

MARKLE FOUNDATION

**New Directions in U.S. Foreign Assistance and the Role
of Information and Communication Technology**

FOREWORD

Global poverty alleviation has risen to new prominence on the national agenda, alongside issues of international security and the state of the world's economy. Clearly, all three are linked, even as each merits attention in its own right.

The United States Government has proposed to set up a Millennium Challenge Account (MCA) that takes a new approach to world poverty, establishing a special multibillion-dollar overseas aid fund and using it in innovative ways to promote economic growth and development in selected countries. This policy brief responds to the announcement of the MCA and, in particular, its emphasis on aid effectiveness. At this early stage of the MCA's development, the brief outlines ways in which information and communication technology (ICT) can help make the MCA most effective. At the same time we recognize that the MCA is not the U.S. Government's only development account. It may focus only on some of the important development tasks at hand—or only on a subset of the countries that must be addressed. As you will read in these pages, though, ICT can have cross-cutting impact on a wide range of development efforts.

Information and communication drive our global economy and society. ICT can cause great change in developing nations where people are isolated, their markets limited, their institutions weak, and their governments closed to wide participation. Experience has begun to demonstrate that using ICT strategically and selectively can help expand access, improve basic services, grow economies, build institutions, and strengthen democracies—in short, advance the agenda of the Millennium Challenge Account and the cause of development generally.

The Markle Foundation has sponsored this paper as part of its exploration of the ways in which ICT can help narrow economic and social divides. The paper expands on the fundamental relationship between technological improvement and development. It follows on Markle's work in the G-8 Digital Opportunity Task Force, where we and our partners UNDP and Accenture presented “Creating a Development Dynamic,” a strategic framework for applying ICT to development goals.

The MCA holds significant potential in the fight against world poverty. In the coming months, we look forward to an ongoing dialogue and further exploration of the ideas raised in this brief. For further information please contact either Karen Lynch (klynch@markle.org) or Daniel Rosen (dhrosen@mindspring.com).



Zoë Baird
President

New Directions in U.S. Foreign Assistance and the Role of Information and Communication Technology

A Markle Foundation Policy Brief¹

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Part 1. Introduction

In spring 2002, President Bush launched a debate over international development assistance with a proposal to increase the United States' aid budget by \$5 billion annually by 2006. The initiative, known as the *Millennium Challenge Account (MCA)*, draws deeply on thinking about aid effectiveness from the development community itself, and also reflects the post-September 11 sense of urgency to address the anarchy and desperation characteristic of failed states. The MCA would provide new U.S. support to a limited number of nations meeting three criteria: good governance, investing in people (especially health and education), and sound economic policy. With this initiative, the U.S. is recasting its definition of a successful development process, including the way in which it measures progress toward success and determines how much money to provide as progress is made.

This *Policy Brief* examines the role information and communication technology (ICT) can play in making the MCA more effective, without judging the MCA approach per se. Many elements of the MCA are still being worked out – some remain the subject of lively debate – but the connection of technology to development will be important to make in any case. The momentum behind the MCA is strong. The plan for the MCA reflects not

¹ Acknowledgements: This *Policy Brief* represents a collaborative effort overseen by the Markle Foundation. Markle staff members Karen Lynch and Fred Tipson advised the research from start to finish. Three specialists on technology contributed to this paper: Al Hammond of the World Resources Institute; Tom Kalil, Special Assistant to the Chancellor for Science and Technology at the University of California, Berkeley; and Bruce McConnell of McConnell International. Catherine Mann of the Institute for International Economics provided important commentary, as did Markle President Zoë Baird. Claudia Frittelli and Noa Meyer of Markle are credited for research and vetting that went into selecting examples for this *Brief*. Study groups comprising development and ICT specialists, inside and outside government, provided valuable input. While the errors are the author's alone, he is grateful to those above for reducing their number.

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only the urgency the Bush Administration has brought to the endeavor, but also its consultation with numerous development specialists. The Administration seeks to benefit from substantial research and experience on making aid more effective and to incorporate long-standing development community recommendations, such as the use of grants instead of loans.³

The emphasis in the MCA is on economic growth. “The goal,” President Bush has said, “is to provide people in developing nations the tools they need to seize the opportunities of the global economy.”⁴ This reflects a view shared by the Administration and an increasing number of development specialists that systemic poverty should be addressed primarily by increasing productive jobs and economic activity.

The *Brief* addresses the MCA’s productivity-development connection, underscoring how ICT is key to improving productivity. It elaborates ICT’s potential to address such MCA fundamentals as health, education and governance – while at the same time cautioning that the technology can have only minimal impact unless accompanied by improvements in policy and the strengthening of institutions. Additionally, the *Brief* underscores the ability of ICT to be used to help manage, evaluate, and control MCA activities.

Over the last thirty years, the advent of fast and ubiquitous ICT has transformed the economies of developed nations represented in the Organization for Economic Cooperation and Development (OECD).⁵ Information technology is the latest wave of technology generally. Investment in ICT capabilities and infrastructure can have powerful impacts on development. With globalization, ICT is essential for some aspects of development – such as transparent fiscal management and comparative advantage in the world economy. While the dramatic ICT benefits enjoyed in advanced economies require strong policy foundations, appropriate ICT can support development efforts even at basic levels of development, as shown in Part 2 of this *Brief*. Despite imperfect conditions in the developing world, U.S. leaders in Congress and the Administration have already begun applying technology to development in appropriate ways – as the U.S. Agency for International Development’s (USAID’s) Leland Initiative has done in increasing connectivity in Africa. Now, the U.S. should address the technology-development linkage in a more integrated way.

In short, ICT is not at the margins of development any more than it is a short cut around the development process. Rather, ICT offers crosscutting tools increasingly central to development and can help transform the dynamics of development in poor settings. ICT

³ Much of the literature that recommended re-thinking foreign assistance is presented on the World Bank website at <http://www.worldbank.org/research/aid/background/toc.htm>, and includes work by Craig Burnside, David Dollar, William Easterly and others. The Center for Global Development, a mainstream development think-tank, is an example of groups that have come out broadly supportive of the MCA initiative and that are working earnestly to make it succeed.

⁴ *Millennium Challenge Account: A Presidential Initiative*, White House, August 2002.

⁵ For this brief, ICT is used in its popular sense, incorporating all innovations whose principle purpose is the management or exploitation of information and/or communication, and especially new generation technologies such as the Internet and networked computer applications. This definition captures mature technologies, such as TV and radio, and nascent ones.

generates, processes, and adds value to information, a critical catalyst for the development process, as it also makes information easier to access. The diversity of applications illustrated in Part 2 of this *Brief* underscores that ICT is not a sector looking for an earmark; it is a force increasingly woven into all aspects of development, at low levels of income as well as high. People do not fund electronic sensors, but the clean water programs they support; they do not buy computer programs, but the accounting platforms they provide. Leaders envision the solutions and functions needed, not the ICT that runs them. The examples in this paper give an integrated sense of the centrality of ICT, not a list of programs looking for funding. Most ICT used in development involves improving the collection, processing, and use of valuable information. So not surprisingly, many examples help monitor and evaluate development processes, even in low-tech sectors. Without this evaluation function, one does not know what to do more of and what to do less of – getting knowledge from information about how the development process is performing is critical.

