Academy of ICT Essentials for Government Leaders

Module 8

Options for Funding ICT for Development

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APCICT ASIAN AND PACIFIC TRAINING CENTRE FOR INFORMATION AND COMMUNICATION TECHNOLOGY FOR DEVELOPMENT

The Academy of ICT Essentials for Government Leaders Module Series

Module 8: Options for Funding ICT for Development

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ISBN: 978-89-97748-04-4

Design and Layout: Scand-Media Corp., Ltd.
Printed in: Republic of Korea

FOREWORD

The world we live in today is inter-connected and fast-changing, largely due to the rapid development of information and communication technologies (ICTs). As the World Economic Forum fittingly states, ICTs represent our “collective nerve system”, impacting and connecting every fabric of our lives through intelligent, adaptive and innovative solutions. Indeed, ICTs are tools that can help solve some of our economic, social and environmental challenges, and promote more inclusive and sustainable development.

The increased access to information and knowledge through development of ICT has the potential to significantly improve the livelihoods of the poor and marginalized, and promote gender equality. ICTs can serve as a bridge connecting people from different countries and sectors in the region and beyond by providing more efficient, transparent and reliable means and platforms for communication and cooperation. ICTs are essential to the connectivity that facilitates more efficient exchange of goods and services. Success stories from Asia and the Pacific region abound: e-government initiatives are improving access to and quality of public services, mobile phones are generating incomes and professional opportunities for women, and the voices of the vulnerable are louder than ever through the power of social media.

Yet, the digital divide in Asia and the Pacific is still seen to be one of the widest in the world. This is evidenced by the fact that the countries of the region are placed across the whole spectrum of the global ICT Development Index ranking. Despite the impressive technological breakthroughs and commitments of many key players in the region, access to basic communication is still not assured for all.

In order to complete the bridging of the digital divide, policymakers must be committed to further realizing the potential of ICTs for inclusive socio-economic development in the region. Towards this end, the Asian and Pacific Training Centre for Information and Communication Technology for Development (APCICT) was established as a regional institute of the United Nations Economic and Social Commission for Asia and the Pacific (UN/ESCAP) on 16 June 2006 with the mandate to strengthen the efforts of the 62 ESCAP member and associate member countries to use ICT in their socio-economic development through human and institutional capacity development. APCICT’s mandate responds to the Declaration of Principles and Plan of Action of the World Summit on the Information Society (WSIS), which states that: “Each person should have the opportunity to acquire the necessary skills and knowledge in order to understand, participate actively in, and benefit fully from, the Information Society and the knowledge economy.”

In order to further respond to this call to action, APCICT has developed a comprehensive information and communication technology for development (ICTD) training curriculum, the *Academy of ICT Essentials for Government Leaders*. Launched in 2008 and based on strong demand from member States, the *Academy* presently consists of 10 stand-alone but interlinked modules that aim to impart essential knowledge and expertise to help policymakers plan and implement ICT initiatives more effectively. Widespread adoption of the *Academy* programme throughout Asia-Pacific attests to the timely and relevant material covered by these modules.

ESCAP welcomes APCICT's ongoing effort to update and publish high quality ICTD learning modules reflecting the fast-changing world of technology and bringing the benefits of ICTD knowledge to national and regional stakeholders. Moreover, ESCAP, through APCICT, is promoting the use, customization and translation of these *Academy* modules in different countries. It is our hope that through their regular delivery at national and regional workshops for senior- and mid-level government officials, the acquired knowledge would be translated into enhanced awareness of ICT benefits and concrete actions towards meeting national and regional development goals.

Noeleen Heyzer

Under-Secretary-General of the United Nations
and Executive Secretary of ESCAP

PREFACE

In the effort to bridge the digital divide, the importance of developing the human resource and institutional capacity in the use of ICTs cannot be underestimated. In and of themselves, ICTs are simply tools, but when people know how to effectively utilize them, ICTs become transformative drivers to hasten the pace of socio-economic development and bring about positive changes. With this vision in mind, the *Academy of ICT Essentials for Government Leaders (Academy)* was developed.

The *Academy* is the flagship programme of the United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development (APCICT), and is designed to equip government officials with the knowledge and skills to fully leverage ICT for socio-economic development. The *Academy* has reached thousands of individuals and hundreds of institutions throughout the Asia-Pacific and beyond since its official launch in 2008. The *Academy* has been rolled out in over 20 countries in the Asia-Pacific region, adopted in numerous government human resource training frameworks, and incorporated in the curricula of university and college programmes throughout the region.

The impact of the *Academy* is in part a result of the comprehensive content and targeted range of topics covered by its eight initial training modules, but also due to the *Academy's* ability to configure to meet local contexts and address emerging socio-economic development issues. In 2011, as a result of strong demand from countries in the Asia-Pacific, APCICT in partnership with its network of partners developed two new *Academy* training modules designed to enhance capacity in the use of ICT for disaster risk management and climate change abatement.

Adhering to APCICT's "We D.I.D. It In Partnership" approach, the new *Academy* modules 9 and 10, like the initial modules 1 to 8, were Developed, Implemented and Delivered in an inclusive and participatory manner, and systematically drew upon an extensive and exceptional group of development stakeholders. The entire *Academy* has been based on: needs assessment surveys from across the Asia-Pacific region; consultations with government officials, members of the international development community, and academics and educators; research and analysis on the strengths and weaknesses of existing training materials; and a peer review process carried-out through a series of APCICT organized regional and sub-regional workshops. These workshops provided invaluable opportunities for the exchange of experiences and knowledge among users of the *Academy* from different countries. The result is a comprehensive 10-module *Academy* curriculum covering a range of important ICTD topics, and indicative of the many voices and contextual nuances present across the region.

APCICT's inclusive and collaborative approach to development of the *Academy* has also created a network of strong partnerships to facilitate the delivery of ICTD training to government officials, policymakers and development stakeholders throughout the Asia-Pacific region and beyond. The *Academy* continues to be rolled out and adopted into training frameworks at the national and regional levels in different countries and regions as a result of close collaboration between APCICT and training institutions, government agencies, and regional and international organizations. This principle will continue to be a driving force as APCICT works with its partners to continuously update and further localize the *Academy* material, develop new *Academy* modules to address identified needs, and extend the reach of *Academy* content to new target audiences through new and more accessible mediums.

Complementing the face-to-face delivery of the *Academy* programme, APCICT has also developed an online distance learning platform called the APCICT Virtual Academy (http://e-learning.unapcict.org), which is designed to enable participants to study the material at their own pace. The APCICT Virtual Academy ensures that all the *Academy* modules and accompanying materials are easily accessible online for download, dissemination, customization and localization. The *Academy* is also available on DVD to reach those with limited or no Internet connectivity.

To enhance accessibility and relevance in local contexts, APCICT and its partners have collaborated to make the *Academy* available in English, Bahasa Indonesia, Mongolian, Myanmar language, Russian, Tajik and Vietnamese, with plans to translate the modules into additional languages.

Clearly, the development and delivery of the *Academy* would not have been possible without the commitment, dedication and proactive participation of many individuals and organizations. I would like to take this opportunity to acknowledge the efforts and achievements of our partners from government ministries, training institutions, and regional and national organizations who have participated in *Academy* workshops. They not only provided valuable inputs to the content of the modules, but more importantly, they have become advocates of the *Academy* in their countries and regions, and have helped the *Academy* become an important component of national and regional frameworks to build necessary ICT capacity to meet the socio-economic development goals of the future.

I would like to extend heartfelt acknowledgments to the dedicated efforts of the many outstanding contributors who have made Module 8 possible, with a special note of gratitude to module author Richard Labelle. I would also like to thank the more than 7,500 participants that have attended over 80 Academy workshops in over 20 countries, as well as online trainings. Their invaluable insight and feedback have helped to make sure that the *Academy* has had a lasting impact.

I sincerely hope that the *Academy* will help nations narrow ICT human resource gaps, remove barriers to ICT adoption, and promote the application of ICT in accelerating socio-economic development and achieving the Millennium Development Goals.

Hyeun-Suk Rhee

Director
UN-APCICT/ESCAP

ABOUT THE MODULE SERIES

In today's "Information Age", easy access to information is changing the way we live, work and play. The "digital economy", also known as the "knowledge economy", "networked economy" or "new economy", is characterized by a shift from the production of goods to the creation of ideas. This underscores the growing, if not already central, role played by ICTs in the economy and in society as a whole.

As a consequence, governments worldwide have increasingly focused on ICTD. For these governments, ICTD is not only about developing the ICT industry or sector of the economy but also encompasses the use of ICTs to engender economic as well as social and political growth.

However, among the difficulties that governments face in formulating ICT policy is that policymakers are often unfamiliar with the technologies that they are harnessing for national development. Since one cannot regulate what one does not understand, many policymakers have shied away from ICT policymaking. But leaving ICT policy to technologists is also wrong because often technologists are unaware of the policy implications of the technologies they are developing and using.

The *Academy of ICT Essentials for Government Leaders* module series has been developed by the UN-APCICT/ESCAP for:

1. Policymakers at the national and local government level who are responsible for ICT policymaking;

2. Government officials responsible for the development and implementation of ICT-based applications; and

3. Managers in the public sector seeking to employ ICT tools for project management.

The module series aims to develop familiarity with the substantive issues related to ICTD from both a policy and technology perspective. The intention is not to develop a technical ICT manual but rather to provide a good understanding of what the current digital technology is capable of or where technology is headed, and what this implies for policymaking. The topics covered by the modules have been identified through a training needs analysis and a survey of other training materials worldwide.

The modules are designed in such a way that they can be used for self-study by individual readers or as a resource in a training course or programme. The modules are standalone as well as linked together, and effort has been made in each module to link to themes and discussions in the other modules in the series. The long-term objective is to make the modules a coherent course that can be certified.

Each module begins with a statement of module objectives and target learning outcomes against which readers can assess their own progress. The module content is divided into sections that include case studies and exercises to help deepen understanding of key concepts. The exercises may be done by individual readers or by groups of training participants. Figures and tables are provided to illustrate specific aspects of the discussion. References and online resources are listed for readers to look up in order to gain additional perspectives.

The use of ICTD is so diverse that sometimes case studies and examples within and across modules may appear contradictory. This is to be expected. This is the excitement and the challenge of this newly emerging discipline and its promise as all countries begin to explore the potential of ICTs as tools for development.

Supporting the *Academy* module series in print format is an online distance learning platform—the APCICT Virtual Academy—with virtual classrooms featuring the trainers' presentations in video format and presentation slides of the modules (visit http://e-learning.unapcict.org).

In addition, APCICT has developed an e-Collaborative Hub for ICTD, or e-Co Hub (http://www.unapcict.org/ecohub), a dedicated online site for ICTD practitioners and policymakers to enhance their learning and training experience. The e-Co Hub gives access to knowledge resources on different aspects of ICTD and provides an interactive space for sharing knowledge and experiences, and collaborating on advancing ICTD.

ACKNOWLEDGEMENTS

The author wishes to acknowledge the following for the use of information and materials they produced when working on the PPP in e-government project in Mongolia undertaken in 2007 for the Government of Mongolia under a grant from the World Bank.

- Rahzeb Chowdhury, Atos Consulting, London for authorization to use material on PPPs and contracting and other related issues
- Ken Chia, Principal and Head of IT/Communications Practice Group, Baker & McKenzie. Wong & Leow, Singapore

Thanks also to Joe Fagan for providing valuable information about his experience in developing the Merx e-procurement system that is now in use by the Government of Canada and for informing us of the work on e-procurement undertaken in the Philippines in developing the PhilGEPS e-procurement system.

MODULE 8

As the diffusion of ICTs increases, governments around the world are rolling out e-government plans and projects to enhance service delivery to the public through the use of ICTs. In many jurisdictions, both the financial and technical means available to government are limited. This constrains the ability of governments to deliver the benefits of e-government to everyone. However, there are significant pools of funds and expertise that the public sector can tap to fulfil its obligations to deliver the highest level of public service at a reasonable cost. This module discusses these alternative funding options for ICT for development (ICTD) and e-government projects. Public-private partnerships (PPPs) are highlighted as a particularly useful funding option for ICT-based services and e-government initiatives in developing countries.

Module Objectives

The module aims to:

1. Discuss the issues that influence investment in ICT deployment, with a special focus on investments in e-government;

2. Describe various financing mechanisms for ICTD projects;

3. Describe PPPs as an option for funding ICTD and e-government projects; and

4. Outline the issues to consider when deciding on which funding option to pursue for ICTD and e-government projects.

Learning Outcomes

After working on this module, readers should be able to:

1. Describe alternative funding mechanisms for ICTD and e-government projects;

2. Discuss PPPs as an option for funding ICTD and e-government;

3. Prepare a resource mobilization strategy; and

4. Develop a draft ICT project funding proposal that considers some of the main concerns donors may have about funding ICTD activities and e-government projects.

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Acronyms

ABT	Agreement on Basic Telecommunications
AMS	American Management Systems
APCICT	Asian and Pacific Training Centre for Information and Communication Technology for Development
ATP	Assembly and Test Plant
BOO	Build-Own-Operate
BOOT	Build-Own-Operate-Transfer
BOT	Build-Own-Transfer
BRICS	Brazil, Russia, India, China and South Africa
CERT	Computer Emergency Response Team
CIO	Chief Information Officer
CMS	Content Management System
CRM	Customer Relationship Management
DAC	Development Assistance Committee (OECD)
DB	Design-Build
DESA	Department of Economic and Social Affairs (UN)
DFID	Department for International Development (United Kingdom)
ECM	Enterprise Content Management
EMF	Enhanced Management Framework
ERP	Enterprise Resource Planning
ESCAP	Economic and Social Commission for Asia and the Pacific (UN)
EU	European Union
FDI	Foreign Direct Investment
GATS	General Agreement on Trade in Services
GAVI	Global Alliance for Vaccines and Immunisations
GDP	Gross Domestic Product
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GHG	Greenhouse Gas
GoC	Government of Canada
HP	Hewlett Packard
ICT	Information and Communication Technology
ICTD	Information and Communication Technology for Development
IDRC	International Development Research Centre (Canada)
IFC	International Finance Corporation
IFI	International Financial Institution
IMF	International Monetary Fund
IPP	Independent Power (Generation) Plants
IPR	Intellectual Property Rights
IT	Information Technology
ITU	International Telecommunication Union
MDG	Millennium Development Goal
NASCIO	National Association of State Chief Information Officers
NGO	Non-Governmental Organization
NGN	Next Generation Network
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PC	Personal Computer

PFI	Private Finance Initiative (United Kingdom)
PPD	Public-Private Dialogue
PPP	Public-Private Partnership
PRSP	Poverty Reduction Strategy Paper
RBM	Results-Based Management
SDNP	Sustainable Development Networking Programme (UNDP and HP)
SME	Small and Medium Enterprise
SWF	Sovereign Wealth Fund
TNC	Transnational Corporation
UAF	Universal Access Fund
UK	United Kingdom
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
US	United States
USA	United States of America
VNI	Visual Networking Index
WDM	Wavelength Division Multiplexing
WSIS	World Summit on the Information Society
WTO	World Trade Organization

List of Icons

Case Study


Questions To Think About


Something To Do


Test Yourself

Something To Do

Setting the scene: The importance of information and communication technology for development (ICTD) in your jurisdiction.

Directions: Assess the importance of ICTD in your jurisdiction using the following questions as a guide:

1. What is the major source of funding for ICT activities in your country?

2. Are there sufficient resources for ICTD implementation?

3. Is there an ICTD resource mobilization strategy? What is it? Is it working?

4. Is there a national ICT planning body or its equivalent?

5. Has the national ICT or e-government strategy/plan been implemented? Choose the most applicable description below and explain your choice.

    a) No strategy
    b) Not started at all
    c) Just started
    d) Ongoing
    e) Stalled

Note: When conducted during a training workshop, this activity will enable training participants to inform the trainer about themselves and their understanding of ICTD. It will also allow training participants to learn from one another and serve as an ice breaking session.

1. ICT DIFFUSION AND GLOBAL ECONOMIC GROWTH

This section aims to:
- **Provide an overview of global economic and financial issues that impact on investment decisions regarding ICT projects; and**
- **Outline investment opportunities in planning ICT projects.**

Many issues influence investment in ICT projects and government leaders need to be aware of these to be able to decide on how best to go about ICT project development and financing.

Current trends in trade and finance, the state of the world's economy, and trends in capital flows, as well as trends in ICT deployment and use, need to be considered when selecting appropriate project funding strategies. With the Internet, this information is largely available in real time through international financial, business and general wire or news services, such as Reuters, Bloomberg, Associated Press and Agence France-Presse; national news services like Xinhua; international broadcasting services, such as the BBC, CNN and Al-Jazeera; and/or the business and financial sections of international and national newspapers. Investment news is also available for a fee from the premium services of some of the sources listed here and investment companies such as Standard and Poor's.

Knowledge of financial trends is not the sole purview of economists or high-level planners working in ministries of finance or planning, or equivalent executive ministries and related entities (e.g. the Office of the President or the Prime Minister's Office). All government managers and planners should take an interest in financial news and analyses, in order to be able to explore alternative funding scenarios for ICT investments in the public sector.

