William J. Kramer, Beth Jenkins, and Rob Katz

Large Companies, ICTs, and Economic Opportunity

The past 50 years have, in many ways, been a revolution in global economic growth. Yet not everyone has participated in this revolution. More than 65 percent of the world's population, over four billion people, still lives on the equivalent of less than $4 per person per day.

Even worse, the world's poor are severely constrained—and often completely lacking—in opportunity to do better for themselves. The business community has both the capabilities and the strategic, business reasons to play a major role in creating these opportunities. For the poor, livelihood choices—in employment and entrepreneurship—are constrained by a wide range of interdependent obstacles, ranging from geographic isolation to market failures to political exclusion.

This suggests that when we think about eradicating poverty, we should think broadly about creating economic opportunity. Economic opportunity is not, in itself, a solution; instead, it is a context in which individuals can create their own solutions. It is a combination of factors that enables the poor to manage their assets in ways that generate incomes and options. Creating or expanding economic opportunity could rightly be considered a responsibility of governments toward their citizens. But in today's global market environment, various risks and opportunities provide reason for business to engage.

One key reason, across industries, is for business to leverage its own comparative advantage in society. Business activity creates jobs, cultivates inter-firm linkages, enables technology transfer, builds human capital and physical infrastructure, generates tax revenues for governments, and, of course, offers a variety of products and services to consumers and other businesses. Each of these contribu-

William J. Kramer is President of the Global Challenge Network; Beth Jenkins is Learning Director for Ashoka's Full Economic Citizenship Initiative; Rob Katz is a Knowledge and Communications Associate at Acumen Fund.
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Four Essential Business Strategies

Creating Inclusive Business Models. Involving the poor as employees, entrepreneurs, suppliers, distributors, retailers, customers, and sources of innovation in financially viable ways.

Developing Human Capital. Improving the health, education, experience, and skills of employees, business partners, and members of the community.

Building Institutional Capacity. Strengthening the industry associations, market intermediaries, universities, governments, civil society organizations, and grassroots groups, who must all be able to play their roles effectively within the system.

Helping to Optimize the "Rules of the Game." Shaping the regulatory and policy frameworks and business norms that help determine how well the economic opportunity system works and the extent to which it is inclusive of the poor.

tions yields a multiplier effect in terms of development outcomes. In developing countries, companies' multipliers often fail to reach the scale or leverage of which they might be capable, often due to market failures and governance gaps. More deliberate management attention is required to unlock their full potential. Practical experience and research have identified a number of business strategies (see box) for large companies that wish to be active in the "development-through-enterprise" space. These opportunities—when properly approached—can provide both leverage and scale, and these strategies form the basis of our investigation.

THE ROLE OF THE ICT SECTOR IN CREATING ECONOMIC OPPORTUNITY

The information and communications technology (ICT) sector has been a pioneer and a powerful catalyst in addressing the needs and interests of low-income communities in developing countries. But it was not always so. Only in the past 20 years or so has a self-conscious appreciation for the ICT sector's role in expanding economic opportunity emerged.

One of the principal reasons is that much has changed in a short time. In ICTs, a single 20-year human generation is five technology generations. In the 1980s, "universal access" was a goal, but not the reality, of the legacy PTTs, an acronym for the firms providing "post, telephone, and telegraph" services. Even the words and services that used to define the sector sound anachronistic. So are the technological and business contexts.

The PTTs, comprising much of the ICT sector of their day, were landline-based and, to a large extent, government owned and managed. Services were expensive, and in most parts of the world they had badly deteriorated. Data network capability was non-existent. Technological innovation, to say nothing of business model innovation, was slow. The name of the game for operators was rent-seeking; that

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is, extracting every dollar of revenue possible from sunk-cost infrastructure. As a means to that end, they suppressed any new, potentially competitive technology, service, or business model, often using the power of the state for the purpose.