Therefore, while MCA planners have rightly pointed to the potential development gains from treating ICT as a sector, the story does not stop there. The following points argue for a more integrated approach to ICT:

- ICT is fundamental to productivity – the chief emphasis in current studies of how to make aid more effective.
- ICT is key to achieving each of the benchmarks for eligibility set out by President Bush in the *Millennium Challenge Account* initiative:
 - Promoting Good Governance
 - Shifting Investment to People
 - Fostering Economic Growth and Freedom
- ICT is increasingly but unevenly in use in poor countries. If it is not integrated into development more coherently, poor countries will needlessly repeat the hard ICT lessons already learned in the developed world (such as the exorbitant costs that come with incompatible, redundant, or inappropriate ICT systems).
- ICT can promote open and engaged societies, reducing the isolation that can foster hostility. But ICT in hostile hands can be destructive; we have seen ICT used to powerful malevolent purpose even from poor and remote settings.⁶

⁶ Information and the tools to manage it are forces for social and political change in our time. Some people stress that today information is altering hard-to-quantify values such as political participation; indeed, many democratic surges are orchestrated with fax machines and more recently e-mail. Since the goal of this *Policy Brief* is narrowly to “set the scene,” it does not attempt a proof of these trends. But anyone who has worked in developing countries or who wants to be effective there recognizes that monopolies on information flows and limits to political participation are part of the development problem, and that new technologies are chipping away at those problems.

For all of its potential, ICT is not a panacea. Many lessons learned from ICT programs and policies to date have been detailed in *Creating a Development Dynamic*, a report issued in 2001 by the Markle Foundation, United Nations Development Programme, and Accenture. These lessons suggest linking technology, policy, applications, and human resources to enable the private and public sectors to advance development goals. The need to integrate ICT into development is defined not just in terms of catching up, but in preventing new relative disadvantages befalling poor countries, whether measured in basic human indicators or in international competitiveness.

The MCA initiative is the focus of this *Brief* not only because \$5 billion a year is an eye-opener, but because information technology is central to the MCA emphasis on productivity, transparency, and accountability. But the technology-development connection is important for maximizing aid effectiveness generally; therefore this *Brief* applies beyond the MCA.

The remainder of Part 1 explains the technology-development connection and the nature of ICT in particular. Part 2 looks at ICT-oriented projects already helping to realize the MCA initiative priorities: good governance, investing in people, and economic freedom. Note that these are criteria for MCA eligibility, not grant-making categories. In this *Brief* they are used to organize examples because they happen to be goals of a successful development process, not just indications of commitment. Part 3 draws conclusions and suggests areas where preparatory work now can strengthen the effectiveness of the MCA once it becomes a reality.

International Development Trends

The United States has both a strong humanitarian interest and a national self-interest in better development in impoverished countries. The millennium brought an occasion for Americans to re-focus on the challenge of development, as embodied in the goals enunciated at the United Nations Millennium Summit in the fall of 2000. A year later, the horrors of September 11 brought that interest home in an even more immediate manner.

Yet the challenges of development remain formidable. Worldwide, 80 countries are on the eligibility list of the World Bank's International Development Association (IDA). That is, they still qualify for concessional, non-market-priced financial support from the World Bank because their per capita incomes average below \$875, little more than \$2 a day. A shelf of thick yearbooks depicts the details.⁷

The burden of our failure to alter this situation weighs heavily upon us. The United States, for one, has put over \$1 trillion and tremendous human energy into foreign aid since 1945.⁸ Yet despite these resources, 23% of humanity still lived in "extreme poverty" in 1999, and though this percentage had come down from 29% since 1990, the

⁷ See UNDP *Human Development Report* (2002), or World Bank *World Development Indicators* (2002).

⁸ "The Role of Foreign Aid in Development", CBO May 1997.

absolute number in Sub-Saharan Africa rose from 242 million to 300 million during that decade.⁹ There is little evidence to suggest that this reality is about to change.

The Meaning of Productivity

What explains why two people, each starting with equal amounts of labor and money to work with, will produce different amounts of output by the end of the day?

The economist's answer is *productivity*, the measure of how efficiently resources are used. Where productivity in the use of resources is low, added aid has little effect. Why did China lift about as many people out of poverty in the 1990's as Africa saw drop down into extreme poverty?¹⁰ Policies and institutions are both important, and their goal is productivity.

Productivity does not only measure the number of widgets coming out of a factory; it reflects the outcome of any use of scarce resources. How many students learn to read by the end of a year; how much forest can be preserved while meeting the wood and paper needs of a population; what percentage of a nation's budget must go to maintain an army instead of subsidizing child-care? How productively resources are used determines the answer to each of these questions. And most importantly for this paper, in the long term the level of technology a society absorbs drives the level of productivity it enjoys.

The Bush Administration and many thinkers in the development community are in broad agreement on the need to focus on the impediments to productivity growth in order to improve development outcomes – impediments like diseases, lack of schools, corruption, or bad fiscal policies. The collection of seminal works that the World Bank maintains on making development assistance more effective provides a reading room on the role of productivity.¹¹ But only a few have so far emphasized the connection between productivity and information technology.¹² Making that connection is important if development is to thrive.

The MCA initiative addresses both the need for right-minded policies and the need for sound institutions capable of implementing and enforcing them. These thrusts are both essential for improving productivity and addressing the grinding poverty afflicting the developing world. There need not be a trade-off between enhancing productivity and humanitarian efforts. Effective humanitarian interventions are usually productivity enhancing – and vice versa, our productivity enhancements can and should benefit human welfare equitably. Integrating ICT into MCA development work will not displace effective humanitarian or security programs serving needs regardless of whether a

⁹ UNDP HDR 2002, p.10.

¹⁰ The numbers commonly cited, based on World Bank reporting, are a reduction in China from 250 million poor in 1978 to 58 million in 1996; and a rise in Africa to 300 million from 242 million during the 1990s.

¹¹ <http://www.worldbank.org/research/aid/background/toc.htm>.

¹² A good exception came from Treasury Undersecretary John Taylor in an October 2, 2002, speech that explicitly discussed the technology-development connection in the context of the MCA: <http://www.treasury.gov/press/releases/po3495.htm>.

development process is promoted, but rather will complement it by promoting that process.

Increased aid can leverage private investment, which is generally more tuned to improving productivity than aid spending is. Investments in information infrastructure by the World Bank have leveraged as much as \$8.70 of private finance for each \$1.00 invested.¹³ In general, the Administration argues that \$1 of aid in sound policy environments attracts at least \$2 of private capital.¹⁴ And if the MCA approach leads to freeing up existing funds by successfully graduating countries off assistance, then a multiplier effect can be achieved.

Enter ICT: Technology and Productivity

Technological change is the mother of productivity growth. Evolving technology – soft (like management techniques) and hard (like cotton gins) – is what permits us to get more out of the same amount of resources over time, or else get the same from fewer resources, thereby protecting the environment.