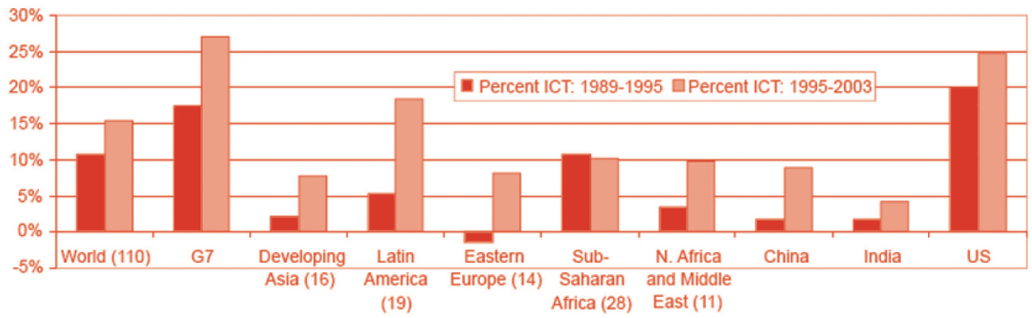
1.1 Why Invest in ICTD?

There are various reasons why a country or a given jurisdiction may want to invest in ICTD. These include the desire to maintain and/or enhance competitive and comparative advantage through the promotion of economic development, to provide education for all, and to broaden access to social services. Economic development continues to be the key objective of governments. For the donor community, poverty reduction and achieving the Millennium Development Goals (MDGs) are the main objectives of development aid, including funding for ICTD activities.

In the global information economy, information and knowledge are the key factors of production. According to a recent report of the International Telecommunication Union (ITU), the evidence is now clear that regions around the world are benefiting from the impact of ICTs on their economy[1] (see figure 1).

1 ITU, *World Telecommunication/ICT Development Report 2006: Measuring ICT for Social and Economic Development* (Geneva, 2006).

Figure 1. The contribution of ICTs to economic growth

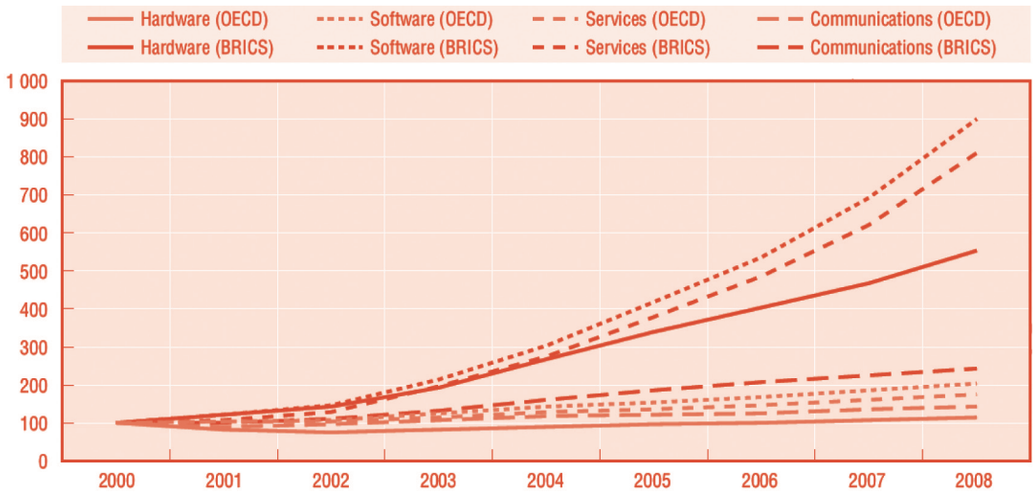


Source: ITU, *World Telecommunication/ICT Development Report 2006: Measuring ICT for Social and Economic Development* (Geneva, 2006), p. 44.

In developing countries, the diffusion of ICTs "provides new opportunities for insertion into the global value chains and for diversifying production activities and exports."[2] ICT infrastructure is considered to be essential to the competitive advantage of nations. Even in developed regions of the world, there is a push towards the greatest diffusion of ICTs, with a particular focus on broadband, especially fibre, as well as wireless broadband in all of its variants. The Organisation for Economic Co-operation and Development (OECD) reports that in Brazil, Russia, India, China and South Africa (BRICS), the rate of expenditure in ICTs has shown dramatic increases over similar expenditures made in OECD countries (see figure 2).

Figure 2. ICT market expenditure, 2000-2008

(USD current prices, indexed 2000 = 100)



Source: OECD, *Communications Outlook 2007* (Paris, 2007), p. 280, http://www.k12hsn.org/files/research/Broadband/OCDE_07_2007.pdf.

2 UNCTAD, *Information Economy Report 2007-2008 - Science and technology for development: The new paradigm of ICT* (New York and Geneva: United Nations, 2007), p. 11, http://unctad.org/en/docs/sdteecb20071_en.pdf.

The use of ICTs is essential for modern business practices. Recent data shows that investment in ICTs is directly linked to economic productivity. Data from the World Bank confirms that there is a direct relationship between the amount a country invests in broadband infrastructure and gross domestic product (GDP). A report by the World Bank points to "a 1.38 percentage point increase [in GDP] for each 10 per cent increase in [broadband] penetration."[3] The report also goes on to mention that the impact of broadband was greater than that of other ICTs, including mobile technology. Early adopters of broadband technologies were considered the most likely to benefit.

Increased investment in broadband infrastructure has been demonstrated to contribute directly to increased GDP growth in developed as well as in developing countries. In the area of wireless technologies, the results are similar. In Sudan, the mobile telecommunications sector has provided over 40,000 jobs to the economy and has enhanced GDP growth by 0.12 per cent for each 1 per cent rise in market penetration.[4] In South Africa, the mobile network operator MTN has been rated the country's most valuable brand with an estimated value of USD 4.7 billion.[5]

While ICTs are essential for economic growth, they are also finding their way into use in all areas of human endeavour across all sectors of the economy everywhere around the world. Increasingly, access to ICTs is not dependent on access to mains electrical power.

ICT growth trends

The Internet continues to grow (see figure 3), but not as quickly as the number of mobile phone subscribers. The increase in the number of mobile phone subscribers is significant in terms of Internet growth because mobile phone subscribers are migrating from voice-based telephony services that make use of older wireless transmission protocols such as 1G and 2G, to next generation networks (NGNs), i.e. 3G, 4G, Wi-Max and beyond. These NGNs are based on digital data transmission technologies where voice is only one of the many services available, and where access to the Internet opens up a host of opportunities, applications and services.

NGNs are also facilitating the move from analog to data and digital communications. NGNs use digital data transmission protocols that are compliant with the Internet protocol. The digitization of mobile telephony means more people will gain access to the Internet and this is significant for online service providers in general, including providers of distance learning and e-learning services.

The other trend that favours the growth in Internet access is the uptake of smartphones in particular and of digital handheld devices in general, including tablet computers such as the iPad and competing products. These powerful handheld devices are Internet ready and will greatly facilitate Internet uptake in many regions of the world where access to the Internet via telecommunications cables, such as using asymmetric digital subscriber line (ADSL) or cable, is limited. It is predicted that handheld devices, enabled by powerful and low-energy consuming processors (CPUs and GPUs) are driving this global move to small form factor computing including mobile computing. Handheld devices, especially smartphones, are to benefit as computing moves from desktop and laptop devices to handheld devices.

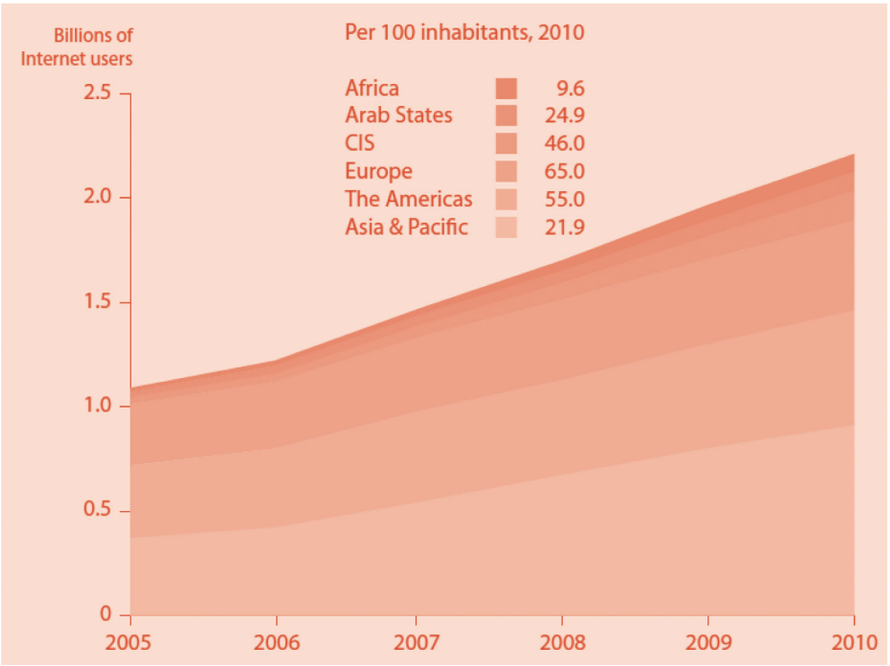
3 Christine Zhen-Wei Qiang and Carlo M. Rossotto, "Chapter 3: Economic Impacts of Broadband", in *Information and Communications for Development 2009: Extending Reach and Increasing Impact* (Washington, D.C., World Bank, 2009), p. 45, http://go.worldbank.org/NATLOH7HV0.

4 Broadband Commission for Digital Development, *Broadband: A Platform for Progress – Executive Summary* (ITU/UNESCO, June 2011), p. 8, http://www.broadbandcommission.org/report2/executive-summary.pdf.

5 Madanmohan Rao, *Mobile Africa Report 2011: Regional Hubs of Excellence and Innovation* (Mobile Monday, 2011), p. 15, http://www.mobilemonday.net/reports/MobileAfrica_2011.pdf.

Increasing NGN use also depends on the continued diffusion of broadband network connections such as marine fibre connections and other fibre-based backbone Internet connections, and especially backhaul connections from cell towers to the Internet backbone. Submarine fibre landings are contributing to increasing access to the Internet around the world. Along with submarine fibre connections, land-based fibre connections are also growing. Together, these trends will encourage Internet uptake and growth over time.

Figure 3. The growth in the number of Internet users over time



Source: ITU, *The World in 2010: ICT Facts and Figures – The rise of 3G* (Geneva, 2010), http://www.itu.int/ITU-D/ict/material/FactsFigures2010.pdf.

Some statistics

Mobile technologies

According to the ITU, by the end of 2010, there were an estimated 5.3 billion mobile cellular subscribers worldwide, of which 940 million (or about 6 per cent) subscribed to 3G services. The total number of SMS sent globally tripled between 2007 and 2010 to a staggering 6.1 trillion.[6]

But generally, mobile cellular growth worldwide is slowing. In developed countries the mobile market is reaching saturation levels while the developing world is increasing its share of mobile subscriptions from 53 per cent of total mobile subscriptions at the end of 2005 to 73 per cent at the end of 2010.[7]

6 ITU, *The World in 2010: ICT Facts and Figures – The rise of 3G* (Geneva, 2010), http://www.itu.int/ITU-D/ict/material/FactsFigures2010.pdf.

7 Ibid.

Internet growth

The number of Internet users continues to grow, and it has already surpassed the 2 billion mark of which about 45 per cent are in the Asia-Pacific region.[8] Yet, huge gaps remain with only 21 per cent of the population in developing countries online, compared with 71 per cent in developed countries.[9]

Broadband access

Similarly, there has been strong growth in fixed (wired) broadband subscriptions, in both developed and developing countries. However, there is a continuing gap between fixed broadband subscriptions in the developed world and the developing world. On average, in the developing world there are only 4.4 subscriptions per 100 people compared with 24.6 fixed Internet subscriptions per 100 people in developed countries.[10]

While ICTs have a ways to go in the developing world, it is in the developing world that the growth in mobile technology and services is expected to be the fastest, given the saturation in mobile phone penetration in the developed world and the continued economic slowdown that confronts Europe, the USA and now, in order to cool a rapidly growing economy, is also affecting China.

The Cisco Visual Networking Index: Video content on the Internet and wireless broadband set to grow

Cisco publishes the Visual Networking Index (VNI) that provides further insight into the growth and development of the Internet and related access technologies.

The latest VNI published in June 2011[11] confirmed the very rapid growth of data traffic over the Internet, as well as some of the implications of this growth. The *VNI 2011* also confirms a trend that previous editions of the Cisco VNI reported, that video traffic is a very important component of Internet traffic, and that wireless devices are poised to generate traffic that exceeds the traffic generated from wired devices such as desktop personal computers (PCs).

This suggests that mobile devices will have an important role to play in providing access to the Internet and to the content and services that reside on the Internet. It also suggests that consumers, which are the main sources of Internet bandwidth, are going to continue demanding access to video data streams. And mobile network operator, other telcomunications companies and Internet service providers are going to do their best to meet that demand. Some of these findings are summarized in figure 4.

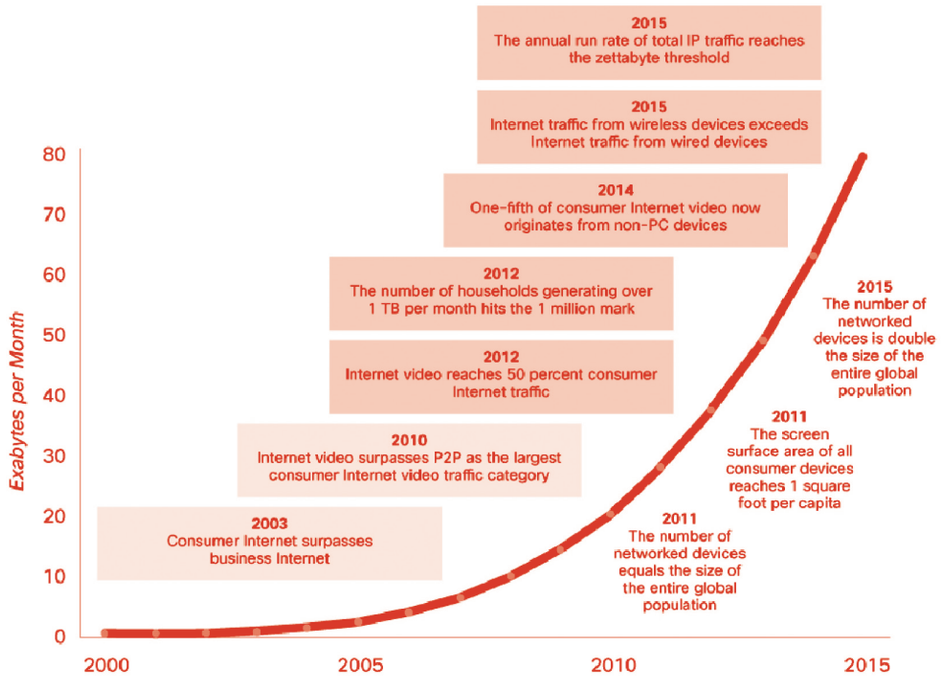
8 Internet World Stats, “Internet Usage Statistics: The Internet Big Picture”, Miniwatts Marketing Group, http://www.internetworldstats.com/stats.htm, last updated on 31 March 2011.

9 ITU, *The World in 2010*.

10 Ibid.

11 Cisco, Cisco Visual Networking Index: Forecast and Methodology, 2010-2015, White Paper (San Jose, CA, 2011), http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360_ns827_Networking_Solutions_White_Paper.html.

Figure 4. Five Internet traffic milestones and three Internet traffic generator milestones by 2015



Source: CISCO, *Visual Networking Index: Entering the Zettabyte Era*, White Paper (San Jose, CA, 2011), http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/VNI_Hyperconnectivity_WP.html.

Along with the growth in ICT sales, there has been a significant growth in e-commerce and e-government. More people are going online to shop, especially in the developed world. All forms of e-commerce are thriving. However, one of the main limitations to the rate of e-commerce growth in the developing world is the rate of ICT uptake by small and medium enterprises (SMEs). SMEs are important because they are motors of employment and growth. There are ongoing efforts in several countries to enhance the capacity of SMEs to use ICTs. These include use of mobile phones to transact business, since in many developing countries the most popular ICTs are mobile devices. Using mobile phones for business has been demonstrated to increase the ease of doing business for all concerned. Communication with suppliers and clients is increased and efficiencies are realized, resulting in cost savings and greater market reach. Alternative funding mechanisms can play an important role in encouraging the development of SMEs in the ICT industry in a country. These sources of funding have been tapped for funding business incubators that also provide a sound grounding in e-business to entrepreneurs who are just starting up.

Like e-commerce, e-government continues to grow significantly around the world.[12] However, developing countries continue to be challenged in providing e-government services by a lack of resources and funding. Many countries have developed e-government strategies and plans but lack the resources to implement these plans. This is limiting the rollout of e-government services along with the advantages that this entails.

12 United Nations, *UN e-Government Survey 2008: From e-Government to Connected Governance* (New York: United Nations, 2008), http://unpan1.un.org/intradoc/groups/public/documents/un/unpan028607.pdf.

More recent data shows that some developing countries have begun catching up to higher income countries in their application of e-government.[13] Mobile technology is being used at a fast rate in many countries and the latest *United Nations e-Government Survey 2010* recorded an increase in the use of mobile technology for communications from government to citizens. On the whole in the Asia-Pacific region, Eastern Asia far exceeds the world average for e-government development while Southern Asia lags far behind. The top three rankings in e-government development in the Asia-Pacific region are for the Republic of Korea, Singapore and Japan.[14]

1.2 Issues Affecting Investment in ICT Projects

For the information economy in developing countries to continue to grow, there has to be a sustained demand for and supply of ICT-based goods and services. At the same time, governments need to ensure that all members of the public can reap the benefits of a knowledge-based society.