The rate of technological innovation in ICT has accelerated dramatically. The sector today is orders of magnitude larger than it was 20 years ago, and it encompasses a more diverse universe of players than ever before. Today, the sector includes hardware, software, the Internet, telephony, and content, application, and support services, provided by entities ranging from corporate giants to garage entrepreneurs to individual developers and open-source networks. Relevant content and applications are integral parts of the value proposition, and the "network effect" is crucial—technology only increases productivity when lots of people share access.

As a result, collaboration has become a key business strategy. Some of the largest and most successful firms have established themselves as "keystones" within vast "business ecosystems" in which independent partners, other firms, and even users provide content, applications, and services, thereby increasing the value of their technologies. This article, while acknowledging the incredible diversity in the nature and size of firms in the ICT industry, will focus on such large firms—whether national, regional, or multinational.

Unbound from the strictures of the PTT days, ICT has become the foundation of every sector of every economy, everywhere. The reasons for this are, by now, fairly well-known, but are worthy of brief repetition here.

Information and communications technologies:

- Reduce transaction costs and thereby improve productivity;
- Offer immediate connectivity—voice, data, visual—thus improving efficiency, transparency, and accuracy;
- Substitute for other, more expensive means of communicating and transacting, such as physical travel;
- Increase choice in the marketplace and provide access to otherwise unavailable goods and services
- Widen the geographic scope of potential markets; and
- Channel knowledge and information of all kinds.

These attributes underlie the important part ICTs have played in firm- and macro-level growth. At the macro level, various studies have shown significant, positive impact on GDP from information technology, telecommunications, and mobile telecommunications investment, in both developed and developing countries.[1] At the level of the firm, World Bank surveys of approximately 50 developing countries suggest that "firms using ICT see faster sales growth, higher productivity and faster employment growth."[2]

And yet, ICTs are not the entire story. With distressing repetition, the world seems to search for that single, "silver bullet" solution to underdevelopment and poverty. For a while, it seemed ICTs would be next in this category. But ICTs cannot meet development challenges by themselves. As Microsoft has pointed out, "[I]n order to realize their potential, these technologies must be part of a mix of

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sound government policies, enhanced workforce skills, and infrastructure investments—[a] recipe of interdependent ingredients which promotes initiative and innovation."[3] To fulfill their potential, most ICTs require clean and consistent power, a robust, accessible, and affordable connectivity network; technical literacy; skilled users; and support systems, functional markets, and supportive regulatory and policy frameworks. In developing countries, all of these factors can act as barriers, particularly among low-income individuals and small- and medium-sized enterprises. In response, large ICT companies have begun to broaden their collaborative strategies to include actors outside the "business ecosystem," as traditionally conceived, such as government agencies, non-governmental organizations (NGOs), microfinance institutions, and social entrepreneurs—eliminating, or sometimes just working around, such barriers to increase the value of their technologies and enhance their economic opportunity impacts.

BUSINESS STRATEGIES FOR THE ICT SECTOR

Information and communications technologies help expand economic opportunity by enabling people to enhance their knowledge and skills; identify, apply, and qualify for better-paying jobs; use their disposable income more wisely; manage their own businesses efficiently; and tap into broader markets for their goods and services. ICTs also enhance capacity in industries and institutions of all kinds.

Because the technologies themselves have such significant potential for impact, the most important way ICT companies can expand economic opportunity is to get those technologies out there and simultaneously drive the development and diversification of relevant content, applications, and services. Profitable business models are the most sustainable, scalable mechanisms for doing this, and ICT companies are experimenting with a range of them, though product donation and at-cost provision are still common. Companies are also having an additional economic opportunity impact by working to bring smaller, local firms into their business ecosystems—for example, as manufacturers, software developers, or retailers.

Large ICT companies are also engaging in human capital development on a significant scale. Sometimes these efforts are directly related to inclusive business models, but often they are more philanthropically motivated, with business benefits expected to materialize only in the longer term. To a lesser extent, large ICT companies are also investing in institutional capacity-building, for example, through product donation and pro bono time, and engaging with governments to promote policy and regulatory environments conducive to access and innovation. Whereas inclusive business models draw primarily on operational levers to expand economic opportunity, developing human capital, building institutional capacity, and helping to optimize the "rules of the game" seek changes in a firm's competitive context.[4] These changes enhance both the commercial viability and developmental impact of inclusive business models, in addition to improving the economic opportunity environment more generally.