The renewed emphasis in development thinking on productivity – or the lack thereof – makes ICT important for the MCA initiative. In some poor countries manufacturing technology is the holy grail. For the IDA-eligible developing countries the MCA addresses, it is the diffusion of ICT and implementation of policy and institutional changes that facilitate its use that are critical for growth. Conversely, failure to adjust to new technology erodes competitiveness; thus the fact that all of sub-Saharan Africa (minus-South Africa) filed only 3 U.S. patents in 2000, suggesting a near-total lack of innovation in the region, is worrisome.¹⁵ If the MCA is to change the outlook, it must elevate the integration of technology into development, not just retool factories to make keyboards and phones for someone else's children.

Economic studies tend to find that investment in ICT shows spotty returns to growth in the IDA-eligible world, unlike in parts of the developed world. This is true of all investment generally, which is why the MCA and other initiatives have called into question traditional approaches to aid. This may reflect a lag in uptake: the U.S. and then the European Union (EU) have been transformed by the adoption of ICT, and developing countries may be on the same curve, just further down the slope. Some analyses are starting to show positive returns to ICT investment in developing countries, though others are less clear.¹⁶

¹³ World Bank, "Information and Communication Technologies: A World Bank Group Strategy." April 2002, The World Bank. Page vii.

¹⁴ WH/OPS MCA Fact Sheet, June 3, 2002.

¹⁵ See Mann and Rosen, *The New Economy and APEC*, IIE: 2002; and Jeffrey Sachs' The Global Innovation Divide at <http://www.nber.org/books/innovation3/sachs5-22-02.pdf>. Presented at NBER, May 22, 2002.

¹⁶ Three good reviews of the necessarily lengthy literature on the technology-productivity relationship are the Mann-Rosen study cited above; the 2001 IMF *World Economic Outlook*, Chapter 3, <http://www.imf.org/external/pubs/ft/weo/2001/02/pdf/chapter3.pdf>; and the 2001 *Economic Report of the President* prepared by the Council of Economic Advisors.

There is no reason to imagine that developing countries will not encounter the same relationship between technological change, productivity improvement, and growth that middle and higher income countries did before them. In fact, there are good reasons to think that technological upgrading is more important to successful development today than it was in the past. For example, growth through rapid consumption of natural resources, such as on the American frontier a hundred years ago or more, is less and less of an option for environmentally depleted poor countries.

From Theory to Reality: ICT Already Impacting Widely

The economic literature is a lagging indicator: ICT is already a powerful presence in the developing world. International development organizations follow ICT strategies for development and OECD countries have designated ICT strategies for bilateral assistance. ICT impacts trade competitiveness among developing countries. Leaders in developing countries call for tailored assistance on ICT. The reality of ICT's impact on development lies in the money-savings that have been achieved in early adoptions, as will be seen in Part 2. The bottom line is that technology is not irrelevant to poor countries, and has already gone beyond the drawing board stage. It is deployed and supporting changes, and ranges in form from mature TV, radio, and telephones to nascent, Internet-based applications.

The next section demonstrates ICT tools in relationship to MCA priorities, and how appropriate projects can contribute to developing country productivity. It will be shown how these tools enable countries to eliminate or reduce factors that stymie development, carry out on-going development activities better and more efficiently, and undertake new activities presently out of reach.

Part 2. MCA Criteria and ICT at Work

Many challenges of development – especially today – involve managing information and monitoring the transformations of economics, politics, and culture that information flows precipitate. In such cases ICT is not just an added tool, but a critical tool. This section presents illustrative examples of the technology-development connection organized into MCA areas of good governance, investing in people, and fostering economic freedom. These examples demonstrate a range of applications of ICT to the development process along the spectrum from micro to macro, across sectors, and from private programs to public. It is far from comprehensive.

In selecting examples of ICT initiatives addressing MCA priorities, it is important to learn lessons from earlier trials. Many projects emphasizing ICT in past years lost relevance once initial donor support concluded – although this is true of non-ICT initiatives as well. Sustainability is paramount.

Sufficient absorptive capacity must be present in the target country to lead to dynamic and productivity-enhancing side-effects from ICT initiatives. Effective ICT for development examples are those that are not only sustainable, but spill over into broader use and do not remain islands of modernism in a sea of old habits.

Finally, donor-backed ICT projects, like all assistance initiatives, must not crowd out the private sector. As mentioned in the “e-commerce” example below, most small businesses in Asian developing countries are willing to pay for Internet access when they see business benefits from it; “parachuting in” subsidized dial-up services could deprive emerging Internet service providers of the chance to hone skills, build a customer base, and create local jobs. That must be avoided – and in fact actively crowding “in” the private sector is often needed, as the new African Small Business fund proposes.¹⁷

In each of the examples and circumstances analyzed below, these filters are applied. These uses of ICT close doors to bad ideas, open doors to valuable information, and deliver services more effectively. In a word: they help transform the development imperative into a development process.

Good Governance

President Bush stated in his remarks on global development to the Inter-American Development Bank (IADB) on March 14, 2002:

The world's help must encourage developing countries to make the right choices for their own people, and these choices are plain. Good government is an essential condition of development. So the Millennium Challenge Account will reward nations that root out corruption, respect human rights, and adhere to the rule of law.¹⁸

¹⁷ See Taylor, <http://www.ustreas.gov/press/releases/po3495.htm>

¹⁸ See <http://www.whitehouse.gov/news/releases/2002/03/print/20020314-7.html>.

Though transparency is not a magic bullet for development, it is an essential element. Transparency and accountability make systems more productive; systems like public services, and government itself. The quicker and more clearly one sees children losing ground in schools, the quicker re-focusing efforts can address problems. The more thoroughly a Chief Financial Officer accounts for company expenses, the less opportunity for graft and malfeasance. In countries where every dollar can literally save lives, transparency and accountability are vital.

In a positive light, transparency and accountability help developing countries achieve the governance systems they strive for. As economists such as Joseph Stiglitz stress, information is naturally asymmetric – it is not distributed evenly and those without it are at a disadvantage. ICT can help level the information playing field – making up for nature’s shortcoming so that well-intentioned citizens have a better chance to get what they deserve. In a negative light, some people benefiting from the unequal distribution of information are not inclined to make things more transparent and accountable, for fear of losing their privileged positions – corrupt or otherwise. In such cases, ICT can be used to prevent abuses, especially when they get in the way of development.

Internal Fiscal Responsibilities

A key to good governance is tracking and accounting for the money government controls, either from foreign donors or domestic taxpayers. This applies equally to corrupt officials or to a lax bureaucracy. Resources mean saving lives and providing hope, they are precious; waste and siphoning off is not just unfortunate, it is homicide.¹⁹

Countries are starting to take more seriously the anti-developmental impact of “leakage,” as it is antiseptically called – in part under the threat of a donor revolt. For example, an independent investigative committee set up in Bangladesh to look into mis-use of resources recently concluded that corruption was absolutely thriving in the execution of the nation’s development projects, as reported by the Bangladeshi paper *The Daily Star*.²⁰ The archive on the Transparency International (TI) website catalogues thousands of examples.²¹ The “sunshine” policies of the donor agencies themselves have made a start at pressuring recipient governments to take fiscal responsibilities seriously, but somewhat timidly.