The private sector can continue to provide the goods and services that the public is prepared to pay for, provided governments continue to ensure a supportive regulatory environment. Sound competition policy; an open, competitive and accessible market for all manner of goods and services but especially for ICTs; a well developed regulatory regime; predictability in the way government works; respect for the rule of law; and government incentives are all required for this to happen. Many of these principles are enshrined in the World Trade Organization (WTO) accords on international trade to which many countries are now signatories. The General Agreement on Trade in Services (GATS) and the 1997 WTO Agreement on Basic Telecommunications (ABT) in particular encourage trade liberalization in the global markets.[15]

In many emerging economies of Asia especially, the rise of the middle classes is ensuring that the demand for ICTs continues to grow as disposable incomes increase. But to ensure that the public can reap the benefits of the information economy, continued investment in ICT infrastructure and in e-government will be required. This is easier said than done, as there are other pressing issues of concern to governments everywhere. Even with growing corporate and tax revenues from growing national economies and an increasingly well-off middle class, the cost of providing public services and e-government is significant.

Other challenges loom as well. There are several global issues that are affecting countries everywhere. These will have an impact on the ability of governments to secure the funds required to roll out e-government, as well as the ability of countries to raise funds in general. Some of these issues are the following:

- The subprime crisis in the United States (US) that reached its peak in 2008 and 2009 impacted financial markets worldwide and cut growth prospects in many countries in the developed world and beyond by reducing demand and increasing the lending requirements of financial institutions. The greatest impact of the subprime crisis was felt in Western economies and much less so in the Asia-Pacific region.

13 DESA, *United Nations e-Government Survey 2010: Leveraging e-Government at a Time of Financial and Economic Crisis* (New York, 2010), http://www2.unpan.org/egovkb/global_reports/10report.htm.

14 Ibid.

15 Tina James, ed. *An Information Policy Handbook for Southern Africa: A Knowledge Base for Decision-Makers* (Ottawa, IDRC, 2001), http://idl-bnc.idrc.ca/dspace/bitstream/10625/7521/1/120185.pdf.

- Global growth has been undermined by political uncertainty in the US on how to address the very slow growth rate and the very high level of unemployment that have existed since the subprime crisis. Political stalemate between the Obama administration and the Republican-led House of Representatives will not likely be resolved until after the 2012 presidential election in that country.

- This has been compounded by the crisis in confidence in the Euro that has been spurred on by the very high and unsustainable debt levels that exist in many countries of the European Union (EU). Countries such as Greece, Ireland, Portugal, Spain and Italy have substantial, growing and unsustainable debt levels that have led to budget deficits that are so large they are undermining confidence in the ability of the Euro zone economies and the International Finance Corporation (IFC) to deal with this issue. The situation is further compounded by a recent slowing in economic growth in Germany, which is the most important economy in the EU.

- China has also been affected as a result of high inflation that has led to the cooling of growth and a reduction in demand for energy and commodities. This in turn has led to a reduction of economic growth in commodities dependent nations and a reduction in the output and price of oil.

- As a result, the world is now in the grip of a global slowdown. Under these conditions, lenders are more reluctant to lend money, and trade is suffering along with the productivity of exporting nations in Asia and around the world. It is expected that over time, the situation in the US and China will slowly resolve themselves. However, it remains to be seen whether the Euro zone will be able to continue to provide the massive financial guarantees and support required to ensure the solvency of the most indebted countries of the region. And whether the indebted countries themselves will be able to adhere to the strict cost-cutting requirements of the IFC and the European Central Bank. One of the main concerns is the lack of political support from countries such as Germany. The collapse of the Euro zone would have a very serious effect on the global economy.

- The very high and ever-increasing cost of energy has increased the cost of doing business for government and the private sector, as well as the cost of living for consumers. Analysts predict that global energy demand will "increase by 50 per cent from 2005 to 2030," which could lead to an increase in prices. "The largest… increase… is for the non-OECD economies."[16] Today, non-OECD countries are the predominant contributors to the increased demand for energy and by extension of fossil fuels, with China taking the lead among emerging countries.[17]

- The rising cost of food has a serious impact for all countries, especially in the Asia-Pacific region. An expected continued increase in the price of energy and food may be diverting resources from ICT build-out and service provision.

- A lack of power generation infrastructure in countries like China and South Africa means that funds will have to be raised to address this issue. Without adequate and relatively inexpensive energy, these countries will be unable to power their economies and meet the needs of large and growing populations.

16 US Department of Energy, *International Energy Outlook 2008* (Washington, D.C., Energy Information Administration, 2008), p. 7, http://www.eia.gov/FTPROOT/forecasting/0484(2008).pdf.

17 Nobuo Tanaka, "World Energy Outlook 2010", presentation of the International Energy Agency made in Beijing, China on 17 November 2010, http://www.energy.eu/publications/weo_2010-China.pdf.

- While energy demand from China is the highest in the world, China has become a much more efficient user of energy, consuming only one quarter of the energy per unit of economic output in 2009 than it did in 1980.[18] China has also become a world leader in renewable energy and clean energy technologies, leading G20 countries in 2009 in terms of clean energy investment.[19] The renewable and clean energy sector includes wind, solar, biofuels and efficiency measures, with wind being the most important and efficiency the smallest sector.

- Increasing demands for energy have resulted in increasing pollution and greenhouse gas (GHG) emission everywhere. Climate change presents a serious challenge to the present fossil fuel based model of economic development. People around the world are clamouring for cleaner environments in which to live and raise their families.

- With climate change, natural disasters are more common and the cost of disaster management much higher. The World Meteorological Organization reports that: "The year 2010 is almost certain to rank in the top 3 warmest years since the beginning of instrumental climate records in 1850."[20] And according to scientists in the USA, "changes in extreme weather and climate events are among the most serious challenges to society in coping with a changing climate."[21] Poorer populations are increasingly vulnerable as they invariably live in those parts of the world that are most at risk of serious natural disasters. Enhancing disaster preparedness and coping strategies as well as managing disaster relief will present an increasing fiscal and logistical burden on governments around the world. For more information on the risk presented by climate change and on the role of ICTs in abating climate change, readers are recommended to read Module 10 of the *Academy of ICT Essentials for Government Leaders* module series.

1.3 Opportunities for Attracting Investment in ICT Projects

On the other hand, there are some positive developments that are noteworthy.

Increasing wealth of some developing countries: Some countries are increasing their foreign reserves as a result of increased economic activity. For example, China's foreign exchange reserves stood at over USD 1.5 trillion at the end 2007.[22]

Increasing role of sovereign wealth funds (SWFs): With the increasing public revenues generated from the payment of fees, taxes, and/or royalties on the exploration and export of oil and minerals (e.g. in the Gulf States, Russia) or from a large and very favourable balance of trade (e.g. China, Singapore), many countries have acquired large amounts of foreign exchange and are increasingly looking for opportunities to invest this new found wealth. The US Energy

18 US Energy Information Administration, *International Energy Outlook 2010* (Washington, D.C., 2011), http://www.eia.doe.gov/oiaf/ieo/index.html.

19 Pew Environment Group, "China Leads G-20 Members in Clean Energy Finance and Investment", The Clean Energy Economy, Pew Charitable Trusts, 24 March 2010, http://www.pewtrusts.org/news_room_detail.aspx?id=57972.

20 World Meteorological Organization, "2010 in the top three warmest years, 2001-2010 warmest 10-year period", press release No. 904, Cancun/Geneva, 2 December 2010, http://www.wmo.int/pages/mediacentre/press_releases/pr_904_en.html.

21 US Climate Change Science Program, *Weather and Climate Extremes in a Changing Climate – Regions of Focus: North America, Hawaii, Caribbean, and U.S. Pacific Islands* (Washington, D.C., 2008), p. vii, http://www.climatescience.gov/Library/sap/sap3-3/final-report/default.htm.

22 Chinability, "China's foreign exchange reserves, 1977-2011", http://www.chinability.com/Reserves.htm.

Information Administration estimates "that members of the Organization of the Petroleum Exporting Countries (OPEC) earned $671 billion in net oil export revenues in 2007, a 10 per cent increase from 2006."[23] Four Gulf States accounted for more than half of that income. OPEC accounts for more than a third of worldwide oil production.

SWFs are a financial vehicle designed to help countries manage and invest their excess incomes. Already, some of these funds have come to the rescue of some of the largest US banks in the form of massive multi-billion dollar infusions of cash in exchange for shares or a stake in the company. *The Globe and Mail* reports that the OPEC countries are:

> Building massive overseas investment funds that are recycling the oil money into Western economies, notably Kuwait Investment Authority's purchase of a $3-billion (U.S.) stake in Citigroup Inc. and $2-billion share in Merrill Lynch & Co. Inc. And late last year, the Abu Dhabi Investment Authority invested $7.5-billion in Citigroup Inc. That recycling of petro-dollars is widely seen as a benefit for the world economy, given the shift in financial power to commodity-rich countries and away from consumer nations. However, the OPEC countries face growing pressure to ensure their state-controlled funds play by accepted Western rules for governance and transparency. "We're into uncharted territory with the kind of financial flows that are going into a small set of countries," said David Pumphrey, a senior fellow at the Center for Strategic and International Studies in Washington. "We're seeing a rebalance of the world's players… and they will be playing a different role in the future, so the established players are going to have to make space for them to participate."[24]

This trend is likely to continue and constitutes an opportunity for governments seeking to expand their ICT ventures and investments. The World Bank has encouraged SWFs to invest in poorer countries.[25] Table 1 shows the list of SWFs from the Sovereign Wealth Fund Institute website, as of September 2011.

23 US Energy Information Administration, "OPEC Revenues Fact Sheet", http://www.eia.doe.gov/emeu/cabs/OPEC_Revenues/Factsheet.html.

24 Shawn McCarthy, "Barrelling Ahead: Cartel members are using record crude prices to finance their global ambitions", *The Globe and Mail*, 8 May 2008, https://secure.globeadvisor.com/servlet/WireFeedRedirect?cf=sglobeadvisor/config&date=20080508&archive=gam&slug=ROIL08.

25 Christopher Swann, "World Bank Urges Sovereign Wealth Funds to Invest in Africa", *Bloomberg*, 12 April 2008, http://www.bloomberg.com/apps/news?pid=20601116&sid=a3O5_Nx5hf0k&refer=africa.

Table 1. List of Sovereign Wealth Funds

Country	Fund Name	Assets $Billion	Inception	Origin	*Linaburg-Maduell Transparency Index*
UAE – Abu Dhabi	Abu Dhabi Investment Authority	$627	1976	Oil	3
Norway	Government Pension Fund – Global	$571.5	1990	Oil	10
China	SAFE Investment Company	$567.9**	1997	Non-Commodity	2
Saudi Arabia	SAMA Foreign Holdings	$472.5	n/a	Oil	2
China	China Investment Corporation	$409.6	2007	Non-Commodity	7
Kuwait	Kuwait Investment Authority	$296	1953	Oil	6
China – Hong Kong	Hong Kong Monetary Authority Investment Portfolio	$292.3	1993	Non-Commodity	8
Singapore	Government of Singapore Investment Corporation	$247.5	1981	Non-Commodity	6
Singapore	Temasek Holdings	$157.2	1974	Non-Commodity	10
China	National Social Security Fund	$146.5	2000	Non-Commodity	5
Russia	National Welfare Fund	$142.5*	2008	Oil	5
Qatar	Qatar Investment Authority	$85	2005	Oil	5
Australia	Australian Future Fund	$72.9	2004	Non-Commodity	10
Libya	Libyan Investment Authority	$70	2006	Oil	2
UAE – Abu Dhabi	International Petroleum Investment Company	$58	1984	Oil	n/a
Algeria	Revenue Regulation Fund	$56.7	2000	Oil	1
US – Alaska	Alaska Permanent Fund	$40.3	1976	Oil	10
Kazakhstan	Kazakhstan National Fund	$38.6	2000	Oil	6
South Korea	Korea Investment Corporation	$37	2005	Non-Commodity	9
Malaysia	Khazanah Nasional	$36.8	1993	Non-Commodity	4
Azerbaijan	State Oil Fund	$30.2	1999	Oil	10
Ireland	National Pensions Reserve Fund	$30	2001	Non-Commodity	10
Brunei	Brunei Investment Agency	$30	1983	Oil	1
France	Strategic Investment Fund	$28	2008	Non-Commodity	n/a
Iran	Oil Stabilisation Fund	$23	1999	Oil	1
Chile	Social and Economic Stabilization Fund	$21.8	1985	Copper	10
UAE – Dubai	Investment Corporation of Dubai	$19.6	2006	Oil	4
New Zealand	New Zealand Superannuation Fund	$15.6	2003	Non-Commodity	10

Source: SWF Institute, "Sovereign Wealth Funds Ranking", http://www.swfinstitute.org/fund-rankings/, accessed on 25 September 2011.

According to *The Economist*, there were about 29 SWFs internationally in 2008 that were monitored by Morgan Stanley, a US dollar investment bank, and they were worth an estimated USD 2.9 trillion.[26] As of 2011, the value of Sovereign Wealth assets under management are estimated to be worth USD 4.5 to 5 trillion.[27] It is predicted that this amount will increase significantly in the coming years. Government-sponsored projects may be considered relatively safe investments for these SWFs if the circumstances are right.

ICT use and low or zero carbon growth: The role of ICTs in reducing GHG emissions and contributing to climate change is the subject of increasing research and debate. According to some, ICTs can make a significant contribution to reducing GHG emissions and in the fight against climate change. The use of ICTs can help reduce the consumption of materials (e.g. paperless transactions) and thus limit the impact on the environment of increasing human consumption and activity.

26 *The Economist*, "Sovereign-wealth funds: Asset-backed insecurity", 17 January 2008, http://www.economist.com/finance/displaystory.cfm?story_id=10533428.

27 Sovereign Wealth Funds News.com, "Frequently Asked Questions & Glossary", http://www.sovereignwealthfundsnews.com/glossary.php, accessed 25 September 2011.

According to a 2007 study prepared by the American Consumer Institute and the US Department of Energy,[28] the GHG emission reductions that ICTs can bring about in the US are significant. Figure 5 summarizes the findings of this study. The more recent Smart 2020 study[29] commissioned by the Global e-Sustainability Initiative and produced by the Climate Group in 2008 is consistent with this finding and estimates that ICTs can contribute to reducing five times more GHG emissions as they contribute. The figure is likely higher.

Figure 5. Reduction in GHG emissions in the USA for select activities

Study Summary

Reductions in Greenhouse Gases for Select Activities (Millions of Tons)

Area of Technology Replacement	Current Annual Savings	Forecast Incremental (10-year)
E-Commerce Green Effects		
• B2B and B2C	37.5	206.3
• C2C	N.A.	N.A.
Telecommuting Green Effects		
• Direct Effects from Driving	45.0	247.7
• Indirect Effects from Congestion	4.8	N.A.
• Office Space Not Built	28.1	28.1
• Saved Office Space Energy	56.8	312.4
Teleconferencing		
• Business Air Travel	36.3	199.8
E-Materialization		
• First-Class Mail	1.4	7.3
• Plastic CDs	0.5	2.5
• Newspapers	7.9	57.4
• Office Paper	2.9	N.A.
• Paper used in Households	0.7	N.A.
Tele-Medicine		
• Home Nurse Visits	1.6	N.A.

N.A. – Estimate not available

Source: Joseph P. Fuhr Jr. and Stephen B. Pociask, *Broadband Services: Economic and Environmental Benefits* (The American Consumer Institute, 2007), p. 48, http://internetinnovation.org/files/special-reports/ACI_Study.pdf.

28 Joseph P. Fuhr Jr. and Stephen B. Pociask, *Broadband Services: Economic and Environmental Benefits* (The American Consumer Institute, 2007), http://internetinnovation.org/files/special-reports/ACI_Study.pdf.

29 The Climate Group, *SMART 2020: Enabling the low carbon economy in the information age*, a report for the Global eSustainability Initiative (2008), http://www.smart2020.org/publications/.

The ITU-Development climate change site is another source of information on the role of ICTs in mitigating and helping to adapt to climate change.[30] The ITU is responsible for implementing recommendations related to the e-environment and others made at the World Summit on the Information Society (WSIS).

Increased cost of doing business in China and India: Wages and other costs of doing business in China and India are increasing. This represents business and investment opportunities for countries in Asia where labour costs are lower (e.g. Cambodia, Lao PDR, Viet Nam, and possibly Thailand).

Something To Do

There are several factors that can affect ICT diffusion. Divide yourselves into groups of 4-8 people to discuss these issues. Consider the following questions:

1. What factors are affecting ICT rollout in your jurisdiction? (Some examples of factors are planning, leadership, public demand, expertise, capacity and e-readiness)?

2. What demand is there for ICTs by sector, i.e. among public sector employees, government units, the private sector?

3. What can be done to enhance ICT diffusion? What are the opportunities for increasing ICT rollout in your jurisdiction?

30 See ITU, "ICTs and e-Environment", http://www.itu.int/ITU-D/cyb/app/e-env.html; and Green IT/Broadband and Cyber-infrastructure, http://green-broadband.blogspot.com.