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Creating Inclusive Business Models

Inclusive business models in the ICT sector seem to take on one of two primary types: they can target local individual, household, and SME markets for sales of technologies and services; they can also support the development of local partner networks in developing countries, thus creating opportunities for local businesses to start up and grow. These two essential operational modalities are discussed in more depth below. A series of cross-cutting considerations in the development of inclusive business models in the ICT sector are also highlighted.

Selling to local markets

We see two essential and interlocking growth strategies in the ICT sector, which can be characterized as "horizontal deepening" and "vertical deepening." The two strategies are often used in combination.

Horizontal deepening is essentially about adding new customers. A company might sell first to the highly concentrated market(s) it can most easily and cost-effectively reach, and then, over time, simply extend its footprint. A company could also engage in product extension, marginally adapting its products to appeal to additional market segments, and/or adapt its business model to accommodate their needs.

In mobile telecommunications, for example, one could say it was a business model rediscovery that set the wheels in motion for the developing world, in the form of Grameen Telecom's shared-access Village Phone model. In the advanced industrial countries, telephony was first introduced in shared-access form: party lines. As the industry grew, technologies came down in price, and customers could increasingly afford individual lines. Iqbal Quadir, founder of Grameen Telecom, successfully re-invented shared access, with the added attribute of enabling entrepreneurship among village women. The result is a familiar story now: the creation of Bangladesh's largest and, incidentally, highly profitable, mobile network.

Recognizing the volatility and uncertainty of income flows among low-income individuals and microenterprises, Grameen Telecom introduced a pay-per-use system. This system reduced capital and maintenance costs and established the viability of non-subscription mobile services. It has been replicated widely, for example, in Vodacom's phone shops in South Africa or Ghana Telecom's Areeba-to-Areeba stations and mobile vans.

Other providers, including Globe Telecom and SMART Communications in the Philippines and Safaricom in Kenya, are now offering prepaid airtime in addition to pay-per-use. Such initiatives have become paradigmatic inclusive business models in the ICT sector. ICT companies, such as Reliance Communications, Cisco, and Nortel in India, are even offering services on a pay-per-use basis to SMEs, in response to the perennial cash flow problems smaller firms face.[5] Other companies, such as IBM in Argentina and HP in Brazil, are responding with financing programs for technology purchases that address SMEs' difficulty in raising capital for growth.[6]

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Vertical deepening modalities seek to grow markets by connecting technology more directly to opportunities and services that increase productivity, income, and quality of life, thus strengthening its value proposition to the purchaser. Vertical deepening can be seen as a strategy for achieving horizontal deepening and for increasing revenue per customer.

For instance, mobile telephony on its own brings a host of potential benefits for users: it can substitute for travel, help keep social and business relationships intact, permit access to information, facilitate job searches, and enable entrepreneurial activities. As research by Vodafone and others has shown, people are using mobile phones in a host of creative and resourceful ways.[7] This has accounted for much of the horizontal growth in the market.

At the same time, however, mobile carriers are beginning to offer a range of formal services via cell phone, strengthening the value proposition of ownership. Most of these services currently fall into the mobile transactions, or "m-transactions," category, including deposits and withdrawals, cash and airtime transfers, access to loan applications and credit details, and billing and payment for water, electricity, and other goods and services.[8] The availability of these services not only encourages more people to buy phones, but can also help increase revenue per user.

While Globe Telecom in the Philippines has entered the m-transactions arena on its own, most providers are currently partnering with banks to add these services to their value propositions. For example, its main rival, SMART Communications, partners with Banco de Oro (BDO) so that SMART Money mobile accounts are actually BDO accounts, bringing many people into the formal banking sector for the first time. BDO issues a MasterCard debit card with each account and facilitates inward international remittance transfers, as well as direct deposit by employers.[9]

In Nigeria, Celtel has launched a new bundle of services explicitly targeting the SME market. The bundle includes a dedicated range of phone numbers, affordable rate structure, entrepreneurship training and exhibition opportunities, and a business tool-kit on CD. Celtel has even partnered with Leadway Assurance Plc to offer SMEs a 70 percent discount on auto insurance through the bundle.[10]

In fact, vertical deepening modalities in the ICT sector can be closely intertwined with inclusive business models in many other sectors—financial services, agriculture, retail—anywhere companies seek to target low income customers or involve small producers and SMEs in their value chains.