One tool with a growing track record is the management information system (MIS), as applied to the public sector. MIS systems are so much a part of public sector work in the United States that they are hardly noticed. Such systems generally share four characteristics: they surround a process (like auditing); they include a monitoring

¹⁹ This is no exaggeration. Consider that the opposition party in Zimbabwe is complaining the \$9.6mm raised to fight HIV/AIDS has been “looted” by the ruling party. This is a country with a population of 12.5 million where 25% of people between the ages of 25 and 45 are infected with HIV. See <http://www.transparency.org/cgi-bin/dcn-read.pl?citID=50195>.

²⁰ Corruption thrives on development projects public expenditure review finds
The Daily Star 27 Aug 2002.

²¹ http://www.transparency.org/press_moni.html.

mechanism; they provide a comparison mechanism; and they entail a control mechanism used to feed back into the process.²² Of interest to the MCA and improving development outcomes using ICT, these systems can be used for top-level accounting controls on down to individual project accounting controls. They are applicable to all functions of government, for example reducing “ghost workers” in human resources payrolls.

Consider two real world examples. First, the Government of Tanzania realized strong cost savings by rooting out phony employment, as noted in the following excerpt:

The Government of Tanzania has recently launched its integrated HR and payroll systems covering about 280,000 public servants. While the capital invested was significant at around U.S.\$6.5 million, the savings already accrued in improved management – reduced ghost workers, improved control and accuracy – mean that the project has already paid for itself. The Government of Tanzania has also implemented an Integrated Financial Management System (IFMS) at all ministries in Dar es Salaam and Dodoma via a wide area network. IFMS has improved control over expenditure management, resulting in more timely and detailed reporting. Internet-enabled versions of both systems will soon be rolled out countrywide.²³

The government of Vietnam is at an early stage of reforming government accounting and planning procedures, and it has a very long way to go. The following excerpts from a World Bank assessment of public expenditure processes in Vietnam make clear the state of affairs:²⁴

[A]ctual expenditures incurred by the provinces are distributed randomly and not related to any of the need factors used in the regression equations.... The distribution of health expenditures among the provinces is even more difficult to explain. Actual expenditures are related neither to hospital beds nor to the number of medical personnel...only to per capita GDP.... [I]n practice expenditure allocation to provinces is not related to any of the indicators of need taken in the regressions, nor do they show equitable regional distribution.

The World Bank and private consultancy Accenture are currently preparing a comprehensive Government Account System Project that will be used by the Vietnamese Ministry of Finance to manage all other spending ministries and departments (presently about 52). While the system is still in initial stages of design, its breadth and ambition is indicative of the new seriousness with which reform-minded regimes can attack the challenge of managing public expenditures. Lessons will be learned through trial and

²² This simple model of MIS is provided in Richard Heeks’ lucid “Public Sector Management Information Systems (1998), available at http://idpm.man.ac.uk/idpm/isps_wp5.htm. This paper also considers in more detail the design of such systems.

²³ From Ntiro, S. (2000), *eGovernment in Eastern Africa*, KPMG, Dar-es-Salaam; cited in Heeks, <http://www.iimahd.ernet.in/egov/ifip/dec2001/article3.htm>.

²⁴ <http://www1.worldbank.org/wbiep/decentralization/library2/fiscaldecentralization.pdf>, Annex B-III.

error, there is little doubt, but the tools that will be tuned going forward are becoming clear.

The World Bank is starting to be more systematic about addressing the ICT needs for public administration and project administration. According to Bank staff, of 1690 current projects 133 today have a substantial ICT component either as a sector focus or enabling mechanism, while greater than 80% of projects have at least a technology component for project implementation. Though this is a start, it should be clear that there is a long way to go, and an opportunity for the MCA to distinguish itself with a 100% rate of MIS utilization to bolster project productivity.²⁵

Government Procurement

Government is often the biggest customer in developing nations, and therefore the process of government procurement represents much of gross domestic product (GDP). ICT systems are valuable for improving the efficiency and thrift of their interaction with the marketplace. That is an important first step toward disciplining government to abide by its own rule of law, and re-opening large chunks of market-space to competitive bidders.

As part of its Integrity System for Local Governments, TI found and supported a municipal government in Argentina that wanted to reduce misuse of scarce resources in procurement. One-tenth of all spending by Moron City was to go to municipal waste collection in the 2000 budget. By increasing transparency in the bidding and contracting process, the municipality reduced the costs by 30% (from \$32 million).²⁶ Overall, TI finds government procurement to be (along with re-zoning of land, revenue collection, and government payroll) the largest contributor to national corruption.²⁷

While this example only used a moderate degree of ICT (online posting of bids and project documents), it gives us a benchmark for what can be saved with better procurement practices. Such cost reductions in procurement could permit many developing locales to pay down significant amounts of debt or invest more in people – without having to scrounge for “cost-savings” that take away with one hand what is given by the other. For example, Philippine Department of Budget and Management Secretary Emilia Boncodin recently stated, in frustration concerning the lack of resources for the nation to cover its expenses:

²⁵ Based on author’s conversations with Bank staff in the Public Sector Reform Group and other departments. Yet another example can be found in an MIS system approach being taken in the Pakistani province of Balochistan with backing from UNDP. According to preliminary assessment of the project, three-year project costs of \$171,000 have led to reform of 51 public institutions ranging from schools to water treatment facilities. See <http://www.egov4dev.org/balochistan.htm#title> for detail.

²⁶ http://www.transparency.org/building_coalitions/public/local_government/documents/Argentina_Case.rtf.

²⁷ <http://www.transparency.org/sourcebook/02.html>.

I believe we have done every kind of saving measure. It is turning out that the various anomalies in certain government agencies which overspent their expenses...are also to blame for the huge budget shortfall.²⁸

Mexico, Chile and Brazil have each made significant strides in using e-procurement, with Brazil alone transacting \$7 billion annually in this medium. Savings from e-procurement in these cases run from 10-25%, concentrated in three areas:

- Administrative costs savings due to pure efficiency,
- More efficient competition, and
- Transparency, such as public access to records on government spending.

In the U.S., e-procurement is making rapid strides. The Government Accounting Office (GAO) estimates it to have grown to more than \$3.7 billion in 2001 (of over \$230 billion total), and to be growing 66% annually in the U.S. (this is for just three of the many U.S. government e-procurement systems, and importantly does not include major Department of Defense acquisitions supported on-line). Consider that at these volumes a mere 1% cost savings in procurement for the U.S. government frees up \$2.3 billion that can be applied to schools, health, or other uses, instead of used for middleman-paperwork and processing costs. Consider also that in the systems examined by the GAO, small and medium enterprises (SME) – a key focus of development and economic empowerment programs – enjoyed 39-61% shares of e-procurement purchases, versus 22% generally.

