independent School District in Texas and a senior trainer in the Intel® Teach program. Jones has trained 426 "master teachers" who have, in turn, trained forty-six hundred other teachers and influenced more than one hundred thousand students across the United States who otherwise would not have the skills to use PCs.

Several education initiatives around the world are individually tailored to meet the needs of the local people. The things they have in common are that they are sustainable and collaborative, involving people who know what the individual communities need most and how best to reach the students. Intel does not simply enter a classroom, teach a handful of children how to use a computer, and leave. Rather, we work with governments and with teachers who train other teachers, creating a ripple effect of reach and sustainability.

From science and engineering fairs to after-school and community-based

learning programs aimed at youth in underserved areas, the educational initiatives look to capture young people's innate curiosity and enthusiasm for discovery, and show them there's a world of possibility they can access. It's as much about learning to use the technology and developing critical thinking and collaborative skills that will serve them well as they grow up, as it is about revealing what's possible for them to achieve.

CONTENT

Intel can work with governments to effect regulatory change to establish or improve connectivity and incentive programs for affordable PCs. The company can partner with local businesses worldwide to create sustainable infrastructures, and train teachers to use technology in classrooms. We do—and it's critical work. But if all this work is done with a remote community in China that allows a farmer to logon the Internet on an affordable, community PC only to find a page in English about corn prices in Iowa, the experience will be of limited use to him. Content is also key, and it's not enough to simply post content online in a local language; it must be tailored to reflect local laws and customs, pertinent information, available resources, and services.

Local, relevant content encourages continued use of the technology—sustainability. It can help make the local economies competitive and successful. If you don't have the right content in healthcare, education, or services, people will not use the technology. The technology is not the goal itself, but a means to accessing information that can be used to improve people's lives.

In Jordan, Intel worked with government and nongovernment organizations and local businesses to create a community portal called the Jordan Beehive. The e-village portal provides information in Arabic about the rights of women in the family, what to expect during a dental treatment, contact information to get in touch with local politicians, and local job listings.

The strategy is to work with local organizations to create that relevant content to ensure people will logon again to continue to seek out useful information and services—to find what they need.

POWER TO TRANSFORM

Technology can drive huge social and economic benefits, but significant impacts can only be achieved through private-public partnerships that create opportunities for people to access information and communication technologies. Companies can't do it alone, nor can governments. The Intel World Ahead Program brings together local businesses and regional governments to grow Intel's philanthropic seed, while expanding the information and communications technology market opportunity. When you establish a sustainable engine that can fund itself, your philanthropy can go one hundred times further. It's more than give away and donate—it's a creative means to bring government, industry partners, and NGOs together to create opportunities for people to help themselves.

It's not only about helping to educate people and providing them with the tools for communication, but also about looking for ways that computers can be used in underserved communities around the world and increasing accessibility to these PCs designed to address local needs. It is also about the methods in which information and communications technology can be utilized to fuel economic growth and lead to new technologies. We currently have one hundred and seventy programs in sixty countries, established over the past two years, that have brought 20 million new users online—including 2.5 million new users in China and 1.2 million new users in India. This is a proven model. And because this is a proven model, we can begin to expand our reach.

In 1996, former Intel CEO Andy Grove predicted that someday there would be a billion connected computers around the world. It was a bold statement—at the time fewer than 200 million PCs were online. But now, we are nearly there. In 2007, the billionth person will logon to the internet. With the Intel World Ahead Program, we're looking to bring a second billion people into the conversation. By making technology affordable and accessible with connectivity infrastructure, relevant content, support, and training, we witness what people can accomplish when empowered to reach their goals. ESR

ABOUT THE AUTHOR

John E. Davies is vice president of World Ahead for Intel Corporation. Davies is focused on creating demand for Intel platforms via Solutions, new usage models, and ecosystem scaling. He received his BS in chemistry and his PhD in solid state physics from Imperial College, London. Intel has awarded Davies two prestigious Individual Achievement Awards for establishing Intel in the European automotive market in 1986 and for driving Intel's mobile computing architecture into the Japanese market in 1992.