For example, ICTs are enabling the agricultural trading unit of ITC Ltd., a diversified conglomerate, to facilitate sourcing from India's thousands of small farmers through its well-known e-Choupal network. ITC supplies computers and connectivity to village-elected farmers who access market prices locally and around the world every day, in order to assist farmers in attaining the best price available. ITC guarantees next-day purchase of the farmers' crops at the day's closing market price, with fair weight, immediate payment, and bonuses for high-quality crops. ITC also uses the e-Choupals to sell seeds, tools, fertilizers, and other

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products of its own and of partner companies. The system allows farmers to bypass the government-run markets, or *mandis*, which have bad reputations for under-weighing, keeping poor payment records, and generally inadequate service. Since its creation in 2000, the e-Choupal system has grown to include 5,200 kiosks, reaching 3.5 million farmers in 31,000 villages in eight states.[11]

The government of Chile is also using ICTs to facilitate procurement from small businesses, using a very different model. When the government initially switched to doing all of its procurement online, it struggled because the portal was inaccessible to so many potential bidders. In particular, many SMEs were unconnected. Through its Partnerships for Technology Access initiative, Microsoft was able to construct a multi-party deal that offers entrepreneurs and small business owner-operators training, software, and connectivity to the e-procurement portal, which increases their willingness to invest in PCs, as well as low-interest, unsecured, 36-month loans to finance their purchases. Since then, competition for contracts has more than tripled from 1.7 to 5.7 million bids, and the number of companies registered to bid has grown to more than 200,000. For the government, the system has increased transparency and generated cost savings of $60 million a year.[12]

Developing Human Capital

Effective use of technology to expand economic opportunity at the national, organizational, and individual levels, requires a certain set of skills. Large ICT companies are therefore employing deliberate human capital development strategies aiming to develop employees, business partners, and customers, both present and future. The ICT sector has always suffered chronic shortages of technical and engineering skills in the labor force—in both developed and developing countries. To address this gap, corporate leaders including Cisco, HP, IBM, Intel, Microsoft, and others have created robust education initiatives designed to contribute to a steady pipeline of potential employees and business partners.

The ICT sector also requires a certain level of comfort with technology among customers. In response, most major firms have implemented technical literacy programs. Helping to grow the number of technology users—regardless of which technologies they are using—lays the groundwork for firms' own individual future market growth. Microsoft's Community Technology Skills Program has reached perhaps the largest scale, supporting approximately 29,000 Community Technology Skills Centers (CTSCs) with different combinations of funding, curricula, hardware and software donations, employee volunteer time, and other resources, according to local needs and goals. Each CTSC represents a partnership or set of partnerships with local organizations, ranging from libraries to community halls to training centers sponsored by other companies. In South Africa, for example, Microsoft has partnered with the forest products company Sappi to train community members in Kwa-Dukuza. 75 percent of the program's graduates go on to further education or employment, mostly with Sappi.[13]

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Local partner networks

Like other large firms, large ICT companies today have extensive value chains, often referred to as partner networks or ecosystems, spanning from component and equipment manufacturers, to independent software developers and vendors, to distributors and retailers, to systems architects, to technical support services. For example, network giant Cisco Systems has 20,000 channel partners, from whom the company earns 90 percent of its revenues. SAP, the world leader in collaborative enterprise software with 50 percent of the market share, employs 15,000 developers directly but works externally with more than 750,000. Large ICT companies are undertaking a variety of efforts to expand these partner networks or ecosystems locally in developing countries. Intel, for example, uses more than 2,000 small- and medium-sized suppliers in Malaysia alone. Cisco has partnered with Citigroup, GE Capital Solutions, and Standard Chartered Bank to offer $2 billion in short-term inventory financing to its channel partners in emerging markets. Other examples include:

Hewlett-Packard's Jundiaí factory in Brazil: HP has announced that it will open a new factory producing PCs for the SMEs in Brazil, with a focus on niche markets such as graphics and communications. The firm has signed agreements with local resellers for distribution.