Government as Registrar and Regulator

ICT systems are making bureaucracies work for the people as registrar and regulator. “*Land title clerk*” is not generally a sought-after position in the United States. In many of the poorest countries in the world it is, not just because simply any job is a good job, but due to the extra fees that can be collected from peasants for paperwork. Some argue that petty officials are underpaid, and need to supplement meager incomes. It may make sense to raise pay for bureaucrats; it does not make sense to make the poorest citizens in the world pay extra for something that good governments should provide them anyway.

The tyranny of little slips of paper is something that ICT, well deployed, can curtail, in a moderate but locally important way in the poorest settings. Take the case of the Bhoomi initiative in Karnataka, India. It uses software, a modest deployment of networked computers, and a sustained data entry effort to computerize 20 million paper land records central to the lives of small farmers and rural families.

The Bhoomi Kiosks are changing Karnataka. Citizens get records in minutes, close to home, at far lower cost. These records are also less prone to inaccuracy. Furthermore, the initiative generated over \$1.26 million of revenue for local re-investment through June 2002 (greater than 12 million rupees, or nearly \$250,000, that month, as the system

²⁸ <http://www.philstar.com/philstar/News200208270410.htm>.

is now reaching scale). This compares to an old way of doing record alterations, that took 9,000 “village accountants,” and typically required pay-offs and bribes.

The trick to success with such systems is of course to get the village accountants who have been rent-makers not to sabotage the opportunity to make governance better. As the World Bank notes:²⁹

[S]eminars emphasized that maintenance of land records was only one of their many functions and that computerization will remove the drudgery of maintaining these records manually. Revenue officials would continue to be responsible for field enquiry. Reducing corruption was not a key message at these gatherings.³⁰

Investing in People

In his March 14 address, President Bush described the importance of re-directing fiscal outlays toward more basic activities that impact people’s lives as follows:

Healthy and educated citizens are the agents of development, so we will reward nations that invest in better health care, better schools, and broader immunization.

In grass roots service delivery, new technologies can have a great impact on productivity, and contribute to making people better “agents of development.” Each small investment in productivity made when learning to use a new device or software tool feeds into the next. This is clear in the way life has been transformed in wealthier countries, building on myriad investments ranging, for instance, from an individual’s adoption of personal finance software at home to a new enterprise resource planning system on the job. The trick for developing countries is finding appropriate ICT initiatives that work sustainably.

Health

Healthcare is among the most technology-driven sectors of our nation – so much so that the technically possible is moving faster than our medical ethics and morality. While the developed world agonizes over ethical questions, however, new technologies for health promotion can be practical miracles in IDA-eligible countries.

An example of ICT in developing world healthcare lies in the World Health Organization’s (WHO’s) disease eradication programs. The global polio eradication unit is successfully pushing this pathogen to near extinction. At the heart of its efforts lies a sophisticated worldwide communication, coordination, and database system that allows the team of epidemiologists and medical doctors to time inoculations with precision. Following inoculation, monitoring is key, and again the ICT base is essential.

²⁹ In its “ICT Group Strategy Report”, the World Bank highlights a similar e-registry and government service provision initiative in the northern Brazilian state of Bahia, called the SAC Project. This includes mobile, networked units that can take these services out to remote locales. See page 54 of the World Bank Report. Another excellent example exists in “OPEN” e-government system successfully being used in Seoul Korea, which until recently was famous for its extra fees and bribes. See <http://english.metro.seoul.kr/government/policies/anti/civilapplications/>.

³⁰ http://www1.worldbank.org/publicsector/egov/bhoomi_cs.htm.

A similar mix of slightly different technologies was used in the fight against onchocerciasis – river blindness – in West Africa. The Onchocerciasis Control Program (OCP) has eliminated river blindness in seven countries, protecting 30 million people from the infection and sparing 185,000 who were already infected from blindness. OCP has also allowed West Africans to reclaim 100,000 square miles of land – land capable of feeding 17 million people. The program used a network of sensors on the river bottom to determine the best time to spray larvicide to control the black fly population (which carries the parasite). As WHO analysis elaborates:

The hydrological monitoring network in 1996 consisted of 150 water-gauges including 79 equipped with hydrological beacons. These beacons make use of automatic devices in rivers and tele-transmit the data (water level and discharge rates) via satellite to the operational centres in real time (ARGOS system). This system linked to a discharge forecasting software (PERLE) that relies on the tele-transmitted data, makes it possible to improve considerably the efficacy of the larviciding and allows for the most cost-effective selection of larvicides taking into account their carry, purchase and transportation cost as well as the potential for resistance developing.³¹

Emerging technologies for health information processing are coming into use in the field almost daily. Still more opportunities to deploy ICT into health promotion in appropriate ways sit awaiting adaptation to field conditions in research labs in the U.S. and elsewhere.

Education

Education is the bedrock of development. It is the process of transmitting information and the tools to translate information into knowledge and – hopefully – wisdom. Mature information technology, such as the television, has long been an adjunct to education. Newer ICT is most useful when it enhances already functioning educational processes; it cannot fill educational vacuums. ICT is powerful for making specialized educational resources available to dispersed students and teachers. And, education on how to use ICT per se is growing in importance in our world of global connections and ubiquitous ICT.

Costa Rica has chosen an ICT strategy that emphasizes teaching the teachers. The "Computers in Education" program, initiated by the Omar Dengo Foundation, has operated in collaboration with Costa Rica's Ministry of Public Education since 1988. Over the past fourteen years, more than 15,000 teachers and administrators have been trained (in a country of just 4 million), using both face-to-face and distance technologies.

The program provides schools with computer hardware, software, and maintenance. Its most important component, however, is ongoing training and professional development opportunities for teachers, tutors, and school administrators. The program does not

³¹ <http://www.who.int/ocp/ocp002.htm>.

intend to turn teachers into technology experts. Rather, it provides technology to help teachers teach more effectively. And, in many ways, teachers, not computers, have been at the center of the program. For those on the front lines, training is mandatory and intensive. They receive 120 hours of initial training distributed over a three-week period. Additional hours are provided over the course of the school year. In 1999, for example, the 540 teacher-coordinators each received an average of 240 hours of training. This on-line teacher training program enhances traditional notions of teacher training by allowing teachers the flexibility to perform training on their own and at their convenience, and facilitating ongoing pedagogical support and teacher networking for continuous professional development.

In many developing countries, enrollment in teacher colleges is not keeping pace with expanding student bodies, highlighting the already existing shortage of teachers. In Africa, for example, where nearly 235 million children are school age (not all of whom are enrolled in school) there are only 4.5 million teachers (UNESCO 1998). If universal education advocates are successful in their efforts, there will be an even greater demand for teachers as classroom sizes grow and teacher-student ratios shrink. While it is unlikely that traditional teacher approaches can meet this growing need properly, ICT offers practical and innovative approaches to meeting expanding demand.³²

Environment

Environmental depletion can lead to war; so it can certainly stunt economic development. Accurate monitoring and evaluation is the foundation of pro-developmental environmental stewardship. Such monitoring is the basis of prudent management, and, when needed, enforcement of rules and agreements. ICT is a key component of environmental monitoring and evaluation.