2. DIFFERENT FUNDING MODALITIES

This section aims to:
- **Provide an overview of different funding modalities for ICT infrastructure and e-commerce and e-government projects;**
- **Outline factors to consider in selecting funding modalities; and**
- **Discuss how public and private sector collaboration may be fostered especially through public-private dialogue.**

2.1 Investing in ICT Rollout

How are governments to attract the investments required for building the infrastructure and applications that will strengthen their competitive advantage in the global information economy?

If the market is operating in an open, fair and transparent fashion, funding for ICT infrastructure rollout is more likely to be available. If the market is large enough and there is competition in the provision of infrastructure and services, including the provision of backbone Internet infrastructure, then e-commerce and e-government services will follow.

The problem is that most developing countries do not have the means or the market to ensure competition in the provision of expensive telecommunications infrastructure and services. Under these circumstances, the government will need to have a hand in funding the telecommunications infrastructure upon which the information economy will be built. The government also needs to ensure that the public investment benefits the greatest number of users and thus has the greatest possibility of promoting national development goals.

Countries with accessible and high bandwidth telecommunications infrastructure are better placed to attract investment and to compete in the global information economy. The concept of **open access networks** is based on the idea that in order to secure the greatest potential use of public investments in telecommunications infrastructure, the government mandates a separation between the ownership and operation of the transport infrastructure such as fibre optic cable on the one hand, and the provision of network services on the other hand. This encourages competition in the provision of services and, more important, ensures that the prices for accessing and using the infrastructure are competitive and reflect the true capital and operating costs of the infrastructure.

Open access networks apply mostly in jurisdictions where there is little or no competition in the provision of telecommunications infrastructure services, such as in smaller and/or poorer countries, landlocked countries and small island developing states. These countries are characterized by limited access to backbone infrastructure (fibre), which results in higher costs for all users, including second tier Internet service providers. One example of this is Bhutan where plans to establish a countrywide fibre optic network is being undertaken on the basis of an open access framework.

In open access networks, the cost for accessing the infrastructure is set as low as possible and everyone pays the same price for accessing the network infrastructure. This liberates investors and the operators of electronic services to focus exclusively on providing these services and on competing with other services providers in the national Internet space.

The governance model used to manage the open access network is important. Open and transparent management and governance arrangements encourage investment and competition, which in turn will enhance the number and quality of services available to the public and encourage price competition and ultimately, lower prices and improve service. The governance model may include a government-chaired national backbone steering committee or equivalent made up of representatives of the public and private sector, including operators, as well as members of the public and of civil society.

A strong telecommunications regulatory environment and a strong regulator are also important components of this mix. Governments need to maintain and/or strengthen or put in place appropriate policies that will stimulate market mechanisms and competition in the provision of fixed and wireless broadband services. Governments need to ensure that infrastructure is available at fair market value and that incumbent operators or others are prevented from establishing de facto monopolies that will limit choice, increase costs, and hinder the deployment and availability of the access infrastructure and network services.

In summary, it is generally agreed that by allowing and encouraging market mechanisms and competition through the creation of an enabling environment, governments can stimulate investment in the deployment of ICT infrastructure, particularly wireless and broadband infrastructure, and ICT-based services including e-commerce and e-government services.

Broadband access infrastructure in the form of fibre optic backbone networks, for example, and high speed wireless broadband networks, as well as various ramp technologies such as a digital subscriber line (DSL) and cable, are best left to the private sector, except in circumstances when it is not considered commercially sustainable for the private sector to build such infrastructure (e.g. in remote, poorer and/or under-populated communities). Appropriate universal access policies and funds can be put into place to ensure that public subsidies can be used to encourage commercial operators to provide services in locations that are not considered to be commercially viable. Universal access policies and funds have been useful in extending the reach of mobile phone networks and the availability of Internet access.

2.2 Funding ICT-Based Services

Commercial e-marketplace services are essentially opportunities to buy and sell goods and services that are facilitated or allowed through the use of ICTs. While e-commerce activities do not require substantial public sector investments in ICTs, they do require that the government establish clear rules and regulations and put in place mechanisms to build consumer awareness and protection, and a climate of trust in e-commerce transactions. In fact, these are the greatest challenges facing e-commerce uptake in some countries. Consumers must be persuaded that they will be protected when buying goods online or else they will simply not buy. In particular, there must be mechanisms of recourse when goods and services purchased online are either not delivered or are not delivered according to the expectations of the consumer.

To provide public services, governments have traditionally relied on government resources, which often means raising funds from the usual sources—taxes, levies, authorizations, as well as development aid when applicable. But given competing demands and the limited resources available to fund e-government activities, alternative funding scenarios need to be considered.

The public sector can benefit greatly from alternative funding solutions if the government and the public are prepared to consider bringing private sector partners to the table to tap into their expertise, technology and financial means. Depending on the urgency of the public undertakings that need to be completed and the financial and other means at their disposal, governments may feel more or less inclined to work with private sector capital to fund and implement public services.

Private sector financing has come traditionally from the private sector directly, including from sources such as foreign direct investment (FDI). In this case, market demand dictates whether investment will take place. A business plan is drawn up laying out the options for recovering the investment and making a profit.

Telecommunications infrastructure and e-government services are considered to have the greatest potential for private sector funding because they are tangible and large and in some (smaller) countries they are sometimes operated as a monopoly. Because most telecommunications operators turn a profit, an investment in telecommunications infrastructure is considered a sound investment that is likely to be repaid. Telecommunications infrastructure projects will attract funding from the usual and from alternative funding sources. e-Government projects are also operated on a monopoly basis and these can attract strong commercial interest for this as well as other reasons.

e-Commerce initiatives will be developed by financial institutions and private sector operators who wish to exploit market opportunities and perceived demand for goods and services. It is unlikely that the public sector will fund e-commerce initiatives directly, but government can put in place various mechanisms and services that can encourage the private sector to take up e-commerce. A public e-procurement system is one such mechanism.

Support for strong consumer protection laws that can enhance trust in e-commerce is also important. Supporting accounting mechanisms such as digital certificates as well as the use of recognized certification authorities and public key infrastructure technologies are essential. Viet Nam's experience offers insights into this process.[31] Securing local or national Internets with the creation of a Computer Emergency Response Team (CERT)[32] is also an important step to try and mitigate cybersecurity threats.

2.3 Modalities for Funding ICT Projects

There are several types of funding modalities depending on project implementation. The main modalities or approaches are outlined here.

31 Adrienne Valdez, "Vietnam strengthens digital certificate infrastructure", Asia Pacific futuregov, 21 September 2011. http://www.futuregov.asia/articles/2011/sep/21/vietnam-strengthens-digital-certificate-infrastruc/.

32 For more information on CERT see Module 6 of the *Academy of ICT Essentials for Government Leaders* module series and http://www.cert.org.

Government as sole funder

The government develops plans, programmes and projects; budgets for work to be done; and raises taxes to finance the work. The government owns and implements the project. This includes projects funded by international donors that course funds through public sector partners in developing countries.

The government has a development plan and a budget and implements projects using agreed upon and usually well established procedures. For example, the government or a ministry has an e-government plan to be financed through the National Treasury. Private companies are then contracted to provide services accordingly. The public sector not only oversees the work directly, but also has full ownership and oversight of all aspects of the project. The public sector can also choose to retain a private sector operator on a contractual basis with responsibility for delivering specific goods and services as per an agreed upon contract. The private sector has little or no role in developing and designing the project. Project conception and design is the sole responsibility of the public sector operator who basically owns and operates the project for the public good. The government in this case assumes all project risks.

Mixed funding modalities

These include outsourcing, various contractual arrangements and shared costs where, for the most part, funding comes from the public sector and the government owns the service or product/ infrastructure. The private sector can have an important role to play in implementation and operation in such projects.

In this modality, there is no concession of public services to a third party operator and even though a third party may offer the service, it is still considered a government operation. The operation of a public service may be outsourced to a private sector operator on a contractual basis, but the government retains overall control and ownership at all stages of the project.

Concession to the private sector

In this scenario, the public body negotiates a concession to one or more private sector operators to build, own and operate, or transfer a public service under agreed upon conditions, which may include a combination of ownership and operation. The public sector may or may not budget for a part of the project. The private sector assumes most if not all of the financial risk, and operates and/or owns the concession under contract to the public sector for a fixed period of time. This usually applies to “Greenfield” projects, which are projects that have no constraints imposed by prior work.

Concession-based public-private partnerships (PPPs) require very close working relations between the partners, as well as strong and ongoing oversight. They can attract FDI because in many cases the public sector service provider (i.e. the government) exercises market power in the provision of public services. There is usually no competition for these services and no alternative service provider, so the public must use the service. Thus, for the private sector investor, underwriting such services may be a highly desirable opportunity to profit. For the public, this kind of arrangement may be considered a risk as a high cost may be charged for the service. Striking the right balance is the key.

Multi-stakeholder PPPs

Several partners are involved in these arrangements, including the public and private sector, civil society, donors and non-governmental organizations (NGOs).[33] Examples are projects to develop community access facilities or telecentres, or universal access projects. In these projects, the complexity of the consultations and solutions provided requires a multi-stakeholder approach.

The potential sources of funds for this type of PPP include FDI and SWF. One of the reasons this modality is increasingly encouraged by donors is that it is based on the capacity of local partners. By focusing on measurable outcomes as opposed to outputs, the project is more realistic as well as more adaptable to changing conditions and situations, and more responsive to issues as they arise.

This funding modality also encourages pro-poor growth, or economic development that is focused on the poor. PPPs in general offer certain advantages for the achievement of the MDGs. They may be able to help poorer countries to achieve:

- Multiple development goals
- Viable financial returns
- Institutional strengthening and the sustainability of expenditures and development outcomes over time
- A strong focus on poverty
- Broad political and public support
- Performance-based project management structures and metrics, as well as efficiency in project management or results-based management (RBM)

Universal access projects, for example, are directed at consumers in remote and poorly served locations, which are invariably poorer than other communities in the country or jurisdiction in question. For this and other reasons, these communities may not be served by national telecommunications operators and service providers. A universal access policy backed up by a universal access fund (UAF) is required to fund the provision of voice and Internet services to these communities. Mobile and other telecommunications service providers are encouraged to bid to access funds from the UAF to provide the needed services on a commercial basis in the communities concerned. This type of project involves collaboration between the public and private sectors in the provision of basic telecommunications services.

Philanthropic contributions by the private sector

Another funding modality is based on philanthropic contributions by large firms, in particular transnational corporations (TNCs). This funding modality is also considered to be a variation on the multi-stakeholder PPP.

Philanthropic organiations funded by successful business people include:

- Ford Foundation
- Rockefeller Foundation
- The Bill and Melinda Gates Foundation (USD 25 billion in health and education funding)
- Private voluntary agencies and foundations in OECD Development Assistance Committee (DAC) member countries (grants from these sources rose from USD 8.8 billion in 2002 to USD 14.6 billion in 2006)[34]

33 World Economic Forum, *Building on the Monterrey Consensus: The Growing Role of Public-Private Partnerships in Mobilizing Resources for Development* (Geneva, 2005), http://www.weforum.org/pdf/un_final_report.pdf.

34 OECD, *Development Co-operation Report 2007: Summary* (Paris, 2008), p. 3, http://www.oecd.org/dataoecd/21/10/40108245.pdf.

Corporate in-cash contributions are also considered an important source of funds. It is estimated that the Fortune 500 Global companies alone make about USD 12 billion in cash donations and between USD 10-15 billion of in-kind donations each year.[35]

Corporate philanthropy is linked to production or marketing operations. Thus, contributions in poorer countries are likely to be smaller because the markets there are smaller and/or poorer. Nevertheless, these funds are an important source of financing when compared to FDI or development aid. It is estimated that 10-15 per cent of total global contributions by Fortune 500 Global companies make their way to low-income countries.

However, in an increasing number of cases, the private sector operators realize that they need to work closely with people at the local and community level for their investments to bear fruit. The case of the oil companies, particularly Shell, operating in the Niger River delta in Nigeria is a prime example. Social unrest is directly tied to the exploitation of oil in the delta among communities that feel they have been disenfranchised. Corporations recognize the importance of securing local support in order to guarantee their investment.

Much financing comes through donations to social projects at the local and community levels. The following is just a small sample:

- Tata in India gives 2.7 per cent of total revenues and Pakistan Telecom gives 0.074 per cent.
- Cisco contributes to ICT capacity building through the Cisco Academy, which has trained many ICT specialists throughout the developing world.
- In the 1990s, Hewlett Packard (HP) partnered with the United Nations Development Programme (UNDP) in making equipment and other forms of support available to the UNDP Sustainable Development Networking Programme (SDNP). In many countries that were part of the SDNP, HP provided equipment and training in some cases. These contributions were considered gifts. UNDP and HP had to first establish the basis of their collaboration and undertook extensive discussions and negotiations to ensure UNDP's neutrality and to make sure that the project would not be perceived as contrary to the best interests of UNDP's stakeholders and constituents.
- In Trinidad and Tobago, BP has declared that it will invest USD 10 million in the new University of Trinidad and Tobago focusing on developing high quality research in science and technology.[36] BP is planning to invest over USD 500 million in the coming years as a result of increased realization of global development challenges and the principle that commercial development is also part of a much larger whole.
- Barrick Gold, one of the largest gold producers in the world, invested USD 3.4 million in a 47 kilometre long water pipeline in Tanzania.[37]

Based on the available evidence, it is possible that about 10-15 per cent of the total donations from Fortune Global 500 companies, or somewhere between USD 2 billion and USD 4 billion, are contributed to activities in low-income countries. If the contributions of TNCs, large national or regional firms and direct private donations are also taken into consideration, donations by the private sector are likely to be larger than FDI.[38]

For companies working in developing countries, social investments yield potentially significant leverage for the company in meeting their objectives in country.

35 World Economic Forum, *Building on the Monterrey Consensus*, p. 27.

36 BP Trinidad and Tobago, "Lord Browne visits Trinidad and Tobago", *bpTT Insider*, Issue 7, July 2004, http://www.bp.com/liveassets/bp_internet/globalbp/STAGING/global_assets/downloads/B/bp_Insider_7.pdf.

37 World Economic Forum, *Building on the Monterrey Consensus*, p. 26.

38 Ibid., p. 29.

Best sourcing based on market testing

In best sourcing, the government tenders proposals for service provision and challenges the market to come up with the most cost effective solution that is possible while ensuring and/or exceeding the specifications required of the service or product sought.

This is a more competitive scenario where market testing is an opportunity to see what the market will bear and what innovative ideas can be thought up to provide the public services sought at the least cost to the public and to the taxpayer. For this, the government entity works through a national tender board or its equivalent to see what the private sector will propose. Selection is based on best value for money supported by the quality of the technical proposal.

The Government of Singapore has adopted this strategy of best sourcing through market testing. If a private company can deliver the service more cheaply and more effectively than a public sector entity, then it is hired to do the job. Government departments may have to justify their existence by also competing with outside service providers and operators in order to win the work. This can also encourage partnerships with the private sector and make even the public sector more competitive and productive in the long run. The long-term benefit or validity of this approach remains to be seen, but the idea is definitely a novel one.

New and innovative funding solutions

New ways of funding development activities are now appearing. According to the 2010 edition of the OECD *Development Co-operation Report 2010*, these are based on new partnerships between public and private entities that have taken place largely in the heath sector. Two major international funds that combined public and private contributions to meet global health challenges are the Global Alliance for Vaccines and Immunisations (GAVI) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM).[39]

GAVI is funded through a mechanism called the International Finance Facility for Immunisations, which is expected to raise USD 4 billion by issuing bonds against long-term ODA commitments from eight donor countries.

The GFATM is receiving contributions from ProductRed under which credit card and other companies contribute a share of their profits on goods marked with the ProductRed trademark. The GFATM has also developed a scheme for mobilizing support for debt relief. Under the Debt2Health initiative, donors forgive developing country debt on condition that the country in question allocated half the forgiven amount to local GFATM programmes.

Similar debt relief projects have been used for some time now in all sectors of development. For example, in 2004 and after, the Government of Italy forgave debt in Egypt as long as the Government of Egypt allocated an amount equivalent in local currency to ICTD projects. The ICT Trust Fund was created and managed by UNDP to address ICT priorities identified by the Government of Egypt.

Other innovative forms of debt relief include the following:

- Small levies on private and sometimes public purchases. An air ticket levy scheme has been adopted by 13 countries and a facility called “UNITAID” has been created to distribute its proceeds in order to scale up access to treatments for AIDS, tuberculosis and malaria.

39 Eckhard Deutscher, Development Co-operation Report 2010 (Paris, OECD, 2010), p. 27, http://www.oecd.org/document/24/0,3746,en_2649_33721_48745304_1_1_1_1,00.html.

- Auctioning permits to emit greenhouse gases. Germany announced that it would allocate EUR 225 million from the 2009 proceeds of these auctions to fund development activities.

- The use of tax. A "Pilot Group on Innovative Financing for Development" is looking into schemes such as the "Tobin Tax", a proposal to impose a tax on foreign exchange transactions.

- The use of guarantees and insurance. The first advance market commitment has been made to spur development of a vaccine against pneumococcal disease. Under this scheme, private and public donors agree to subsidize a vaccine that passes agreed tests. This provides a new incentive to pharmaceutical companies to develop a product that might otherwise not be commercially viable.

