



# A vision for affordable computing

Breaking through the affordability conundrum

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## Contents

Overview	1
Introduction	1
The affordability conundrum	2
Shared technology access	3
Flexible financing	4
Innovative packaging and pricing	5
Partnerships that empower local communities	5
Conclusion	6



## Microsoft Unlimited Potential

### Overview

In the 30 years since the introduction of the microprocessor, personal computers have transformed the social and economic landscape in many parts of the developed world. Yet for the 5 billion people at the bottom and the middle of the economic pyramid, the benefits of technology have remained out of reach due to the cost of purchasing, owning, and maintaining a computer. In recent years, a steady decline in the price of hardware has helped make PCs more accessible to people underserved by technology. Still, obstacles remain. Eighty percent of the world's population still is not able to take advantage of the benefits of technology. Addressing this challenge requires a multifaceted approach encompassing innovative new products, business strategies, and partnerships. This paper explores a variety of approaches to the development, financing, packaging, and sharing of technology that are aimed at breaking through the "affordability conundrum" by delivering value that takes into account local economic, social, and cultural needs and preferences.

### Introduction

Computer technology can be a powerful engine for social advancement and economic opportunity in emerging market segments. But delivering affordable, accessible, and relevant technology for developing countries requires a nuanced understanding of the value of technology based on unique local economic, social, and cultural circumstances.

Consider Hindustan Unilever Limited, India's largest multinational corporation. The company knew that its products, including shampoo and soap, were closely tied to core social values such as health and hygiene. So the company knew that its products were relevant. But Hindustan Unilever's distribution system wasn't very effective at reaching the millions of people living in thousands of small villages throughout India. In other words, its products weren't accessible. To address this challenge, the company created a radically different kind of distribution system: It recruited more than 42,000 women in 123,000 villages to distribute its products. Another major barrier Hindustan Unilever faced was that the prices for its products were beyond the reach of many consumers. They weren't affordable. Hindustan Unilever responded by changing the packaging and pricing of its products: Its shampoo, for example, was packaged in low-priced packets that could be sold for less than a fifth of the price of a bottle of shampoo.

Hindustan Unilever's experience underscores an important lesson that is true everywhere but is particularly noteworthy with respect to meeting the needs of people at the bottom and middle of the economic pyramid: Price is not the only, or even the primary, factor in determining the value of a product or service.

As Microsoft pursues its goal of extending the benefits of technology to underserved communities, it is focusing on three core components of value: relevance, accessibility, and affordability.



- **Relevance:** For products and services to be relevant, they must respond to the economic and social needs that are central to people's lives. Computer technology can do this in many ways—by helping small businesses to operate more efficiently, improving the job prospects of young people, and allowing families to communicate with loved ones around the world.
- **Access:** For computer technology to be effective, it must be accessible to a broad cross section of the community—in schools, community centers, libraries, and other public locations—much as books became easily accessible in public libraries in the nineteenth century.
- **Affordability:** Although the cost of computers has dropped significantly over the last decade, the up-front cost of buying, maintaining, and learning to use computers remains high for emerging market segments. For computer technology to reach underserved populations, people with limited disposable income must see its value in improving their lives.

This paper focuses primarily on the third value component—affordability—and explores the ongoing efforts of Microsoft to break through the “affordability conundrum.”

### The affordability conundrum

The model for delivering technology has historically been based on sales of desktop or laptop computers to individual users or organizations, who pay the full price up front. This approach has worked well for those at the top of the economic pyramid, but not for those at the middle and bottom of the economic

pyramid, whose income is generally limited, seasonal, or unpredictable and who have little access to credit.

In recent years, a decline in the price of computer hardware, along with new, low-cost form factors and a growing marketplace for refurbished PCs, has begun to significantly lower the barrier to entry.

As sales of PCs priced below US\$500 has significantly increased, a new class of low-cost portable devices—including Intel's Classmate PC, the ASUS Eee PC, and Hewlett-Packard's Mini-Note PC—are creating new opportunities for people in underserved communities to use or own a computer. Microsoft is supporting a number of these efforts with relevant, low-cost software and the broadest and deepest PC support ecosystem in the world.

At the same time, a growing global market for refurbished computers is providing schools, community organizations, small businesses, and individuals with access to low-cost PCs. Refurbished PCs are now available in many markets for less than US\$150. In Morocco and Nigeria, for example, one-third of PCs acquired by businesses, schools, and nonprofits are secondhand. Through the Microsoft® Authorized Refurbisher (MAR) and Community Microsoft Authorized Refurbisher (Community MAR) programs, Microsoft is supporting expansion of the secondary PC ecosystem. For a nominal fee, qualified for-profit and not-for-profit refurbishers can install genuine Windows® operating system and Microsoft Office system software on refurbished computers in a variety of local languages. These PCs are then sold or donated to local schools and community organizations. At the end of 2007, there were more than 1,000 Community MARs in over 60 countries.