Microsoft Innovation Centers: Through 110 Innovation Centers in 60 countries, Microsoft works with local universities, industry associations, government agencies, and NGOs to offer training, mentoring, and incubation services to help individuals and entrepreneurs establish careers and businesses in the software industry—at the same time laying critical foundations for its own future growth.

Building Institutional Capacity

ICTs fundamentally create institutional capabilities. Within companies, government agencies, and civil society organizations alike, they help "reorganize and speed up administrative procedures, [increase] the volume and speed of information […] and [permit] greater collaboration and sharing of experience." [14] These functions are critical in the context of expanding opportunity because "there is increasing evidence that a dense and complex layer of social institutions, formal and informal groups, and networks of interaction and common interest between the individual citizen and the state is good for both the stability and responsiveness of the political system and for the economy."[15]

Because of the fundamental role ICTs play, sales strategies can have direct institutional capacity-building effects. Large ICT companies are also engaging in dedicated efforts to build institutional capacity. These may target local universities and research institutes, industry associations, training and business development serv-

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Intel's Emerging Markets Development Group: In Intel's experience, there is often some initial pushback against brand-new technologies that challenge fundamental paradigms—exactly the kinds of technologies that are critical to providing access in the developing world. The R&D arm of Intel's Emerging Markets Development Group now develops technical specifications for new devices and provides the product references for free. According to Intel's Marzyeh Ghassemi, the company's goal is "to make it as simple, easy, and convincing as possible to produce and advocate low-cost devices, so that anybody can pick up a reference design and decide for themselves whether there's a business opportunity in it."

Mobile telecommunications carriers are also finding a great deal of scope for local partnering in developing countries. In the Philippines, SMART and Globe have created a business worth more than $200 million a year to more than a million small retailers by adopting business models based on prepaid, rather than subscription-based, usage. These airtime retailers, found in kiosks and shops all over the country, play many roles for their larger partners. They provide billboards for advertising; local access points for airtime purchase, resale, and transfer; trust among populations with many good reasons to see big companies as remote and exploitative; and, perhaps most importantly, front-line knowledge about what customers want and need. These retailers have served as primary drivers of service innovation in the industry. In Kenya, Vodafone and Safaricom's M-PESA mobile transactions service operates through a network of thousands of agents based in gas stations, supermarkets, and cybercafés or acting as independent small retailers. In South Africa, Wizzit, which issues Maestro-branded debit cards in conjunction with m-transactions accounts, employs young adults called "Wizz Kids" who educate and recruit new users in low-income areas.

ice providers, and other institutions vital to the development of healthy local ICT ecosystems. They may also target government, nonprofit, and collaborative institutions. Just a few examples include:

- **E-Government:** Information and communications technologies, including the Internet, can enable governments to deliver entitlements and public services with greater efficiency, transparency, and accountability to citizens
- **Economic opportunity-related civil society organizations:** Capacity-building within this segment often includes equipment or software donations and training or support services in the form of pro bono time.
- **Enabling collaborative governance:** Expanding economic opportunity requires collaborative action among the different stakeholders involved.

Helping to Optimize the "Rules of the Game"

Large ICT companies are helping to optimize the "rules of the game" for economic opportunity, primarily by advocating for standards, regulations, and policies

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that support innovation and growth in the sector. A number of issues or dilemmas are of specific importance to the sector in expanding economic opportunity for the poor. For instance:

- **Access and infrastructure:** Many ICT companies are addressing access and infrastructure issues through business investment and innovation—Intel's low-cost devices and WiMax technology for rural connectivity are two examples among many. Public policies, incentives, and other forms of support are particularly important when it comes to building infrastructure.
- **Standards-setting:** As new technological capabilities emerge, new standards need to be developed so that markets can be imagined, created, and served—expanding economic opportunity for individuals, entrepreneurs, and institutions of all types and sizes. Standards-setting is, by nature, a collaborative venture, involving trusted, broadly representative standards-setting bodies (such as IEEE and ISO) along with technologists, manufacturers, regulatory bodies, and end-user communities.
- **Intellectual property rights regimes:** Intellectual property (IP) rights are critical to sustained innovation in the ICT sector, and yet as knowledge becomes privatized, commoditized, and expensive, developing countries risk being priced out of the market for the knowledge they need to advance.
- **Regulatory harmonization:** Non-aligned or even competing institutional interests among regulators can interfere with the clarity and stability required for business investment and planning. Competing interests among telecommunications regulators and import/export commissions around tariff and non-tariff barriers to new technology imports, for instance, can hinder experimentation and dissemination of technologies that could prove critical to rural economic development. Harmonization between telecommunications and financial regulators will be key to enabling innovation and experimentation with business models that cross traditional industry lines, such as providing financial services via mobile phone, or storing health information on data cards.

CONCLUSION

All three of the authors of this piece started our current careers in a program optimistically labeled "creating digital dividends." The knowledge we acquired along the way demanded that we change the name to "development through enterprise." The cone of activity we envisioned nearly a decade ago is becoming reality, as more stakeholders find their active roles—from grassroots institutional development and capacity-building, to organizing serious capital markets, to enabling large numbers of companies to focus seriously on the BOP in emerging markets. We remain optimistic.

That said, the ICT sector, while deservedly a poster child for how business can engage with low-income communities, is still searching for ways in which to understand how best to succeed at the BOP, and how to integrate such understanding into day-to-day operations, to say nothing of long-term strategy. Objectively

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analyzed, the role of emerging markets and their BOP populations remains confined to small circles within most ICT companies, and funds to explore, to experiment, and to "fail" are scarce. When "scale" happens, it remains more an unexpected outcome than a purposeful, planned process.

The current economic crisis, which began in rich countries and has now spilled over to emerging markets, could cut in one of two ways: either further constraining the will and capacity to break out of comfortable business models and habits, and hence to invest aggressively in new spaces; or, forcefully driving home the realization that, at least for a few years to come, the growth of the firm will be highly positively correlated to success in creating economic opportunity at the BOP. The evidence, while admittedly still scattered and inconclusive, is shaping up as rather compelling. The smart businesses will not wait until the jury retires to deliberate, but will actively build the case for economic opportunity powered by ICTs.

ANNEX.
MICROSOFT'S PARTNERSHIPS FOR TECHNOLOGY ACCESS

Microsoft is creating market opportunities by catalyzing "virtuous cycles" in which eCitizens and eGovernments interact to drive social progress. Its Partnerships for Technology Access are customized, multi-party deals designed to transform the ability of governments to provide public services and the ability of citizens to receive the benefits—with technology as an enabler.

Drivers. Demands on developing and emerging country governments are exceeding their ability to deliver—for example, in areas such as education, private sector development, and public health. These governments have the potential to transform the way they address these demands using technology—using eGovernment solutions that Microsoft can provide. For Microsoft, eGovernment is a sizeable business, and one the company would like to grow. Unfortunately, eGovernment solutions are a hard sell in markets where the majority of citizens lack access to technology.

Technology penetration in developing and emerging countries is low. This is partly a function of price, but not entirely. For someone earning $3,000 a year—more than three times the international poverty line of $2 a day—a personal computer (PC) will be a significant purchase, even at cost. That person will need financing options and, most importantly, a reason to make the financial sacrifice a PC purchase entails. He or she must see a clear value proposition. eGovernment services can be part of that value proposition if entitlements can be delivered with more accountability or enhanced responsiveness; but an existing base of eCitizens is critical to the value proposition for eGovernment. Microsoft has turned this classic "chicken and egg" scenario into a business opportunity through an operating framework that uses collaboration to empower eCitizens and eGovernments at the same time, creating "virtuous circles" that advance policy objectives.