- Another type of financial promise that has recently been trialled is weather insurance. Here, donors put up the funds to buy an insurance policy that triggers an indemnity for farmers if and when stipulated rainfall or other thresholds are met.[40]

Something To Do

Break up into smaller groups of between 4-8 people and discuss the following issues:

1. Which funding modalities would work in your jurisdiction and which would not? Why?

2. Which modality is used the most? Why?

3. How can use of the other modalities in your jurisdiction be increased?

4. What factors influence the choice of different modalities in your jurisdiction?

2.4 Selecting a Funding Option

Each of the funding options presented in the previous section has advantages and disadvantages. The choice of which funding option to pursue will be made according to certain considerations. Some of these are discussed below.

Level of need

An urgent need for infrastructure and/or services where the usual funding sources are not available makes alternative financing scenarios an option. If the business environment is conducive to private sector investment and to doing business, and there is a real commercial opportunity, then the private sector will be interested.

40 Ibid.

Sharing, spreading or avoiding risk

One of the most important reasons for considering a PPP is to avoid and/or minimize risk. In PPPs the financial risk can in some cases be assumed entirely by the private sector partner. In a particularly large project, project costs can be shared. Of course, the private sector partner will be motivated by profit, and the public sector operator has to ensure that the fees to be charged by the private sector operator do not give rise to other forms of risk, such as the risk that the public will not accept the proposal and overthrow the government or create public disturbances to show its displeasure.

One way to minimize risk for the public sector sponsor or client is to conduct open and public tendering of the project. This will submit the bid to the rigours of competition, and allow the government to first gauge the interest of the private sector operators, as well as their fitness for the task at hand. Invariably, competition and open bidding increases the quality of bids tendered while at the same time reducing the costs of procurement. If the firms bidding do not have the appropriate profile or do not meet the basic requirements, the government can decide to cancel the project or re-tender it.

There are some projects that have been undertaken at no immediate financial risk to the public sector partner. In these cases, it is the private sector partner that assumes all of the financial risk.

Availability of expertise

In complex projects, there may be a need for a combination of many different skills and capabilities. The private sector may have the expertise that the government is looking for. The experience of the private sector may provide a hedge against the uncertainty and risk of complex projects. Tapping the skills of the private sector may be the only solution available, other than trial and error. Similarly, when dealing with legacy ICT applications and systems, the private sector may be the only source of expertise available.

In addition, the private sector has been experimenting and delivering online services for a long time and this expertise can be useful in helping jurisdictions that are just starting to explore e-government for service delivery. Similarly, the private sector, through joint ventures with international companies and even with TNCs, may be able to leverage expertise from other jurisdictions that have experience in using e-government.

In fact, private sector operators could specialize in delivering e-government and related services to jurisdictions around the world. Atos Consulting, for example, has developed expertise in structuring PPP agreements. Accenture has expertise in e-government. Several of the large international consulting firms have relevant expertise, as do many smaller firms and individual consultants.

Public support

Public perception of the increased collaboration of the public sector with the private sector needs to be taken into consideration. In many countries, the public may be uneasy about establishing or reinforcing ties between those in power and business elites. Thus, the procurement of PPPs and other alternative financing mechanisms should be undertaken in an open and transparent fashion, and there should be regular and open reporting of project performance using published and independently audited indicators. Otherwise, resistance and unrest may be the reaction of the public, especially when essential public services are involved and/or fees for the provision of certain public services are imposed. Lack of public support for particular projects also makes politicians wary of these projects as they themselves could lose political support and their seats in government if the public thinks they are backing such projects.

Reducing the size of the civil service

Using alternative financial mechanisms can allow governments to increase the provision of public services without necessarily increasing the number of public servants employed. This may be an important consideration when there is a need to reduce the cost of government and/or the size of the public service.

Availability of funds / financing / investment opportunity

Governments may not have the funds to invest in e-government. On the other hand, private sector investors may be available and interested in partnering with the public sector in delivering public services subject to negotiation.

In some PPPs, the private sector partner provides all of the financing in return for payments, fees, or operating revenues over a given amount of time. In these cases, the project can be considered an ex-budgetary activity with no immediate impact on the national treasury or exchequer. Of course, there are longer term implications, but these can be researched and examined during the research and examination phase of the project.

Perceived commercial potential of the services to be provided

One of the reasons the private sector may be interested in providing public services is obviously to make money. Not all public services are considered commercially attractive, but many public services are the only services available and consumers may have no other choice. This leads to a natural monopoly or "significant market power" associated with the provision of the service in question.

Some services are naturally monopolistic, such as a port, a rail line or service, an airport, a bridge or road and toll stations on the roadway or bridge. The public sector may leverage this "natural monopoly" to attract the involvement of the private sector while at the same time seeking to ensure that public interests are respected. It is a narrow line to tread, but precedent has shown that it is possible and can be greatly beneficial to both parties and to the public through more and better services.

Ability to work with the private sector

Being able to work closely with the private sector can expose the public sector to many different ways of doing things. In some sectors, such as the defence sector in countries like the USA, a very close working relationship between public and private sector operators has created a relationship of trust that has greatly benefited the sector overall. The public sector operators know the private sector companies and what they are good at and what they can provide as a result of continuously working side-by-side on projects and undertakings.

Mutual interest

Mutual interest may provide the basis for moving ahead in a partnership. In some cases, a PPP approach may be the only way forward when a public service is required because there are no funds, no expertise, and no political will to market and develop the proposal. In these cases, the private sector may see a significant opportunity that the public sector cannot perceive from its position. When the profit motive is factored in, new considerations emerge and these can be the basis for discussion and possibly for implementation.

Given the perceived benefits, commercial and otherwise, of the proposed venture, the private sector operator may be prepared to go all out to raise awareness, publicize the opportunity, get the public on board and influence government decision makers to develop the project. For the public sector operator, the benefit may be the ability to provide a service that otherwise would not be available to the public and garner political and other points in the process.

2.5 Getting the Public and Private Sectors to Work Together

A precondition for some of the funding options that are considered in this module is the ability of the public and private sector to work together. Close working relations between the main actors has been linked to competitiveness, with countries that work closely with the private sector generally considered to be more competitive. Research has demonstrated that countries with a better business environment have the following characteristics:

- Faster growth rates as measured by gross national product
- Ability to attract more investment
- More poverty reduction
- Better dialogue between the public and private sectors

However, in many countries there are significant differences that separate the public from the private sector and that make it difficult, if not impossible, for them to work together on undertakings that serve their mutual interests. One of the biggest problems is lack of communication between the sectors. This leads to a lack of understanding and impedes collaboration.

Dialogue is the key to developing a healthy working relationship between the public and private sectors.

Public-private dialogue

The public-private dialogue (PPD) process has evolved as a way of encouraging the public and private sectors to discuss issues of common concern and eventually work together.

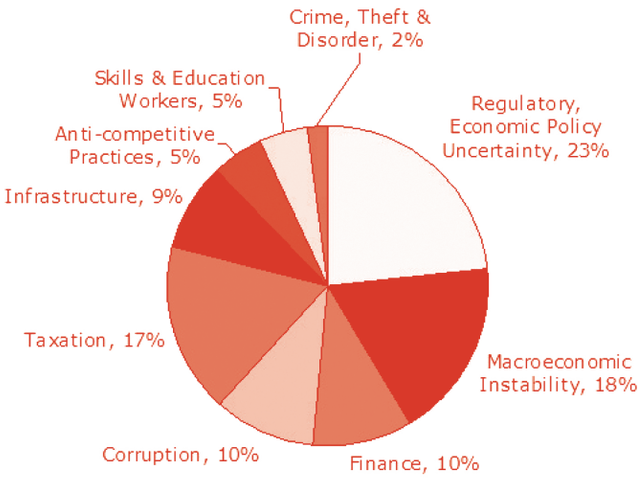
More important, PPD is a prerequisite and precondition for considering alternative funding mechanisms such as PPPs. Without close collaboration between the public and private sector partners in the PPP process, these alternative funding mechanisms will not take place. Donors encourage PPDs in those countries and jurisdictions where the public and private sectors are not working sufficiently close together.

There is a close relationship between the business attitude of government and the capacity of the country to work with the private sector. Countries and jurisdictions that are business-friendly based on a variety of measures such as those published annually in the “Doing Business” reports produced by the World Bank[41] are more likely candidates for the type of collaboration that can result in alternative funding solutions such as PPPs and other investment vehicles.

Some of the factors that constrain business will also constrain the opportunity of working in partnership with the private sector. Some of these constraints are summarized in figure 6.

41 Doing Business, World Bank Group, http://www.doingbusiness.org.

Figure 6. Leading constraints to doing business



Source: Benjamin Herzberg, "Engaging stakeholders through competitiveness partnerships", presentation made at the International Workshop on PPD, Paris, France, 2006.

To build the partnership that underpins alternative funding mechanisms, there has to be an engagement between the parties. PPD helps to build this engagement in a structured way. PPD involves developing mechanisms that bring the parties together.

First, the public sector partner has to recognize the importance of PPD and, more important, recognize the advantages of working closely with the private sector. A business coordinating secretariat or an equivalent structure in the Ministry of Commerce or its equivalent may be created to learn more about the private sector, their concerns and the challenges they face in doing business.

For their part, the private sector partners can structure themselves according to industry groups and create smaller working groups that represent their sectoral concerns (e.g. associations of employers and industry associations, and trade groups). The private sector groupings can be brought together under the aegis of the Chambers of Commerce and Industry or an equivalent structure.

Some of the mechanisms used to bring the public and private sector partners together are:

- National forums
- Working groups
- Regional and/or local initiatives such as fairs, exhibitions, round-table discussions
- Government-endorsed activities involving the private sector
- Investors' councils to bring together investors and the government to discuss ideas and opportunities
- Time-bound agreements in the form of negotiated agreements between the public and private sector on issues of common concern, including agreements to undertake economic reforms. One example of this is the "Bulldozer Initiative" in Bosnia to pass 50 economic reforms in 150 days. High-profile commitment to this initiative created a sense of urgency and of momentum from the beginning.[42]

42 Benjamin Herzberg, "Engaging stakeholders through competitiveness partnerships", presentation made at the International Workshop on PPD, Paris, France, 2006; and Benjamin Herzberg and Andrew Wright, *The PPD Handbook: A Toolkit for Business Environment Reformers* (DFID, World Bank, IFC, OECD Development Centre, 2006), http://siteresources.worldbank.org/INTEXPCOMNET/Resources/PPD_Handbook.pdf.

The support of donors, larger business enterprises, and government and political leaders is important. Support from the international community would not be difficult to secure, given the importance of having the public and private sectors working closely together.

A body of expertise or "practice area" has emerged around PPDs. Useful resources can be found at http://www.publicprivatedialogue.org.

Something To Do

Form groups of between 4-8 people and discuss the following:

1. How does the public sector work with the private sector in your jurisdiction?
2. How do the public and private sectors in your jurisdiction perceive each other?
3. Are there areas where the private sector works more closely with the public sector than others? Why?
4. What can be done to encourage greater collaboration between the public and private sector?

3. PUBLIC AND PRIVATE SECTOR PARTNERSHIPS

This section aims to:
- **Define public-private partnerships (PPPs) and various types of PPPs:**
- **Discuss the advantages and disadvantages of PPPs; and**
- **Outline the principles for implementing PPPs.**

3.1 Background[43]

The building of public works using private funds goes back to ancient times. Formal concession laws existed as early as A.D. 530. In Europe in the sixteenth and seventeenth centuries, public works, such as canal construction, road paving, waste collection, public lighting, mail distribution and public transportation, were awarded by monarchs to private investors.[44]

In recent years, getting the private sector to provide public goods and services has been increasingly perceived as a way of saving the government money while at the same time delivering better services. In 1992, the United Kingdom (UK) was in a recession and the country was suffering from crumbling public infrastructure. There was no money available from the government treasury and the government of the day was not willing to raise taxes. To stimulate the economy, a massive private investment in public services was proposed. It was thought that by involving the private sector in the provision of public services, the following benefits could be realized:

- The spending capacity of the government could be increased;
- Risks could be transferred to the private sector; and
- Increased value for money could be achieved.[45]

The endeavour proved successful and since then, the UK government has been using PPPs to fund a significant proportion of public projects. "[The] Blair government adopted the Private Finance Initiative (PFI) as a way of getting the private sector contractors to pay for the construction costs and then rent the finished project back to the public sector. This allows the government to get new hospitals, schools and prisons without raising taxes. The contractor, for its part, is allowed to keep any cash left over from the design and construction process, in addition to the 'rent' money."[46] The UK government has funded 620 PPPs worth EUR 60 billion, and 450 projects remain operational. Initially, the projects funded were mostly to build infrastructure. This is changing somewhat as services are also being operated by private sector partners under PPP tender and contractual agreements.

43 This section is drawn from a report entitled "Background Study on Public Private Partnerships (PPPs) in e-Government" that was prepared by Richard Labelle under contract to Atos Consulting of London in the context of work undertaken in Mongolia in 2007. The report was a collective endeavour and reflects the contributions of other team members, especially Rahzeb Chowdhury of Atos in London. The author wishes to thank Atos for permission to reproduce portions of the report here.

44 H.K. Yong and Windhu Hidranto, "My Say: Private finance in public works", *The Edge,* 21 February 2006.

45 Abridged from M. Rathbone, "Overview of public private partnerships", presentation made to the Government of Brunei, 2006.

46 BBC News, "What are Public Private Partnerships?" 12 February 2003, http://news.bbc.co.uk/1/hi/uk/1518523.stm.

The view that the private sector can bring significant benefits to the delivery of public investment has become prevalent in many countries. According to the Canadian Council for Public-Private Partnerships, the number of PPPs for infrastructure projects is increasing dramatically in Asia, Australia and Europe. The UK has used PPPs successfully for over 17 years, while Australia has done so for over 10 years.[47]

PPPs are also useful for smaller scale infrastructure and service delivery. In India, PPPs have proven to be a successful delivery mechanism for a variety of public services at the local and community level, including at the village level. "In several Indian projects… software development, training, data entry and manual archives and maintenance have been outsourced to the private sector."[48] Bhatnagar also reports that private companies have been contracted to "develop an e-government application as a product."[49] In some cases, these services may be associated with the establishment and commercial operation of a community-based or public access facility offering a range of public as well as private telecommunications-based services. In this case, the value is in delivering e-government throughout the country using a PPP approach.

Now more than ever, governments cannot sustain existing infrastructure and cannot afford to build new infrastructure with constrained public capital. In an interdependent global economy in which raising fiscal expenditure has a major effect on a country's macroeconomic performance and competitiveness, governments are often unable to raise taxes for this purpose. PPPs are increasingly seen as one way of meeting the need for improved public infrastructure and services at limited immediate cost to the public exchequer.

Moreover, many governments realize that it is often important to establish user charges for public services to ration their use. An example of this is the use of road infrastructure. Consumers are usually willing to pay to use roads which, by virtue of the charges made for use, reduce demand and congestion. The revenues raised are also a benefit—in terms of the financial value that is associated with the delivery of public infrastructure and services. The appeal to the government of selling or leasing these resources to the private sector under a PPP type of arrangement thus becomes increasingly attractive.

Involving the private sector has several other advantages. According to PricewaterhouseCoopers, a management consultancy, these are:

- Whole life costing – a method of evaluating or comparing building materials and components by looking at installation costs, life spans, running and maintenance costs;[50]
- Innovation / Different management skills;
- Risk transfer;
- Design, build, operate synergies; and
- Unlocking alternative uses.

47 Canadian Council for Public-Private Partnerships, *Responsible PPP Procurement for British Columbia* (2005), http://www.pppcouncil.ca/pdf/bc_procure.pdf.

48 Subhash Bhatnagar, *e-Government: From Vision to Implementation - A Practical Guide with Case Studies* (New Delhi, Sage Publications, 2004), p. 79.

49 Ibid.

50 Link, "Glossary of Terms", The Link Group, http://www.linkhousing.co.uk/glossary/t-w.php.

3.2 Definitions and Types

The Canadian Council for Public-Private Partnerships defines a PPP as a:

> Cooperative venture between the public and private sectors, built on the expertise of each partner that best meets clearly defined public needs through the appropriate allocation of resources, risks and rewards.

A World Bank toolkit[51] defines a PPP as follows:

> A Public-Private Partnership (PPP) constitutes a sustained collaborative effort between the public sector (government agencies) and private enterprises to achieve a common objective (e.g., the road project) while they pursue their own individual interests.

PPPs represent a novel approach to project management and implementation. They are considered a potentially significant and novel way of addressing the many needs and failings of international development aid by virtue of their advantages, as long as their requirements and potential pitfalls are also recognized and addressed.

There are several types of PPPs and these can come into play at a different number of points in the project cycle. Some of the different types of PPPs are grouped under the following headings:

Economic infrastructure
- Water and sewerage treatment works
- Incineration plants
- Expressways and toll roads
- Power and gas plant systems

Social infrastructure
- Education facilities, polytechnics
- Hospitals
- Ministry of Defence: accommodation, equipment, office space
- Government office buildings
- Sports facilities
- Major information technology (IT) infrastructure works

There are also PPPs that provide services.

Table 2 lists various uses of PPPs.

51 World Bank, *Toolkit for Public Private Partnerships in Highways* (Washington, D.C., 2002), http://rru.worldbank.org/Documents/Toolkits/Highways/1_overdiag/.