Global Forest Watch (GFW) is a consortium using ICT to promote environmental management worldwide through an affiliation of non-governmental organizations (NGOs) in 10 countries focused on illegal logging.³³ The organization accesses satellite imagery of forest areas of concern, imagery that catches illegal logging before it has devastated an area – just as rogue logging roads sprout. Satellite imagery has been a powerful force in international security since the 1950s; today it is used to monitor environmental behavior in an open network manner.

The ICT that GFW uses includes satellite imagery, but the Internet is the dissemination medium that makes the information powerful. This is because the marketing consequences of turning a blind eye to illegal logging can be made greater than the judicial ones: a key partner to GFW is Ikea, the world's third largest wood products retailer. Ikea is using GFW maps in dealings with Russian wood product suppliers, and will refuse to do business with producers who cannot certify that they are harvesting raw

³² See www.techKnowLogia.org, "Supporting Teachers with Technology: Don't Do Today's Jobs with Yesterday's Tools." November/December, 2001.

³³ <http://www.globalforestwatch.org/english/about/index.htm>.

materials sustainably.³⁴ Private sector involvement is essential: Ikea alone sells \$8.5 billion of this furniture a year, almost as much as the entire U.S. foreign assistance budget.³⁵ From China alone, the U.S. imported nearly \$1 billion in wood furniture by 1999 (up from \$21 million in 1989).³⁶ Linking buying patterns to sound environmental management through ICT has a positive development impact.

Fostering Economic Freedom

Development requires societies economically productive enough to meet the basic human needs and extraordinary human aspirations shared worldwide. President Bush included this imperative in his remarks to the IADB:

Sound economic policies unleash the enterprise and creativity necessary for development. So we will reward nations that have more open markets and sustainable budget policies, nations where people can start and operate a small business without running the gauntlets of bureaucracy and bribery.

The idea that *economic* development is key to *development* is increasingly a matter of consensus, though aspects of the policy mix are debated. Economic development requires policies that work and institutions that can implement them. The present task is to show that ICT supports government's economic statecraft, from setting macroeconomic policy to helping businesses get started and join the tax rolls.

Macroeconomic Management

If economic statecraft is part of the development strategy for poor countries, then their governments must better manage macroeconomic matters. Can governments do that if foreign exchange traders have Bloomberg Machines while they do not? Not likely, if – as advised³⁷ – they are open to foreign trade and investment and must supervise jolts that come with cross-border economic activity.

Consider the introduction to a recent policy paper from the Bank for International Settlements (BIS)³⁸ on the pressures bearing upon national bank regulators:

Deregulation and globalisation of financial services, together with the growing sophistication of financial technology, are making the activities of banks (and thus their risk profiles) more diverse and complex. Developing banking practices at

³⁴ See <http://mediaserver4.ikea.framfab.se/ikea/IKEA-85C42A67-87CA-4D5E-9EF5-08547D1D03E9/enviromental.pdf> for Ikea's relationship with GFW.

³⁵ "The Teflon Shield", Newsweek, March 12, 2001, page 26.

³⁶ "US Demand for Finished Wood in Growing", Philadelphia Inquirer, May 26, 2001.

³⁷ As Columbia University's Jeffrey Sachs has said, "The most effective strategy in going from being a technologically excluded country to being a diffusing country has been the integration of the national economy into world production." See *The Global Innovation Divide*, at <http://www.nber.org/books/innovation3/sachs5-22-02.pdf>. Presented at NBER, May 22, 2002.

³⁸ "Sound Practices for the Management and Supervision of Operational Risk" (BIS December 2001, page 1), available at <http://www.bis.org/publ/bcbs86.pdf>.

internationally active banks suggest that risks other than credit and market risk can be substantial:

- If it is not properly controlled, the use of more highly automated technology has the potential to transform risks from manual processing errors to system failure risks, as greater reliance is placed on globally integrated systems;
- Growth of e-commerce brings with it potential risks (e.g., external fraud and system security issues) that are not yet fully understood.

Firms in developing countries are taking on more risks with their exposure to international markets using ICT. Foreign firms contribute to the risks by their large-scale investment in, and trading with, those countries. Even in wealthy countries, regulators struggle to keep up with risk profiles changing due to financial technologies; in developing countries regulators are all the more lagging. This applies equally to trade regulation, investment, fiscal and competition policies, legal reform, and other areas.

But ICT is not just raising the stakes; it also provides the tools government must use. Financial regulators, for example, must at least employ ICT to acquire the real-time marketplace information that the private firms use. A more commanding view of marketplace activity, attained with ICT, is a first-order priority.

In addition to market monitoring, another example of ICT for economic management is distance learning to raise the technical capacity of developing country regulators. The International Monetary Fund (IMF) has a distance learning curriculum “designed to address the training needs of officials who are unable to attend long courses overseas.”³⁹ This program provides one half of the IMF’s 160-hour *Financial Programming and Policies* training program, and has inter-activity with instructors.

The costs of an extended visit to Washington, DC, for an official from Africa can quickly exceed the annual per capita income of their citizens. Thus distance learning can free up resources while delivering needed training to officials waiting for turns to travel abroad. The Office of the U.S. Trade Representative wants such ICT tools to help developing country trade negotiators better understand the negotiating process before getting to complex meetings in Geneva. The World Trade Organization (WTO) is currently planning to offer distance learning for trade negotiation, but has not rolled out its program yet.⁴⁰

Sector Reform

The various sectors of a nation’s economy determine economic health, and levels of ICT affect sector competitiveness more today than ever. Key sectors that affect the poor in potent ways are experiencing transformation, largely induced by technological change (including ICT which, for example, is reshuffling supply chains globally). Some, such as

³⁹ <http://www.imf.org/external/np/ins/english/learn.htm>.

⁴⁰ http://www.wto.org/wto/english/tratop_e/devel_e/train_e/train_e.htm.

telecommunications and finance, are not just industries unto themselves but infrastructures for all other commerce.

Finance is a foundation of functional economies. In the OECD world the financial sector is taken for granted; in much of the developing world entrepreneurs lack access to lending, and financial crises threaten businesses. ICT is compelling regulators to address banking systems more quickly today. An example comes from China, where the Bank of China (BOC) began reform of internal auditing and control processes in earnest in 2000. The BOC enlisted Citibank to assess and redesign technology infrastructure. Coming from antiquated practices, BOC management expected a far-reaching overhaul to be part of the result.

What BOC did not expect was for the improved control systems to quickly help discover \$483 million in missing funds embezzled through a small southern branch of the Bank.⁴¹

ICT systems help define financial institution problems, the first step toward remedial action. As with the land titles described above, finance in China has been overwhelmed with slips of paper and inefficient processes. As the number of private enterprises in China shot from 100,000 to over 5 million over the past decade, applying technology to the task of serving their financial needs has become essential.

E-Commerce: Cutting Out Middlemen

In many poor countries where marketplace information is scarce, farmers and small businessmen receive little of the final price paid for their produce and products.⁴² Without information on prices, they cannot make sound crop selection decisions. They do not have a connection to other producers, so they do not quickly benefit from innovations. They do not have information on where prices are best for what they do grow, and what price to accept.