The Model. Microsoft's Partnerships for Technology Access (PTAs) are public-

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private partnerships (PPPs) designed to transform the ability of governments to provide public services and the ability of citizens to receive the benefits. Each PTA PPP is a customized, multi-party deal assembled according to the specific needs and objectives of the government partner and its constituents. As a result, both PTA offerings and the partners put in place to provide them can vary substantially. A "typical" PTA offer might include a combination of favorable financing, software, hardware, training, government services, and technology support. In addition to Microsoft itself, "typical" partners include government agencies, financial institutions, independent software vendors, hardware providers, and Internet service providers. Non-governmental organizations are often part of the PPPs as well.

Eight business development managers worldwide are responsible for identifying and building PTAs within their regional coverage. Each business development manager has specialized experience spanning public policy, sales, and technology. His or her job is to engage closely with government, civil society, and other actors; keep current with policy developments and objectives; and identify opportunities where Microsoft's core competencies and technologies could be applied, in partnership with others, to create solutions. To do this, a business development manager must think carefully about what the government partner—including individual policymakers—will need to get out of the alliance in order to justify it. As Diana Pallais, worldwide Managing Director of the PTA initiative, puts it, "Every government leader has a short list of priorities where they intend to effect positive impact. If we can understand those priorities and determine that technology can be of use to them, then they will have an incentive to engage with us on terms that will be more sustainable all around. In sum, we have to structure win-wins or it won't fly."

Once an opportunity is identified, the business development manager will then approach and negotiate with potential partners, ultimately bringing them together in PTA consortia. Establishing and aligning incentives within these consortia, and maintaining that alignment as implementation proceeds, requires active leadership on Microsoft's part. Pallais states that, in addition to the idea itself, convening the consortium and project leadership are perhaps the most valuable contributions that Microsoft makes.

Each PTA deal must meet three criteria:

1. *Affordability*. As discussed above, affordability is rarely just a question of price. Is it possible to put together a financing package that will make the technology affordable for citizens?

2. *Access*. Does the local supply chain exist to get the technology to citizens? Are electricity and Internet connectivity available and accessible?

3. *Relevance*. Finally, and most critically, what is the value proposition to the citizen? How will the technology—and the content and services it enables—improve citizens' lives?

PTA deals must offer "wins" for all parties involved in order to move ahead. Microsoft believes this makes them more sustainable, such that the "virtuous circle" they create can continue even after Microsoft has exited from a formal role.

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For Microsoft, the "win" is the ability to tap new markets. For governments, it is the ability to provide public services more efficiently and effectively, hopefully translating into political gains. Non-governmental organizations typically have mission-based incentives to participate, and other private companies participate for customer acquisition purposes, as offering products and services through public programs can help increase affordability and value to the customer. Importantly, citizens are also considered parties in PTA deals—they are, after all, being asked to pay for the technologies on offer—and so there must be "wins" for them as well.

Activities. Government partnerships are at the core of the PTA model. Often the government partner is already experimenting with some degree of online service provision. The PTA deal may include some support to ensure that these services are accessible to the target population in terms of language, navigability, and functionality. The PTA deal will also address accessibility through the sale of PCs. While many programs to disseminate mobile or shared access technologies exist, including within Microsoft, PTAs aim to place PCs into homes and small businesses. By the same token, while many PC donation programs exist, PTAs involve citizens as paying customers. Embeddedness within a public policy objective helps to increase the relevance and value proposition. Even so, customers tend to come from the middle of the economic pyramid, rather than the base. They are people with some disposable income, but for whom a PC purchase would nevertheless be out of reach without financing. Many have no credit histories or even bank accounts. To secure financing for them, Microsoft has worked with public and private partners on a number of options to reduce risk, such as payment by payroll deduction or using the PCs themselves as collateral. Commercial banks, governments, and government banks will sometimes offer loans at low interest rates, and occasionally small product discounts are offered, but the key to affordability within the PTA program is access to credit. An additional dimension of the PTA model, which is key to its economic opportunity impact, is its reliance on value chain linkages with local hardware and software vendors and distributors. PTAs expand these partners' markets, which helps create jobs and multiply local business opportunities. As discussed earlier, PTAs are custom designed and therefore vary dramatically. Two examples are described briefly below.