Table 2. Types of PPPs according to primary purpose

Types of PPPs	Private Sector Role	Primary Purpose of the PPP					
		Reforming the regulatory framework	Research and Product Development	Design and Construction	Service Delivery	Institutional and human capacity building	Oversight of performance
Private investor PPPs	Concession-aire, BOT						
Supplier PPPs	Contractor						
Design and build PPPs	Contractor						
Operator PPPs	Contractor						
Multi-stakeholder partnerships/PPCPs	Participant/ Co-investor						
Corporate Philanthropic PPPs	Donor/ co-investor						
Business coalitions	Advocate						

Common PPP Practice **Areas of PPP Innovation**

Source: World Economic Forum, *Building on the Monterrey Consensus: The Growing Role of Public-Private Partnerships in Mobilizing Resources for Development* (Geneva, 2005), p. 24, http://www.weforum.org/pdf/un_final_report.pdf.

PPPs as concessions[52]

PPPs are broadly based on concession-type contracts, wherein the concession documents set out the rights, privileges and obligations of the private investor. The term concession, in the broader sense, has been used to represent any type of arrangement in which the government assigns the right to a private investor to provide a particular service under conditions of significant market power. The concession is offered in exchange for assuming the risks associated with the project. Concessions are tendered using open tender processes according to accepted practices in public procurement.

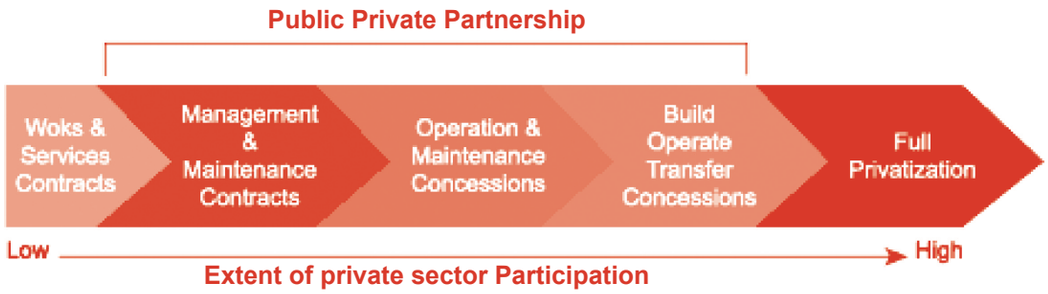
Thus, concessions in this sense include build-own-operate contracts, build-operate-transfer contracts, management and service contracts, and leases. In terms of the market power condition, the application of such models is in a context where the market for supply of a service is naturally monopolistic. Infrastructure facilities (e.g. ports and airports) and network-based industries (e.g. electricity and gas) are classic examples of sectors characterized by natural monopoly provision in some of their segments.

PPP modalities

PPPs can be considered in a continuum of service provision arrangements between the public and private sector. Figure 7 shows some of the possibilities ranging from simple contracting to full privatization of government services. In this representation, the extent of private sector participation grows from left to right.

52 This section is drawn from Rahzeb Chowdhury, Public Private Partnerships: Policy Manual Draft 1.0, prepared for the Government of Mongolia – confidential (Atos Consulting, 21 June 2007).

Figure 7. Continuum of private sector provision in PPPs



Source: World Bank, *Toolkit for Public Private Partnerships in Highways* (Washington, D.C., 2002), http://rru.worldbank.org/Documents/Toolkits/Highways/1_overdiag/.

PPPs are based on two basic models: operating concessions and investment concessions. In operating concessions, the public sector retains ownership of the public assets used in the delivery of the services. In investment concessions, the private sector is responsible for funding and for the operation of assets.[53]

Concessions can be awarded both for investment in existing infrastructure or in entirely new facilities (Greenfield concessions). The investment obligations of the concessionaire will be covered in the concession agreement, and may be defined both in cash amounts and in volume terms, for instance obligations to provide services to a defined number of new consumers. Operational obligations typically include performance standards, and the concessionaire's earnings will depend on user charges that relate to (as defined in the concession) the quality, promptness and degree of satisfaction provided to users.[54] In this framework, both the operating and investment risks are largely transferred to the private sector.

PPPs are grouped according to the following arrangements:

1. Work for services contracts

This is the classical arrangement for providing goods or services. Funds are allocated to undertake predetermined work, a contract is drawn up, and the winning bid is selected to undertake the work required. In this situation, the public sector entity pays the contractor according to the quality of the deliverables based on agreed upon specifications. The public sector client retains all of the design and decision-making authority, as well as ownership and operational control once the work has been completed. This is not considered a PPP, as there is very little risk and this is the usual way of meeting demands for goods and services in the public sector.

However, close working relations with the private sector can be established on the basis of extensive contracting for or outsourcing of goods and services and this is the basis upon which PPP can develop.

53 Rahzeb Chowdhury, "PPPs in e-Government: Introduction to PPPs and commercial models", presentation made in Ulaanbaatar, Mongolia, 26 June 2007.

54 Ibid. There are broadly two types of investment concession as they relate to users. First, if the concessionaire sells services to the public and is paid directly by them, the arrangement is known as a retail concession. Concessions relating to water, electricity, gas and telephone services are typical examples of retail concessions. If the concessionaire provides the services or produce to an intermediate bulk buyer and the intermediate agency in turn sells the services or produce to the ultimate users, this would form a wholesale concession. The UK's PFI scheme largely comprises wholesale concessions, with the government purchasing services from the concessionaire in sectors such as health, education, and defence, among others. In some jurisdictions major power generation plants that have been established with private investment are examples of wholesale concessions.

2. Management and maintenance contracts

This is an operating concession in which the private sector has a contract to provide management and/or maintenance of a facility and/or public service. An example is a company contracted to provide a help desk functionality regarding the use and operation of ICT software and/or hardware.

3. Operation and maintenance concessions

In this scenario, the designated private sector entity has received a concession for the operation and maintenance of a public service. The public sector continues to own the service and concedes the operation to the private sector operator usually for a fixed period of time. There are two types: management and maintenance contracts, and operating and maintenance leases.[55] This is another example of an operating concession.

4. BOT, BOO, BOOT and related concessions

Build-operate-transfer (BOT), build-own-operate (BOO) and build-own-operate-transfer (BOOT) are different investment concessions. BOTs revert to the public service after a given period of operation by the private sector. In BOO concessions, the private sector operator owns the asset. BOOT concessions allow for a longer period of operation before the project finally reverts to the public sector. This model allows the private sector operator time to recoup the costs of investment and earn profits. These concessions are described further below.

Build-Own-Operate (BOO).[56] This is a contractual arrangement in which a private sector investor finances a public service asset and contracts for the requisite construction and subsequent operation of the asset. The private investor has ownership of the asset throughout its life. The investor is allowed to collect fees, rentals or service charges through which to recover investment and operating costs. The ownership, although meant to be indefinite, can have limitations in practice, not least because the concession agreement typically has a finite term. Also, for the contract to remain valid, the investor has to carry out business in accordance with the operating parameters set out in the concession agreement or by the regulator. The life of the assets may also impose a "natural" contract limitation.

BOO contracts have broad application. For example, they are commonly used for independent power (generation) plants (IPPs), where IPPs are contracted to supply electricity to a bulk power buyer, usually on behalf of the state, for onward transmission to the distributive sector.

The main features of BOO concessions are as follows:

- The private sector investor finances the public service asset.
- The private sector investor contracts for the construction and subsequent operation of the public service asset.
- The private investor owns the asset throughout its life.
- The private investor recovers investment and operating costs through revenue from fees, rentals or service charges.
- There is a finite contract term.
- The contract validity depends on performance.

55 Ibid.

56 Rahzeb Chowdhury, Public Private Partnerships: Policy Manual.

Build-Operate-Transfer (BOT).[57] This model is similar to the BOO model except that at the termination of the concession the ownership of the asset is transferred to the government. The investment and operating costs incurred by the investor needs to be recouped through user charges. The time needed to recoup investment and operating costs is typically the key factor in determining the point at which the asset is transferred.

Although BOO and BOT contracts are usually applied to Greenfield investment concessions, there are numerous variations, such as building for lease, rehabilitation of existing assets through rehabilitate operate transfer, and adding new investment during an ongoing lease.[58]

Other variations are:

- **Design-Build (DB)** – Also known as **Build-Transfer**, this model involves the government contracting a private partner to design and build a facility in accordance with requirements set by government. The government assumes responsibility for operating and maintaining the completed facility.
- **Design-Build-Maintain** – As in the DB model, the private sector maintains the facility while the public sector retains responsibility for operations.
- **Design-Build-Operate** – Also known as Build-Transfer-Operate, this model entails the private sector designing and building a facility which, when completed, it also operates for a specified period.
- **Design-Build-Operate-Maintain** – Also referred to as **BOT**, this model combines the responsibilities of DB procurements with operation and maintenance of a facility for a specified period by a private sector partner. The public sector takes over the operation of the facility at the end of that period.
- **BOOT** – The government gives a private partner a franchise to finance, design, build and operate a facility for a specific period. The public sector assumes ownership at the end of that period.
- **BOO** – A private entity is granted the right to finance, design, build, operate and maintain a project. The private entity retains ownership of the project.
- **Design-Build-Finance-Operate/Maintain** – The private sector designs, builds, finances, operates and/or maintains a new facility under a long-term lease at the end of which the facility is transferred to the public sector. In some countries, this includes BOO and BOOT.[59]

PPPs can also be used for existing services and facilities through the following mechanisms:

- **Service Contract** – A private entity is contracted to provide services previously performed by the government.
- **Management Contract** – Unlike in a service contract, the private entity in a management contract is responsible for all aspects of operations and maintenance of the facility.
- **Lease** – A private entity is given a leasehold interest in a government asset, and the private partner operates and maintains the asset in accordance with the terms of the lease.
- **Concession** – A private entity is granted the exclusive right to provide, operate and maintain a government asset over a long time in accordance with performance requirements set forth by the government. The original asset is owned by the public sector while any improvements made during the concession period are owned by the private entity.
- **Divestiture** – The government asset is sold to the private sector, either wholly or partly and usually on condition that improvements are made and citizens continue to be served.

57 Ibid.

58 *Affermage* is another case in point. In an affermage contract, the private sector takes control of existing assets and provides additional funds for their expansion in a concession. Government dilutes its ownership but retains a significant share, and the private operator takes a controlling share for the period of the concession. At the end of the concession, the government assumes ownership of all assets.

59 Rahzeb Chowdhury, Public Private Partnerships: Policy Manual. See also Deloitte, *Closing the Infrastructure Gap: The Role of Public-Private Partnerships* (Deloitte Development LLC, 2006), http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_ps_ClosingInfrastructureGap2006(1).pdf.

The current trend is **best sourcing**, which is open competition for the provision of *all* government services by testing the market. In this case, the public sector specifies the terms of partnership in the tender documents.

3.3 Advantages and Disadvantages of PPPs

PPPs come with certain advantages, risks and disadvantages. After all, a PPP depends on a relationship between operators that are usually ignorant about each other, or that sometimes view each other with suspicion. If the gap separating the private sector from the public sector operators can be overcome, if both partners can work together, and if there is a real opportunity to improve and further project outcomes through the use of PPPs, then everyone benefits.

Advantages to the public sector

Where is the private sector more efficient than the public sector? In some cases, the private sector can provide skills that are not available in the public sector, such as developing a complex or even simple IT solution. The private sector might also be better able to manage the overall project and bring the right mix of partners together. The private sector may also be better able to manage procurement and operations under some circumstances, especially when the work to be undertaken is familiar to the private sector operator. The private sector usually has more flexible procurement rules than the public sector, which can work to advantage during project planning and implementation.

PPPs involving private financing can also ease fiscal problems by moving infrastructure projects off-budget during the years of construction. If the conditions are right, the "potential for raising finance on both domestic and international capital markets can be enhanced by making policy reforms that create clear rules, allowing investors to form reasonably firm expectations about the cash flow generated in an infrastructure business."[60]

The advantages that governments can derive from PPPs can be summed up as follows:

- Increased efficiency in the execution of projects
- Increased investment in public assets without increasing the fiscal burden
- Improved budgetary certainty
- Whole life costing, a method of evaluating or comparing building materials and components by looking at installation costs, life spans, and running and maintenance cost[61]
- Value for money (improved efficiency)
- Economic diversification and growth
- Definition of public sector requirements in terms of service outputs and performance standards
- Transfer of risks to the party best able to manage them (e.g. construction, implementation, integration and operations)
- Reduced risk for the public sector
- Allowing government to focus on strategy and policy for public services
- Enhancement of implementation capacity
- Mobilization of financial resources
- Freeing up of scarce public funds for other uses

60 World Bank, *Toolkit for Public Private Partnerships in Highways*.

61 Link, "Glossary of Terms".

- Design, build, operate synergies
- Stimulating innovation in the provision of public services[62]

Advantages to the private sector[63]

For the private sector, PPPs pose the following advantages:

- Access to new markets and opportunities
- The government is a reliable customer
- There is contractual certainty with the government
- A high degree of predictability of cash flow

Issues and concerns

Some PPPs are concessions that are offered to the private sector in exchange for taking on various risks associated with the project. In exchange for assuming the risk, the private sector operator is usually assured an exclusive concession of the public service under conditions of market power, that is, a near or actual monopoly over the service being offered. While this can be an attractive proposal for the private sector, the government will need to ensure that the interests of the public are safeguarded.

An important issue will be the reaction of the public to the provision of a public service for a fee. If the PPP is for the provision of services where none were previously available, there may be less or no resistance and even some public support. The public services made available through a PPP may be services that are enhanced for those who are prepared to pay for the service, such as the construction and operation of a highway as an optional route.

But PPP models can be restrictive. In some cases, they may be structured around attaining certainty of what is required and this requires a clear demarcation of risk transfer and responsibility. This is not always possible. PPPs are better suited to longer term, high value projects in order to allow sufficient time for the private sector partner to recover its investment. It may also be difficult to change contracts as the service provider is in a position of relative power.

Also, PPPs may not be suited to some ICT projects where the technology is changing rapidly. Under these circumstances, it may not be possible to predict costs and outcomes. The nature of the effort required may be difficult to estimate because the solutions and/or processes proposed may be difficult to measure and delineate. Moreover, some ICT projects may require significant development work in the form of software development or coding, which may be difficult to measure as software programs and intellectual property resources are intangible assets. Finally, as will be demonstrated below, ICT projects are fraught with risk.

3.4 Principles of Implementation[64]

To ensure that PPPs work for the greatest good of both the public and private sector partners, several principles need to be observed. These are:

62 Rahzeb Chowdhury, “PPPs in e-Government”; M. Rathbone, “Overview of public private partnerships”; and World Bank, *Toolkit for Public Private Partnerships in Highways*.

63 Rahzeb Chowdhury, “PPPs in e-Government”.

64 Ibid.

- **Risk transfer** – Define the allocation of risk around the services to be delivered.
- **Specification of outputs** – Detail service outputs rather than the configuration of capital assets or input resources.
- **Whole-of-life asset performance** – The contract should demonstrate the private partner's obligation to ensure the performance of assets for a significant duration of their useful life.
- **Performance-related** reward related to –
    - Output and availability
    - Limited or no guarantees for payments
    - Penalty for poor performance
- **Termination arrangements** – The period of the partnership should be specified, along with arrangements for the disposal of assets at the end of the specified period.

Well designed contracts for PPP projects focus on defining outcomes and service-related outputs and not on measuring inputs. This means that the outcome of a PPP project will be measured in terms of services delivered, such as delivering public transport to a defined service standard, rather than assets provided, such as a given number of buses for public transportation.

The legal basis for PPPs

Before a PPP can proceed, there is a need to determine its legal basis. As a general rule, PPPs are contractual arrangements that can be accounted for under existing laws and regulations. Existing regulatory regimes that apply to the sector in which the PPP will take place would normally apply. In the case of ICT projects, these would be regulations in the telecommunications sector and the power sector. Laws regulating competition would also apply. As PPPs are usually tendered, procurement laws, regulations and procedures would normally apply.

Another requirement is finding out whether PPPs are allowed under the law. Can a state entity create, operate and maintain ICT products through a non-governmental entity on a contractual basis? Is it possible for the state to assign the duties of state executive bodies to other organizations, including private sector operators? In Mongolia for example, it is possible for an NGO to execute government decisions. In this case, the NGO would be responsible to the relevant government minister.

In the case of ICT PPPs, one of the questions that need to be asked is whether the existing legislation is "e-compliant". Specifically, does existing legislation comply with the requirements for e-commerce? Are e-contracts, e-transactions and digital signatures allowed? Is the existing body of legislation e-neutral—that is, all provisions under the law allow for the use of electronic transactions as an option. There should not be any requirements to produce documents in physical format alone; e-formats are also allowable under given conditions, which may require that the documents be electronically signed and certified.

Another legal consideration is whether public services can also be provided electronically.

Similarly, the law must allow, or at least not preclude, the provision of public services using a commercial model.

Some other legal questions that need to be clarified and made consistent with a PPP are the following:

- Is there a requirement under the law that a PPP service provider be licensed? A licensing requirement can allow the application of a regulatory regime, or a means of overseeing and regulating the operation being considered as a PPP. On the other hand, this could also lead to over-regulation of a sector, to the detriment of the ability of the private sector

partner to innovate in delivering the services required, in developing the payment system to be used—in short, to the detriment of the PPP.