Some of these problems, such as commodity futures price dissemination, were addressed in the United States in the nineteenth century, with the telegraph. In Africa today, some information needs (weather forecasts, spot prices) can be solved with simple handheld radios.⁴³

These are simple and appropriate services that empower people, plain and simple, and the demand for access to such information balloons when people become aware that there

⁴¹ See “Chinese Banks Must Improve Controls and Supervision,” by Hu Shuli. *Caijing Magazine*, May 5, 2002.

⁴² See “Information and Communication Technologies, Markets, and Economic Development” Karen Eggleston, Robert Jensen, and Richard Zeckhauser, in *The Global Information Technology Report 2001-2002: Readiness for the Networked World*, Harvard, Center for International Development. This provides an excellent basic analysis of the problem of information for producers in information-poor settings.

⁴³ See an FAO analysis of this tendency by Andrew Shepherd, at http://www.fao.org/docrep/003/x6721e/x6721e22.htm#P5_1, and a collection of paper on the roll of radio as a device for empowering poor entrepreneurs at <http://www.fao.org/docrep/003/x6721e/x6721e00.htm>.

actually are market opportunities for them. Village phone entrepreneurs can make between \$90 and \$1,000 per month in India in communities with per capita income under \$2,000 annually. In Mumbai, India's Dharavi shantytown, 85% of households own a television set and 21% have telephones, as pointed out by Al Hammond and C.K. Prahalad in a recent *Harvard Business Review* article.⁴⁴ It is simply wrong to think that the 4 billion people in the world below the middle-income threshold are not fit to be part of the global marketplace to which ICT helps open the door.

Today ICT goes beyond century-old tools. Internet access opens opportunities to entrepreneurs and small businesses an order of magnitude beyond those available through one-way receipt of information via radio. The Asia Foundation recently commissioned a series of surveys of e-commerce in developing countries in Asia: Thailand, Indonesia, and the Philippines.⁴⁵ In the Philippines (per capita income about \$1,000), 498 SMEs were asked about their e-commerce experience; in Indonesia (per capita income <\$600), 227 SMEs were queried. Surveys indicated that 80% of SMEs in all three countries use the Internet for at least basic applications, especially e-mailing customers, finding sales opportunities, and displaying products to potential buyers.⁴⁶

On-line payments and transactions were a minimal part of these SMEs' e-commerce. But Internet use by these businesses is extremely dynamic compared to one-way information reception: all these activities entail actively pursuing opportunities. Furthermore, the survey concluded that the costs of online access were not a major concern for these SMEs, while infrastructure/access speed outside major towns is a serious problem.

ICT Contributes to Economic Freedom – and Economic Pressure

When countries bolster productivity, development gains momentum – especially when that productivity unfolds from good governance and investment in people. But there is a corollary to this good news: countries that fail to absorb ICT and have flat productivity growth will lose competitiveness compared to technology-absorbers; they will not just stagnate, but even fall backwards in absolute terms as what little global market share they hold is taken away by erstwhile brothers-in-poverty. Competitiveness shifts over time, and ICT has a major impact on those shifts. As the United States and other donors work with IDA-eligible country leaders committed to reform, the downside consequences of failing to create conditions amenable to technological change and attendant economic transformation should be made clear, not just the upside benefits of supporting development with ICT.

⁴⁴ "Serving the World's Poor, Profitably", *Harvard Business Review*, September 2002.

⁴⁵ <http://www.asiafoundation.org/programs/prog-glob-sme-ecommerce.htm>.

⁴⁶ The German Development Agency GTZ maintains a good web page of links to research and commentary on e-commerce and SMEs (including links to work by the U.S. Department of Commerce) at <http://www.gtz.de/e-business/englisch/index.asp>.

Part 3. Conclusions and Opportunities

Part 1 of this *Brief* looked at the goals of the MCA, the ideas underpinning it, and the connection between development and technology. Part 2 laid out real world examples of how the information technologies of today are effective and sometimes essential for tackling the barriers to development that IDA-eligible countries face. This conclusion focuses on policy considerations. Specifically, it offers six areas where additional work and preparation over the coming half-year will be valuable to a successful MCA program down the road.

Some preliminary observations about the context in which this new aid initiative is unfolding are helpful to set the scene for a more specific preparatory agenda. With the MCA, the United States is making an explicit choice to more strongly emphasize productivity gains in its international development efforts. As shown, ICT can play a major role in delivering development outcomes, and in improving the administration, monitoring, and evaluation of MCA supported programs where technology is not central.

In general, technological change happens, and thus helps development, when policy conditions are sound. Broad policy reform is the backdrop against which the technology-development connection will or will not take place, so it is key to making ICT valuable for development. The *Creating A Development Dynamic* report and other assessments⁴⁷ have stressed that ICT is most valuable only in a healthy policy and institutional environment. In other words, ICT is not a shortcut around policy reform (as some leaders hoped); rather it makes policy reform even more urgent and the competitiveness consequences of failing to reform more severe.

The U.S. should continue to advocate policy reform, institutional reform, and the training and capacity-building often needed to make them possible. Without them, technological change is stymied. The MCA eligibility criteria make policy reform more explicit: in addition to their role in selection, they make good guides to priorities as well. The U.S. should maintain its doggedness regarding the core policy foundations of economic statecraft, promoting:

- Financial policies that permit firms and individuals to respond to enhanced information and transparency by accessing and managing capital;
- Fiscal discipline, including redirection of public expenditure priorities toward fields offering both high returns and improved income distribution, such as primary health care, primary education and infrastructure; while not crowding out private activity;
- Trade and investment policies that permit allocation of resources to comparative advantage and encourage technology transfer and private investment;
- Competition and legal policies that reward and protect innovation, property and capital formation by individuals and firms; and,
- Continued telecom policy reform guided by the WTO template.

⁴⁷ E.g., Markle (2001), Mann and Rosen (2002).

On these foundations of economic statecraft more nuanced policies for human resource development, infrastructure build-out and enterprise incentives depend. These policy foundations are the most general conclusions relevant to technology in the MCA. Technology is no substitute for policy foundations – it makes them even more important.

There is a key point on which this *Brief* does not draw a conclusion, but which deserves mention: the connection between ICT and democratization. Our examples are narrow: they relate to the specific objectives under the MCA criteria rather than the bigger questions of development and political system change. But in a practical way all the examples herein make government more accountable, and in the process make countries more democratic. ICT deserves a lot of the credit for increased participation and information sharing today, and few would argue with the notion that ICT is connected to political change. There is no “recommendation” attached to this observation, other than to have confidence in the continuing process of technology diffusion to work in favor of more open, democratic systems.

Beyond these broad observations on the policy context surrounding the development-technology connection, there are specific areas in which preparatory work can lay the foundations to make the MCA more effective through better integration of the role of information technology. Below are six areas.

A realistic analysis of ICT human resource needs is critical.

There may be sufficient staff in IDA-eligible capitals to install top-level management information systems, but beyond key ministries skilled people are often in severely short supply. The few ICT technicians available are poached to high-profile projects regardless of where they are most valuable, and drawn to abandon development-oriented activities for higher-paid commercial activities or to leave altogether for opportunities in the developed world. Some brain drain is inevitable. Given the direct and indirect benefits, planners cannot afford *not* to back human resource capacity-building in preparing the MCA.