Argentina. There are four million pensioners out of a total population of about 40 million. The government pension agency has the second largest budget in the country. The agency had a reputation for slow processes, even for very simple transactions, and wanted to innovate in the way it connected with its constituents. It did have a handful of services already online which offered clear value. For instance, pensioners in Argentina are entitled to receive their spouses' benefits when they die, but to do so they must declare a status change. Done manually, this takes an average of four months. At an average pension of $500 a month, this represents an opportunity cost to the pensioner of $2,000. Online, the same process takes 15 minutes. The PTA response has been to offer seniors the opportunity to buy PCs through the pension agency, which underwrites a loan of three years at

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zero percent interest. Microsoft invests in computer literacy and training, which are provided through an NGO network focusing on senior citizens. The opportunity cost savings represent such a compelling value proposition for seniors that up to 2,000 PCs are now being sold each month through this program, with no discount in the price of the machines and no advertising.

Chile. All government procurement is done online via the ChileCompra e-procurement portal. At first, the system struggled to achieve its objectives because the portal was inaccessible to so many potential bidders—in particular, small and medium enterprises lacking access to computers or the Internet were locked out of the market. The PTA response has been "Mi PYME Avanza" or "My Small Business Grows." The program offers entrepreneurs and small business owner-operators training, software, and connectivity to the e-procurement portal, which increases their willingness to invest in PCs, as well as low-interest, unsecured, 36-month loans to finance their purchases. Now, the number of companies registered to bid has grown to more than 200,000, and competition for contracts has more than tripled from 1.7 to 5.7 million bids. For the government, the system has increased transparency and generated cost savings of $60 million a year.

Results. PTA deals do not follow a typical Microsoft sales cycle; according to Pallais, they take a lot of time and a lot of shepherding. However, once incentives are aligned, trust is built, and consortia are in place, roll-out tends to happen quickly. In the three years since the program began (it was formally branded a year and a half later), more than 50 Partnerships for Technology Access have been created. For Microsoft, the number one indicator of success for the Partnerships for Technology Access—as for the company generally—is license sales. By June 30, 2007, Microsoft had sold 500,000 PCs with genuine Windows operating systems through PTAs worldwide. Microsoft expects to approach one million PC sales in fiscal year 2008 alone. PTAs are also measured according to conventional business metrics, such as return on investment (ROI) and revenues. Measures of satisfaction among partners and citizens are monitored as well.

Even more important, Microsoft tries to ascertain whether each PTA succeeds in catalyzing the kind of "virtuous circle" described above, with eCitizens driving demand for eGovernment driving demand for eCitizens. The company is also working to develop indicators that will allow it to gauge whether a deal will be sustainable after it exits from a formal role.

Lessons Learned. Microsoft's Partnerships for Technology Access are gaining increasing traction within the company and in the marketplace. There are a number of potential threats; for instance, because the ROI on a PTA is significantly lower than usual for the company, it is possible that a severe downturn in the industry could jeopardize the business model. Similarly, while governments and other development-oriented organizations are currently keen to work with the private sector, the pendulum could always swing in another direction. All else constant, Microsoft has found that the success of a PTA in catalyzing "virtuous circles" of eGovernment and eCitizenship depend in large part on aligning incentives among the various parties involved. Critically, this includes customers' incentives;

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PTA deals are crafted on the basis of clear customer value propositions. Aligning incentives also involves setting and managing expectations. According to Pallais, other corporate partners must recognize that while this is business, it is not business as usual—it costs more to play and it involves adjustments in standard operations. Microsoft bears an often disproportionate share of the difference, including the bulk of the convening and leadership up-front, but the remainder needs to be shared for the deal to be sustainable. All partners must expect considerable learning and adjustment to take place. Companies in different industries, government agencies, non-governmental organizations, and others rarely understand each other the way they understand themselves. They must be prepared and invested in starting to develop that understanding in order for their PTAs to succeed.

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