However, reducing the initial cost of a computer is just one of several approaches to making computing more affordable. For example, a growing number of mobile telecommunications companies, such as Bharti Airtel in India, have used subscription, pay-as-you go, and other business models to dramatically lower barriers to adoption among lower-income consumers. In addition, the emergence of Internet cafés (also known as iCafés) and other shared-use approaches in developed and developing countries have made the benefits of computing accessible to tens of millions of people who cannot afford to purchase their own computer.

Finally, innovative partnerships between governments, development organizations, and private-sector companies can help lower acquisition costs through volume purchases, greater access to credit for citizens, and other means that address affordability on a broad basis. These partnerships can also tap the power of computing to support key social and economic initiatives, such as education and workforce development, which in turn help increase peoples' access to technology directly through skills training and indirectly through economic development. In sum, strong forces are at work within the technology industry to address the affordability barrier—forces that the industry should fully embrace.

In April 2007, Microsoft expanded Microsoft Unlimited Potential, which weaves together innovative technology solutions, business strategies, and partnerships with governments, development organizations, and nongovernmental organizations (NGOs) to help address the needs of underserved populations. This paper explores a variety of approaches that are aimed at addressing the affordability conundrum by taking into

account local economic, social, and cultural needs and preferences. These strategies include:

- Shared technology access
- Flexible financing
- Innovative packaging and pricing
- Partnerships that empower local communities

### Shared technology access

One important way that Microsoft is helping to make computing more affordable is through business strategies that enable multiple users to work together at a single computer or use the same computer over time.

Internet cafés, kiosks, and telecenters serve a vital function in many underserved communities by providing convenient, inexpensive access to computers and the Internet. Today there are more than 500,000 iCafés around the world, most of them in developing countries. Collectively, these businesses provide computer access to more than 50 million users per day—users who use PCs to conduct business, learn computer skills, do homework, communicate with family and friends, and be entertained. Users pay by the minute or the hour, and since an iCafé can divide its total operating costs by its entire customer base, it can charge customers a relatively low per-minute fee.

In some countries, however, a highly competitive marketplace has developed, with iCafé owners struggling to differentiate their operations from others in the neighborhood. To reduce their costs and stay competitive, many iCafé owners use counterfeit software, which is often unreliable as well as illegal. To address the needs of iCafé owners while simultaneously working to reduce the use of pirated software, Microsoft

is providing tools to help iCafés identify and attract new customer segments, such as students and computer gamers.

One approach that Microsoft takes is to help iCafés become online learning centers by giving them Microsoft IT Academy curricula at no charge. Customers can then earn certificates of proficiency in Microsoft applications such as Windows, Microsoft Office Word, Microsoft Office Excel® spreadsheet software, and Microsoft Office PowerPoint® presentation graphics program. Owners of iCafés also can obtain free copies of Microsoft SteadyState™ technology for multiple computers, a software program that helps prevent or reverse potentially damaging changes that customers might make to computer settings in high-turnover, shared-access environments. Partner programs for iCafés are under way or planned in the Czech Republic, India, Thailand, China, the Philippines, Russia, Colombia, and other countries.

Another way of making computing more accessible, particularly in schools, is to allow many people to use a single computer simultaneously. Microsoft has developed MultiPoint™ technology that allows as many as 50 computer mice or other peripherals to be attached to a single computer. Each mouse can independently control its own cursor on the screen, which can be projected at the front of the classroom. This system has been so successful in Thailand—where teachers have found that it helps keep students engaged—that it is also being introduced in Vietnam. A teacher might introduce a math problem, for example, and offer three possible answers on the projection screen. Each student can use his or her cursor to choose the answer. Another shared-use approach involves as many as 20 “thin-client” display devices networked to a single server. The experience for the user is like using any other PC, but behind the scenes—on the server—a single set of software applications powers multiple displays at once. With

this approach, hardware and maintenance costs are a fraction of the typical cost of purchasing and operating multiple computers.

### Flexible financing

Just 1 in 10 households in the developing world owns a PC. By comparison, as many as 1 in 3 households own a mobile phone. One reason for this disparity is the higher up-front cost of computers. Another reason is that a growing number of mobile phone companies have effectively lowered barriers to adoption through subscription and prepaid phone service offerings that allow customers to pay for usage in small increments. Microsoft is using a similar approach to help make computers more accessible to consumers. Subscription offerings for PCs and broadband connectivity have become available in the last several years in a number of countries and regions, including Mexico, the Philippines, the Middle East, and Eastern Europe. These offerings are provided through telecommunications companies in partnership with Microsoft, and are supported by the Microsoft Subscription Computing Program. In addition, Microsoft FlexGo™ prepaid and subscription technology provides computer manufacturers, retailers, and telecommunication companies with a new way to offer their customers affordable PC payment options, and makes it possible to lower the initial cost of buying a PC.