- Is there a law allowing e-payments? This is an aspect of e-commerce that is required to be in place if electronic payment options are to be considered. It will also be required to determine whether the law covers service provision for e-services under a PPP arrangement. Similarly, it will be necessary to consider what banking law allows.

While many examples of PPPs can be found in developed countries where the role of the private sector is well established and where there are laws that protect consumers and ensure a level playing field so that competition takes place, this is not the case in many developing and transitional countries where the private sector is not as well established and the capacity of government to develop and manage PPPs is limited.

As a starting point in many such countries, there is a need to clearly explain to the population the advantages of PPPs as well as the pitfalls. Many PPPs are monopolistic opportunities that must be carefully managed and regulated to prevent abuse and to secure the public good. There may also be a need to encourage domestic private sector operators to partner with foreign investors. This is to attain a transfer of skills and infuse financial resources to ensure that a PPP can succeed. In this regard, a PPP is like any other foreign investment, and adequate safeguards need to be put in place to make sure that local companies as well as foreign investors benefit from a PPP deal. By doing so, the country ensures not only that some of the profits remain in country but also that some of the managerial and technical expertise is transferred to the benefit of the host country.

Conclusion

Table 3 summarizes some of the preconditions for a successful PPP.

Table 3. Some preconditions for successful PPPs

Options	Stakeholder support and political commitment	Cost-recovering tariffs	Good information about the system	Developed regulatory framework	Good country credit rating	Potential benefits of the option
Service Contract	Unimportant	Not necessary in the short term	Possible to proceed with only limited information	Minimal monitoring capacity needed	Not necessary	Low ↓ High
Management Contract	Low to moderate levels needed	Preferred but not necessary in the short term	Sufficient information required to set incentives	Moderate monitoring capacity needed	Not necessary	
Operating Lease	Moderate to high levels needed	Necessary	Good information required	Strong capacity for regulation and co-ordination needed	Not necessary	
Rehabilitate-Operate-Maintain	Moderate to high levels needed	Preferred	Good information required	Strong capacity for regulation and co-ordination needed	Higher rating will reduce costs	
Concession	High levels needed	Necessary	Good information required	Strong regulatory capacity needed	Higher rating will reduce costs	
Full Privatisation	High levels needed	Necessary	Good information required	Strong regulatory capacity needed	Higher rating will reduce costs	

Source: Rahzeb Chowdhury, "PPPs in e-Government: Introduction to PPPs and commercial models", presentation made in Ulaanbaatar, Mongolia, 26 June 2007.

Something To Do

Form groups of 4 to 8 people each and discuss the following:

1. What PPP projects have been undertaken in your jurisdiction?

2. Have any PPPs been undertaken for e-government project implementation? Describe these.

3. In your experience, what factors encourage and/or limit PPPs in your jurisdiction, particularly in e-government execution?

4. PPP AND E-GOVERNMENT PROJECTS

This section aims to:
- **Discuss the relevance of PPP as a funding option for e-government initiatives;**
- **Outline key factors to consider in applying PPP to e-government projects, including criteria for successful use of PPP in e-government projects; and**
- **Describe some best practice examples of PPP in e-government.**

4.1 Trends in e-Government

PPPs for ICTs in the public sector are used mainly for e-government projects. It is important to say a few things about e-government in order to set the scene.

The main reason for using ICTs and related management practices in the public sector is to enhance service delivery to the public. This requires improving the efficiency of government. Indeed, e-government requires a major transformation in the way the public sector does business and relates to its client, the public. Administrations that have successfully developed e-government programmes have started by developing a service mentality in public servants. Change management and the re-engineering of business processes in government are necessary for this transformation to take place.[65]

In this model of e-government, governments transform themselves to meet the demands of the public and achieve business process efficiency through the provision of shared services. That is, government services are rationalized and consolidated in order to provide the public with comprehensive and efficient service through one window solutions. According to Accenture, shared services are:

> The consolidation of administrative or support functions (such as human resources, finance, information technology and procurement) from several departments or agencies into a single, stand-alone organizational entity whose only mission is to provide services as efficiently and effectively as possible. Shared services frees up scarce resources to allow departments and agencies to focus on their core business and on their customer needs, while providing organizational flexibility to have the administrative back-office structures independent of front-line activities and structures.[66]

Some of the most widely accepted forms of shared services occur in the provision of IT services within the public sector, as well as in financial services, human resource management services and supply chain purchasing services. Shared services can be implemented through:

65 Accenture, *Leadership in Customer Service: Delivering on the Promise*, Government Executive Series (2007), http://nstore.accenture.com/acn_com/PDF/2007LCSReport_DeliveringPromiseFinal.pdf.

66 Accenture, *Driving High Performance in Government: Maximizing the Value of Public-Sector Shared Services*, The Government Executive Series (2005), p. 3, http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture2005SharedServicesResearch.pdf.

- In-sourcing – government employees staff the shared services organization
- Co-sourcing – government works with a strategic business partners
- Public-private joint venture
- Business process outsourcing
- A combination of sourcing arrangements

The choice of strategy for delivering shared services is based on several considerations, including security of data.

There are several types of ICT projects in government:

- Large infrastructure / equipment projects – building networks, telecommunications infrastructure, etc.
- IT services – maintenance, training, support
- Standalone software applications
  - Specialized applications, or
  - Applications to be used by one organizational unit with limited need to interoperate
- More complex software applications
  - Integrated systems – enterprise resource planning (ERP), content management systems (CMS), customer relationship management (CRM), etc.
  - Shared services – rationalization and consolidation of one or many different applications across many organizational units

This typology of ICT projects also applies to e-government projects.

The characteristics of these different types of projects influence decisions regarding funding and risk allocation, among others.

Large infrastructure projects. These are relatively easy to implement and much experience has been acquired in implementing these types of projects. When PPPs became popular in the UK in 1992, most of the projects undertaken at the time were large infrastructure projects. For projects of this nature, easily quantifiable materials and services are to be procured. An example of a large ICT infrastructure project is installing network infrastructure.

Standalone software applications. Projects that require the development of software can be riskier than purchasing established and tried software solutions. In e-government the different types of software applications include:

- Those that focus on one type of business process (e.g. financial management, human resource management, document management, word processing, passport registration, customs clearance, tax recovery)
- Systems designed from the bottom up or bought off the shelf
- Systems that involve many business units, ministries and departments

Standalone applications managed by one entity may be the easiest to implement and manage. But some applications are so highly specialized that they are more expensive to implement and operate. Applications that are unique to a sector may not require system-wide implementation.

The more complex the undertaking, the greater the risk of implementation will be. Complex software undertakings can be done as a PPP when there is recognized and proven expertise in implementing such solutions in the market place, and this expertise is available for the project at hand. For many of the applications mentioned above, there are off-the-shelf solutions that are available and proven. For simpler applications such as purchasing a productivity suite, the risks are better known.

In the Mongolia e-government case study presented below, the selection of e-government projects for PPP is in part influenced by the nature and associated complexity and risk of the project types described above.

Integrated software application design. This is a variation of the standalone software application. Increasingly, integrated applications are being used by governments because of the advantages they offer. Vertical applications integrated into a whole include:

- ERP systems
- CMS that allow for the rapid storage and retrieval of information

Shared services. A single application is common to several organizations that are part of a larger whole, such as the ministries and departments of government. These applications are sold by large software development companies such as IBM, Oracle, SAP and Microsoft, and they are usually implemented by consultants certified by the manufacturers to install and troubleshoot these products.

The National Association of State Chief Information Officers (NASCIO)[67] of the USA recognizes the following trends in ICT deployment:

- Deployments are undertaken according to well-developed enterprise technology plans.
- These plans emphasize the larger or "enterprise" view of how ICT systems will work together and assume a governance model that is consistent with this system-wide view.
- Government leaders as well as political leaders place greater emphasis on accountability, and on measuring value and performance. Chief information officers (CIOs) and their staff are therefore required to use indicators of performance as well as measurement systems that will help them account for their decisions and expenditures.
- There is a greater tendency towards consolidation of services leading to the concept of shared services.
- CIOs and ICT Directors are required to learn business disciplines, including project management, CRM, and ways of tracking projects and resources used.

While these issues and concerns may not be shared equally in different jurisdictions, they are indicative of the decision-making framework that may influence ICT deployment in general.

4.2 Reasons for PPP in e-Government

PPPs are being considered for e-government undertakings for the following reasons:

- A focus on services – PPPs are used when there is a need to focus on services and not just on outputs. For example, instead of specifying a number of school buses, the requirement of a PPP may be to increase the reach of school bus services by 50 per cent and ensure that all school children reach school by 8:30 a.m. For this, it is important to specify the level of service sought. It is then up to the company responsible for implementation to deliver the service required to the previously agreed level. Similarly, instead of specifying a network in terms of the number of PCs, servers and so forth, it may be useful to specify the network capacity, speed, mean time between failures, level of use by staff (per cent increase in the number of electronic transactions versus paper-based transactions, etc.), and other measures of level of service. Service level agreements are used increasingly as a way of stating the requirement in terms of service and not only in terms of outputs.

67 See NASCIO, http://www.nascio.org.

- High costs – When costs are high, PPPs are a way for the government to reduce the immediate cost of implementation.

- Complexity of IT projects, technical challenge – More complex projects may be more feasible if undertaken completely by a proven private sector provider.

- Poor rate of implementation of IT projects by government – A PPP with a partner with proven credentials to get the job done is an alternative to trying it all in house.

- Customer and public expectations – Successful private sector companies are so because they meet or exceed customer expectations. This can be useful when implementing some government projects through a PPP arrangement.

- High visibility of some public services, such as procurement, real estate and social services – In these cases, it may be advantageous to work with a private sector partner with the required expertise.

- Decreasing budgets – if there is less or no money to finance needed projects and services, a PPP approach can have definite advantages.

- Demands for accountability and transparency – PPPs allow the client to specify exactly what the terms of engagement and delivery are. Governance mechanisms to ensure accountability and transparency using international accepted auditing standards can be put in place.

- Concern about security risks – Private sector suppliers may have expertise in implementing cutting-edge solutions for ICT projects and dealing with data integrity, privacy and safety. The private sector is responsible for developing these products and services and would thus be in a good position to comment on their use and application.

Countries that are leading in the deployment of e-government focus on service delivery for the client and some of these countries are already using or considering using PPPs. The basic principles are independent of the country's development status, although the ability to implement PPPs depends on process and capacity. PPPs demand significant expertise in financial management and procurement management, and depend on the public and private sectors working together. They also depend on trust between the public and private sector partners.

In many developing countries, e-government is mostly for business process efficiency because the service mentality is still making its way in the minds of decision makers. However, this situation is changing rapidly as more countries seek to innovate not only by using ICTs and deploying e-government solutions, but also by reaching out to the private sector because of the significant advantages of doing so if the conditions are right. In all cases, for e-government to succeed there is a need to focus on the needs of the public.

Many PPPs start with informal exchanges and discussions between government and the private sector. Moreover, pilot activities are used to test the project idea and to evaluate the capacity of the private sector before a PPP-based approach is considered.

There is significant work ongoing on the use of PPPs. Some of these projects are highly specialized and very detailed in their scope. The project to implement Tax Service in the State of Virginia in the USA is a case in point. This project won the NASCIO 2001 recognition award under the PPP category.[68] The project aim was to replace a legacy computer system that was used to manage the state's revenues:

68 NASCIO, "2001 Awards: Public/Private Partnerships. Winner - Virginia: Department of Taxation", http://www.nascio.org/awards/2001Awards/partnerships.cfm.

> In 1998, the Virginia Department of Taxation (TAX) engaged in a public private partnership with American Management Systems, Inc., (AMS) to completely reengineer the business process at the agency and to replace the aging legacy systems that managed state revenues. This $135.5 million self-funded Partnership Project is the largest and most comprehensive public-private partnership ever undertaken by a state revenue agency, providing new alternatives for taxpayers, enhanced ability to provide customer service, and organizational development.[69]

Under the agreement with AMS, the company would not be paid until the Department of Taxation uses the new application successfully to increase tax collections. While the project works like any fixed price contract, the difference is that the invoices from AMS are paid only if the project generates revenue. This benefits-funded approach provided incentive to AMS to understand the needs, expectations and modus operandi of the Taxation Department.[70] The project is considered an outstanding success. Taxpayers are happy and a one-stop Web portal has been implemented. This PPP allowed the Department of Taxation to undertake mission critical improvements when funds were not available.

What this approach shows is that with committed and competent partners, it is possible to complete even highly technical and complex tasks using the PPP model.

The key issue in many PPP projects is the concession the government provides to access public information and services. For the government, the appeal lies in the fact that government does not have the resources to provide access to public information and services especially in rural areas.

In India, a PPP project that meets this need is the eSeva project,[71] which provides more than 66 government-to-citizen and business-to-citizen services in 46 eSeva centres in the state of Andhra Pradesh. The project operates under a BOOT scheme, with different contract operators in different localities realizing significant incomes.

Another example is the n-Logue Rural Connectivity Model that deploys wireless-connected Internet kiosks in villages throughout India through a for-profit business model.[72] n-Logue was set up by the Telecommunications and Computer Networks Group of the Indian Institute of Technology in Madras (now Chennai) to look into opportunities for providing e-services in rural areas of India. The company tested and developed applications that would generate revenue while at the same time provide access to a variety of services, including government information and services. n-Logue works with local businesses to provide access facilities and to assist the local business or franchisee to attract traffic to the access facility offering Internet and voice services. n-Logue does not provide content but assists the franchisee in the village to access relevant Internet content and to help local users develop their own content, such as Web pages, if desired.

In these examples of PPP in India, the government benefits from enhanced service delivery and the rural communities gain access to information and service that would otherwise not be available to them.

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69 Ibid.

70 Carole Richardson, "Digital Government: Balancing Risk and Reward through Public / Private Partnerships", in *Digital Government: Principles and Best Practices*, Alexei Pavlichev and G. David Garson, eds. (Hershey, PA, Idea Publishing Group, 2004), pp. 200-217.

71 Government of Andhra Pradesh, "eSeva", http://www.esevaonline.com.

72 See John Paul, "What Works: n-Logue's Rural Connectivity Model – Deploying Wirelessly-Conected Internet Kiosks in Villages Throughout India", What Works Case Study, World Resources Institute, December 2004, http://pdf.wri.org/dd_nlogue.pdf.

In Scotland, Atos Consulting won a PPP project to build and operate a health services facility. The project involves Atos staffing the entire facility with medical professionals that it hires directly, and providing medical services to the public for reimbursement by the public health service of the UK government. For the government, the advantage is not having to make a significant capital outlay to build the hospital as well as other outlays to staff and operate the facility. The public continues to use the hospital as they would any other public health facility in the UK. The hospital is subject to the same rules and regulations that apply to other medical facilities in the UK. Atos recovers its initial capital outlay in the form of fees from the operation of the facility based on an agreement worked out with the UK public health services department and their financial backers.

In conclusion, the success of PPPs depends on the readiness of the partners to work together and to seek novel and cost effective solutions to the challenge of providing public services. PPP projects can be as innovative as the business plans that underpin them. There are advantages for both the public and private sector partners.

Something To Do

Form small groups and discuss the following:

1. In your experience, what are the issues related to ICT and e-government project implementation?

2. How can PPPs help address these issues?

4.3 What e-Government Projects are Appropriate for PPPs?

Not all e-government projects are suitable for implementation under a PPP arrangement, but many are. Some projects are not to be undertaken by the private sector for reasons of conflict of interest, for example. And policymaking is still the sole purview of the government acting in consultation with all stakeholders, including the private sector.

In this section, we will consider the example of the Mongolia e-Government Master Plan and the projects in that master plan in terms of their appropriateness for implementation through a PPP.

Mongolia offers several advantages to the private sector. It has a business-friendly environment and the private sector has a growing role to play in the economy. There are many entrepreneurs in Mongolia and several have been operating in the country developing businesses in the ICT sector. The banking sector is active and there is competition. Several banks offer online banking services and the banks are entrepreneurial, looking for opportunities to expand their business offerings in the urban and especially the rural areas where most Mongolians live.

Mongolia is connected to the global fibre backbone and there is a fibre network linking China and Russia to the north. There is good connectivity in the urban areas and in some of the *som* (local districts). Computers are widely available and there is a high rate of computer use. The population of Mongolia is young and there is a high literacy rate.

On the downside, there is a lack of awareness of PPPs and their benefits. This situation is changing as the World Bank is promoting, in cooperation with the Government of Mongolia, several PPP projects. Over time, it is expected that Mongolia will open up to the role of business in the development of the country and PPPs will be considered more and more.

The e-Government Master Plan for Mongolia outlines several projects. The four main types are as follows:

1. Foundation projects for e-government based on common infrastructure, shared services (ERP/ECM)
2. Policy activities
3. Capacity building (training)
4. Service delivery

Foundation projects include government or national backbone networks, including the installation of computers and local area networks and wireless networks, basic office productivity software, common infrastructure and shared services as defined previously. Without these projects, e-government is not possible or will not have the broad-based benefit that is intended. Specific foundation projects include:

- Government representative portal
- National identification system
- Administration portal (e-approval, knowledge management, e-document)
- e-Procurement
- Expansion of ICT resource
- Enterprise architecture
- Integrated government-wide information system (ERP, ECM)
- Information protection system (national ICT security system/service, internationally recognized certification authority)

Policy activities are not undertaken as a PPP, but in principle policymaking involves consultations with the private sector as with many other stakeholders. The policy activities include the National Unified Code System Development and legal reform for e-government.