MCA administrators should encourage projects that deepen the technology-capable labor pool. This is symbiotic with every other recommendation in this *Policy Brief*. An inventory of commitments to such training through multilateral development organizations and the private sector would be useful to ensure other programs are not crowded out. Broad policy reforms in these countries should be applauded because, among other things, they can lure back large pools of talented diaspora. But that takes time, and in the interim human resource capacity-building is important. Congressional staff who will manage the MCA package once transmitted by the President would be greatly aided by analysis on this factor in development, because if it is not addressed, achieving development goals is going to be impossible.

ICT for management, evaluation, and control is relevant to all MCA activities, and can be a model for other programs.

Greater transparency is inherent in most information technology – which is why it is so pro-developmental. Consequently, ICT threatens to deprive those who benefit from non-transparency, which can generate political resistance to ICT systems. But basic systems for fiscal management are a vital first step to improve development processes, and demonstrate critical tools to the rest of government and the private sector, protect new resources from graft, and reduce “leakage” in existing donor programs.

Those making money unfairly from the status quo may oppose progress that benefits a majority, and might delay or even sabotage the uptake of ICT tools, but projects with MCA backing should include management information systems in order that responsible managers can monitor performance and make mid-course corrections deftly. A small but regular allocation of MCA resources should be designated for this. Work to install accounting and control MIS systems should be a first-order priority for all projects, as they make up the knowledge-yielding infrastructure needed to pursue a results-based orientation and boost aid effectiveness. The World Bank and other organizations are moving slowly to integrate such controls across their funding programs: the interim until passage of the MCA is the perfect time to convene a working group to evaluate these tools and design their application in MCA spending in light of experience.

Proposed MCA assistance also pales beside the value of potential private investment and spending in IDA-eligible countries.

Government assistance ultimately does no more than “prime the pump” for real economic growth. MCA assistance should induce private investment indirectly by fostering institutional reform; but Washington should not overlook opportunities to leverage private sector investment more directly. U.S. firms could be encouraged to start or expand programs that increase the use of ICT in developing countries. For example, Cisco has launched a number of its Network Academies in developing countries. HP has created a lab in Bangalore that will conduct research to lower the cost of Internet access devices and enable a multilingual Internet. There are entrepreneurs in developing countries experimenting with business models for providing affordable digital services to the 4 billion people worldwide who earn less than \$2,000 per year.

The United States can encourage growth in ICT businesses that provide services to the world’s poor — connecting people to markets, expanding access to training, and creating new income. Prior to the MCA’s completion, effort should be made to catalogue private sector-run programs that can be scaled and sustained over the long-term. An analysis of various private sector approaches is provided in the recent report, “Serving The World’s Poor, Profitably.”⁴⁸ With programs such as USAID’s Global Development Alliance the

⁴⁸ See “Serving the World’s Poor, Profitably,” in the September 2002 Harvard Business Review, by Hammond and Prahalad. The analysis demonstrates the latent potential for business dealings with low per capita income demographics. See http://www.markle.org/news/What_works_Servingthepoorprofitably.pdf.

U.S. involves the private sector and civil society in promoting development, and completion of the MCA will be a good time to take stock of these programs and make sure they are entered as an asset into the fight against underdevelopment.

If harnessed, the global research community involved in information technology could make a bigger contribution to meeting MCA development goals.

Currently, very little R&D is devoted to addressing the needs of developing countries. Most developing countries lack the necessary scientific and technological infrastructure; the private sector is likely to under-invest in R&D; and bilateral and multilateral development agencies have rarely funded technological innovation per se. The research community could be challenged, for example, to develop inexpensive, hand-held diagnostics that can detect diseases prevalent in developing countries with few skilled personnel and no elaborate laboratory infrastructure, or dramatically lower the cost of sensors for monitoring air, water, and food quality. These are just notional examples.

In preparation for the MCA, the framework for a global network of university-based "centers of excellence" that would conduct multi-disciplinary research and education at the intersection between ICT and development could be created. This network would include developing country universities and industrial labs that are interested in exploring these issues. Such a network could be invited to comment on the needs submissions of grantee governments, so as to shorten the lag in awareness of opportunities between innovation and application. Leading U.S. institutions of higher education are willing to take up such an advisory role in the context of the MCA.

Technology is woven into our political and security interests as well as our interests in humanitarian development.

Technology uptake in IDA-eligible countries has implications for their management of transnational political and security issues. The U.S. has not maximized its opportunity to work with developing nations on management of ICT infrastructure (e.g., via capacity-building) and would benefit from strengthened cooperation to confront malevolent uses of ICT.

The United States has an opportunity to make technical advisory services available to developing countries when it employs ICT to make MCA programs more effective. There is a demand for such assistance, on matters such as critical information infrastructure protection, prevention of Internet-based money laundering, law enforcement, and other tasks of good governance. These are typically government tasks to manage, and government-to-government assistance teams should be made available, drawing on U.S. expertise. In the time between now and the final enactment of the MCA, work can be done to clarify our interest in including this set of issues in the encouraged areas for funding under the MCA so as to signal to potential recipients that this is an important, current topic in good governance, not a far-off concern.

ICT's role in the MCA can be expanded to other programs.

Total MCA funding may be \$5 billion annually. Even if a significant share of that went to strengthen program efficiency with ICT, the amount would pale in comparison to other money flowing through the developing countries of concern. Net annual U.S. current account transfers to the developing world exceed \$250 billion, and losses to African countries from corruption alone are said to exceed \$148 billion annually.⁴⁹ MCA-related ICT support, in sum, would be tiny by itself.

Congress and the Administration can, with the development community and our foreign partners, build ICT into the MCA in a manner compatible with other U.S. bilateral aid programs and best practice at multilateral development agencies. Inside the MCA and out, effort should be made to coordinate among public financial institutions, and between the public and private sectors, to reduce duplication and maximize effectiveness. The U.S. could invite delegates from OECD countries to participate in MCA planning so that new approaches can be exported more easily. Conversely, the U.S. could invite assistance from other national and multilateral development agencies where they have more extensive experience in fashioning ICT systems for development.

Concluding Notes

Preparatory efforts to make the MCA more effective by integrating ICT into its design should be guided by several truisms that have stood the test of time: care should be taken to let the private sector lead in developing and applying technological innovations; and government should maintain technology-neutrality in making policy. The above list of opportunities to inform the MCA with thinking about the role of innovative ICT is far from exhaustive – just as the examples used to illustrate the value of ICT for addressing development challenges in this brief do not even scratch the surface of what is available. This *Brief* is meant as a scene-setter, to suggest the importance of ICT at this seminal time in U.S. development assistance thinking. The author and the Markle Foundation look forward to contributing further, and in greater detail, to policy debates as consideration of the MCA moves forward.

⁴⁹ The report, from the African Union, is reported in “Corruption 'costs Africa billions,” BBC News, Sept. 18, 2002, <http://news.bbc.co.uk/2/hi/world/africa/2265387.stm>.