Subscription computing offerings typically include a convenient, all-in-one package of PC hardware, genuine Microsoft software, selected applications, and broadband connectivity that can be paid off over a period of time—typically two to three years. Consumers may also have the option to purchase additional hosted applications provided by the network operator. For example, a family could subscribe to a portal that offers distance learning for a local high school curriculum. A user

could subscribe to a music download service or video highlights from a favorite sports team. A small-business owner might subscribe to business-related services like accounting, purchasing, or Web site hosting to grow their business. Thus consumers can gain access to significant computing benefits while paying over time.

### **Innovative packaging and pricing**

Microsoft has developed a number of packaging and pricing initiatives that make computing more affordable. These efforts focus on market segments such as first-time buyers, schools, and NGOs that help broaden the reach of technology.

As a result of ongoing collaboration with governments to increase access to computers in developing markets, Microsoft introduced Windows XP Starter Edition in 2004. Designed for first-time PC owners, this affordable and easy-to-use operating system is optimized for entry-level hardware. It is also tailored to local markets, available in local languages and compatible with a wide range of Windows-based applications and devices. Brazil's largest computer manufacturer, Positivo Informatica, reported a surge in sales as soon as it began selling computers running Windows XP Starter Edition. Computer retailers said the lower prices attracted new customers to their stores. The newest starter edition of Windows is available in more than 139 countries and in 70 languages. Microsoft expects to sell 3.8 million units in the 2008 fiscal year, double what it sold the year before.

Microsoft Student Innovation Suite (MSIS) is an affordable software package offered to governments in emerging market segments that are interested in purchasing Windows-based PCs and giving them to students to help them develop

essential learning and computing skills. The suite includes Windows XP Starter Edition, Microsoft Office Home and Student 2007, and other educational software developed by Microsoft. Governments in Russia, Egypt, Libya, and elsewhere are purchasing MSIS at a nominal fee and including the software with a new generation of low-cost laptops designed for student use.

### **Partnerships that empower local communities**

Microsoft is also working with a broad range of government, private sector, and NGO partners to lower barriers to adoption of technology and address the needs of individuals and organizations across the technology lifecycle. These efforts include initiatives that provide people with education and skills training they need to become proficient in the use of computers in the workplace, as well as programs that help people acquire their first computer.

**Microsoft Partnerships for Technology Access (PTA):** Microsoft Partnerships for Technology Access draws on the combined expertise of government, technology companies, NGOs, and financial institutions to help underserved people afford their own personal computer. For example, the PTA program *Abriendo Futuro*, or *Expanding Future*, offered a purchase program for low-paid teachers in Guatemala's public schools that included technology training and classroom curricula. The government considered this program so vital to Guatemala's education reform efforts that it subsidized 80 percent of the hardware costs. Interest-free loans payable through small monthly deductions from teachers' paychecks were made available for the remainder of the cost of the PCs. By late 2007, 7 out of every 10 teachers in Guatemala—more than 58,000 in all—had bought

computers through the program. Microsoft participation included installation of Microsoft Office Professional 2007, Microsoft Encarta® 2007 multimedia encyclopedia, and Learning Essentials 2.0 for Microsoft Office, a software suite that helps educators create teaching tools.

**Community Technology Skills Program:** Since its inception in 2003, the Microsoft Community Technology Skills Program has provided more than US\$315 million in cash and software grants to support 37,000 community technology centers (CTCs) in more than 100 countries. CTCs, whose locations range from remote villages to major metropolitan areas, provide free or low-cost computer access so people of all ages and abilities can learn about computers, use the Internet, explore new careers, further their education, participate in community activities, and develop job-related technology skills. Each CTC features reliable and well-maintained computer equipment, peripherals, and connectivity.

**Partners in Learning:** In Brazil, many schools struggle to make use of limited technology resources. A successful program known as Student Help Desk—created through the Microsoft Partners in Learning (PiL) program—has trained more than 7,000 students who now maintain their schools' computer labs for nearly 500,000 fellow students. Brazil was also one of the first countries to make widespread use of another PiL program and methodology—the Peer Coaching Program. Peer Coaching is a professional development model that helps teachers train other teachers in innovative teaching practices and using technology to strengthen curricula and enhance student performance.

**Students to Business:** Students to Business is a job enablement program through which Microsoft connects talented students in computer science, engineering, math, and design with jobs and

internships at local businesses. The program also helps employers in emerging local software industries overcome the challenge of finding qualified technology professionals, which can be a significant barrier to economic growth.

## Conclusion

Computer technology has tremendous potential to empower and connect people and communities and to facilitate healthy, sustainable economic growth. But the cost of computing remains a significant barrier for underserved communities in both the developed and the developing world. Microsoft is exploring various business strategies and partnerships to foster an affordable computing ecosystem that can significantly broaden access to the billions of people who today have no access to technology. But making computing more affordable is, by itself, not the only answer. To be of real value to people at the bottom and the middle of the economic pyramid, technology must also help people in underserved communities finally tap the unlimited potential of computing to realize their personal and economic potential.

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