Training and projects to deliver public services are suitable to a PPP approach depending on needs and circumstances. The training is designed to strengthen ICT organizations. The service delivery projects include the passport management system, recruitment and employment information system, e-customs, business registration and approval management, and intellectual property management system. Several other service delivery projects are being considered, as follows:

- Local and community access services
- e-Commerce portal for SMEs
- Agricultural information systems
- Online agricultural market place
- Health information portal
- Election management and information system
- Traffic management system (active PPP)
- Vehicle registration system (active PPP)
- Tourism portal and reservation system (in place to some extent)

4.4 Criteria for Success for PPP Projects in e-Government

For PPPs to succeed, the following conditions must be met:

- Commitment from executive leadership
- A statutory foundation for partnering
- Direct public sector involvement
- A well-crafted plan
- Effective communication with stakeholders
- The right opportunity
- The right partner
- Well-defined management processes

For the Mongolia e-Government Master Plan, the following criteria were developed to assess the appropriateness of projects for implementation as PPPs:

- Enabling environment
- High-level support
- Level of acceptance/resistance to change
- Ease of implementation – a technical/business solution is already available
- Demand
- Earning potential
- Flexibility
- Job creation potential
- Cost saving potential for the government and the public (shorter queues, reduced travel, etc.)
- Replicability and multiplier effect
- Capacity of the government agency and private sector partner(s)
- Experience working with the private sector
- Visibility

Using these factors, the following projects were identified for inclusion in the e-Government Master Plan of the Government of Mongolia:

1. Vehicle and traffic management system with mobile applications
2. Local and community access facility with banks, post office, local entrepreneurs, etc.
3. Business registration via the Mongolian National Chamber of Commerce and Industry Inc.
4. Social insurance system with the banks and other operators
5. e-Commerce platform for SMEs
6. Pilot Government of Mongolia procurement platform for opportunity matching (pilot e-procurement system)
7. National certification authority as a joint venture with Verisign or its equivalent

These projects, some of which do not appear on the final e-Government Master Plan, were selected based on discussions with officials and private sector operators in Mongolia. The vehicle and traffic management system is a PPP project that has been in existence for several years and that was instigated by a private sector operator in discussion with the authorities. The project developed an automated fine payment system as well as a computerized vehicle registration system. Some of the other projects were identified as a result of discussions with government officials or with private sector operators.

The project to establish local and community access facilities is based on cash payments that citizens are entitled to from the Government of Mongolia. These payments are mediated through banks that have branches throughout Mongolia. For the Government of Mongolia,

the advantage of working through the banks is that they have an existing network of branches and the possibility of fraud is eliminated. Telecommunications service providers, specifically satellite service providers, can use very small aperture terminal satellite receivers to link remote branches throughout the country.

e-Procurement is a project that has great potential for being delivered as a PPP. Models of e-procurement systems delivered through PPPs are available and have been implemented in Canada and the Philippines (see section 4.5).

The following projects are listed based on the desirability of implementing them:

1. Integrated government-wide information system (ERP, ECM)
2. Enterprise architecture
3. National ID card
4. Social insurance system with the banks
5. Business registration

Desirability was decided on the basis of the greatest possible development advantages that implementing these projects would give the country. For example, the integrated government-wide information system and enterprise architecture projects would lay the foundation for the rationalization and consolidation of common or shared services. Rationalization and consolidation can significantly improve efficiency and value for money. The national ID card project would allow for a national database of citizens that can be used repeatedly for registering users of government services in all ministries and departments throughout the country, assuming that the requisite systems and enterprise architecture are in place.

Something To Do

Form small groups (4-8 people) and discuss which e-government projects in your jurisdictions you think are most likely candidates for PPP. Explain why.

4.5 International Examples of PPPs[73]

There are several ways in which PPPs have been used throughout the world. PPPs are used extensively for large-scale investments in public infrastructure and more recently, for the provision of IT services to public enterprises such as governments at all levels. PPPs are also used by development agencies to help deliver some services in the health sector.[74] In general, PPPs have been used for infrastructure projects in areas other than in ICTs. Tables 4 and 5 summarize the types of PPP projects by activity in countries inside and outside of the EU as of October 2005.

73 The research supporting this section was undertaken in 2007 and the information presented here may have been superseded with more recent information.

74 See NetMark, http://www.netmarkafrica.org.

Table 4. Summary of PPPs by sector in the European Union

	Central Accommodation	Airports	Defence	Housing	Health & Hospitals	IT	Ports	Prisons	Heavy Railway	Light Railway	Roads	Schools	Sports & Leisure	Water & Wastewater (incl solid waste)
Member States														
Austria	○	○			◔	○		○	◔		◔	○		○
Belgium		◔		◔					◔	○	◔	○		◔
Denmark	◔							○		○	○	◔	○	
Finland			○		○				○	○	◔	◔		○
France	◔	○	○		◑		○	◔	◑	◑†	●†		◔	●†
Germany	◑	○	◑		◔	◔		◑	○	○	◑	◕	◔	◑
Greece	◔	●			○						◕	○	◑	
Ireland	○			◑	◔			○		◔	◕	◑		◕
Italy	◑	◔		◔	◕		◔	○		◑	◕		◔	◕
Luxembourg		○				◔								
Netherlands	◔		◔	○	○		○	◔	◑		◑	◑		◑
Norway (not EU)	○		○		◔			○			◑	◔	○	
Portugal	○	○		○	◔	◔	◑	○	○	◑	●	○	◕	●
Spain	◔	◔			◑		●	◔	○	◔	●	○	○	◕
Sweden			○		○				○	◑	○			
UK	●	●	●	●	●	●		●		●	●	●	●	●
New Member States														
Cyprus		◔					◔				◔			◔
Czech Republic		○	◔	○	○			○	○	○	◔	○	○	◔
Estonia			○	◔	○	○				○	○	◔		
Hungary	○	○		◑	◔	◔		◔		○	◑	◑	◔	
Latvia	○			○	○			○			○	○		○
Lithuania					○				○	○		○	◔	
Malta				○	◔	◔	○				◔	○	◔	
Poland	○	○		○			◔		○	○	◑		○	◑
Slovakia		○									○			○
Slovenia														◑
Acceding and Candidate Countries														
Bulgaria		◔†					◔†				◔			◔
Romania		○		◔	◔						◑		◔	◔
Turkey		◑		○	○				○	○	○			◑

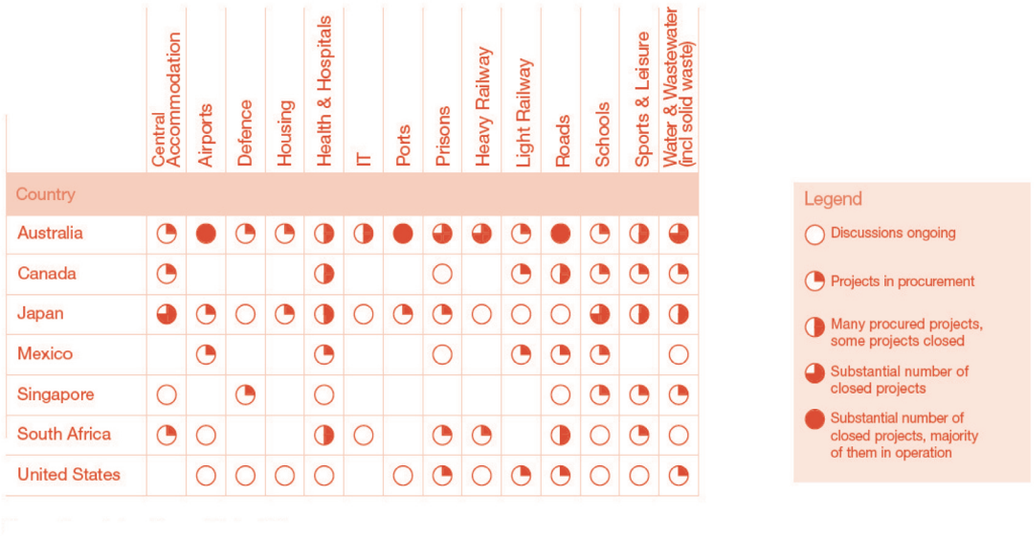
Legend

- ○ Discussions ongoing
- ◔ Projects in procurement
- ◑ Many procured projects, some projects closed
- ◕ Substantial number of closed projects
- ● Substantial number of closed projects, majority of them in operation

† *Procurement activity in these sectors relates to traditional style concession contracts*

Source: Paul Davies and Kathryn Eustice, *Delivering the PPP promise: A review of PPP issues and activity* (PricewaterhouseCoopers, 2005), p. 36, http://www.pwc.com/en_GX/gx/government-infrastructure/pdf/promisereport.pdf.

Table 5. Summary of PPPs by sector in non-EU countries



Source: Paul Davies and Kathryn Eustice, *Delivering the PPP promise*, p. 54.

There are few IT projects listed here. However, a major IT project from Canada is discussed below as a best practice in PPP.

A PPP in e-Procurement in Canada and the Philippines

The case of the Merx e-procurement system (http://www.merx.com) developed for the Government of Canada (GoC) by a private company and used by several levels of government across the country offers useful insights into what constitutes a successful PPP project in e-government.

Public e-procurement is a cornerstone for e-commerce and e-government in any country. e-Procurement is essential for countries to acquire the comparative and competitive advantage needed to compete internationally. This is because it is a very efficient way of encouraging the private sector in general and SMEs in particular to use ICTs for business. In addition, e-procurement has a multiplier effect on many other areas of e-commerce and by extension of e-government. In some jurisdictions, e-procurement pilot projects have been used as a platform for enhancing the capacity of the private sector to use e-commerce.

The Merx system provides online access to all procurement notices of the federal GoC and several other sub-national government levels and agencies across the country. It also provides access to all of the relevant documentation required to assess a bid. The system includes a payment platform to allow for the purchase of tender documents and other services such as registering companies online and taking credit card information to pay for registration, subscription, document delivery, and other related services.

The Canadian government e-procurement system was initiated in the late 1980s when the government was trying to implement a number of budget cuts and funding for new initiatives was very limited. Initial studies showed that CAD 10 million was required to establish and operate an e-procurement service, an amount beyond the cost already incurred to

manage existing procurement processes. To move forward, the government asked industry to establish an e-procurement programme as a self-funding operation. The government entered into a concession agreement with a private sector operator to build and operate an e-procurement service that would be funded by users' fees. The selection of the successful operator was based on the criterion of best cost to individual users. The service was to include both the electronic distribution of information and a fulfilment service to manage the physical distribution of bid documents.

Under this arrangement the Canadian government was able to establish an e-procurement programme that became recognized as one of the most open and transparent systems in the world. Established at virtually no cost to government, the system has also saved the GoC approximately CAD 6 million per year in photocopying, courier and fax costs for distributing bid documents to suppliers who requested them.

Since the Merx system has been in operation, the Canadian government has awarded the service contract to three different suppliers using the same criterion, that is, to the supplier who is able to deliver the required service at the best price to users. To ensure that the majority of federal government information is made available to users at no costs, the government is currently subsidizing the operation of the service.

The PPP approach allowed the government to mitigate significant risk associated with the proposed self-funding arrangement, as there was no guarantee that any business volumes would be achieved. It took a few years for the market base to grow to sustainable levels. In the first year of operation, the user base grew from about 2,000 to 6,000 users. After five years the service was supporting over 12,000 users. Now the MERX service maintains more the 25,000 users. The large market provides the government with ongoing competition for procurement opportunities, which allows for another 10 per cent saving on previous tender offers that were undertaken without competition.

Initially with the assistance of the Canadian International Development Agency, the Philippine government has also applied a PPP approach with a local supplier to develop its own e-procurement programme called PhilGEPS (http://www.philgeps.net/GEPS/default.aspx). In the beginning, the Philippine government did not have any technical expertise in how to implement and manage an e-procurement system. But following the Canadian model and using a modified version of the Canadian system, the Philippines was able to quickly establish an initial e-procurement system to help train users. From a couple of participating agencies and a few hundred suppliers, the Philippine government's e-procurement service now supports more than 4,300 agencies and 25,000 suppliers.

One of the reasons that this Canadian PPP was so successful is that the company that won the bid, Merx Cebra, a division of the Bank of Montreal, one of the five largest banks in Canada, had already developed a similar application. Merx Cebra had all of the expertise required and a true understating of the costs and risks and of the business case in general.

Source: Joe Fagan, Personal communication, 2007. Joe Fagan was the designer of the Merx system of the GoC and is engaged in the development and operation of the PhilGEPS e-procurement system in the Philippines. He can be reached at jbfagan@rogers.com.

Questions To Think About

1. What factors would influence the development of a similar project using a PPP approach in your country? Rate the factors by priority.

2. What lessons for your country can be learned from this case study?

PPPs in Singapore[75]

The Government of Singapore has undertaken the following PPP projects:

- Singapore Sports Hub (Singapore Sports Council)
  - Uses a Design, Build, Finance and Operate PPP model
  - PPP deal to cater to both sports and non-sports enthusiasts for a period of 25 years
  - Expected to be ready by April 2014

- ITE College West (Institute of Technical Education)
  - First social infrastructure PPP project in Singapore
  - Uses a Design, Build, Finance and Operate PPP model
  - Contract is to design, build, maintain and operate the education facility for a period of 27 years
  - Officially opened in July 2010

- Tuas Desalination Plant (Public Utilities Board)
  - Uses a Design, Build, Own and Operate PPP model
  - Supply 136,000 cubic metres of water per day for a 20-year period from 2005 to 2025
  - Officially opened in September 2005

- Second Tuas Desalination Plant (Public Utilities Board)
  - Uses a Design, Build, Own and Operate PPP model
  - Supply 318,500 cubic metres of water per day for a 25-year period from 2013 to 2038
  - Water Purchase Agreement signed on 6 April 2011

- Ulu Pandan NEWater Plant (Public Utilities Board)
  - Uses a Design, Build, Own and Operate PPP model
  - Supply 148,000 cubic metres of NEWater per day for a 20-year period from 2007 to 2027
  - Officially opened in March 2007

- Changi NEWater Plant (Public Utilities Board)
  - Uses a Design, Build, Own and Operate PPP model
  - Supply 225,000 cubic metres of NEWater per day for a 25-year period from 2010 to 2035
  - Officially opened in May 2010

- Incinerator Plant (National Environment Agency)
  - First PPP project by NEA to Design, Build, Own and Operate a new incineration plant next to the Tuas South Incineration Plant

75 This section is drawn from Ministry of Finance, "Public Private Partnership", Government of Singapore, http://app.mof.gov.sg/ppp.aspx, updated on 2 June 2011.

- Incinerate 800 tonnes of refuse per day for a 25-year period from 2009 to 2034
- In operation since January 2009

- TradeXchange (Singapore Customs)
  - First IT PPP project by Singapore Customs to create a one-stop integrated logistics information port
  - The contract is to develop the software, including the maintenance and operation of the system for a 10-year period from 2007 to 2017

The Singapore Customs TradeXchange is an e-government project.

For the Government of Singapore, the focus is on finding the most efficient way of delivering public services for a given public investment. The Ministry of Finance of the Government of Singapore is responsible for public procurement for the administration.

PPPs are one alternative for public service delivery for projects worth over 50 million Singapore dollars. They will also be considered for projects with a value below this limit if the PPP approach can be demonstrated to deliver value for money. This is similar to the concept of the UK PPP task force where there is a unit within the Ministry of Finance that creates awareness of PPP, handles PPP policy and provides guidance on PPP matters.

PPPs in Hong Kong[76]

In Hong Kong the private sector has long played an important role in the provision of economic infrastructure and public services, including electricity and gas services, telecommunications infrastructure, and public transport services. In the early 2000s budgetary deficits and the desire to reduce public expenditure made PPPs the preferred approach to development in the territory. Under such arrangements, the government defines the quality and quantity of services and sets the time frame while the private sector provides project financing and delivers the service. Target benefits are productivity improvements and cost efficiency, improved quality of service delivery, risk sharing, innovation, more business opportunities and jobs, access to private finance, and improved cash flows.

However, PPPs in Hong Kong have had mixed success. Of four projects, namely, the Cyberport, the Asia-World Expo, the West Kowloon Cultural District and the Centre for Youth Development, all but the Asia-World Expo project have met with difficulties. Problems like inadequate consultations, perceived favouritism and procurements issues have eroded the public's trust in PPPs. Indeed, for PPPs to succeed there needs to be full transparency at the project level, the assurance of social responsibility of private partners, and government credibility in the preparation, regulation and monitoring of PPP projects.

In the short term the Hong Kong public's trust in PPP arrangements will need to be restored. In the long term, accountability mechanisms need to be strengthened to sustain public support for PPP. An intensive promotion of good practices, an inclusive approach, continuous consultation and public information campaigns are all needed for this to happen.

Major PPPs in the OECD for ICT infrastructure development

A 2011 OECD paper documents many PPPs for funding broadband infrastructure development (see figure 8).

76 Abridged from Mark Hayllar, "Promoting Public-Private Partnerships to Attain Millennium Development Goals in a Developed City: The Case of Hong Kong", *Eropa Daily Bulletin*, Vol. 1, No. 3 (2005), pp. 1-2.

Figure 8. Major PPPs for broadband infrastructure development in the OECD

Country	Project Name	Initiator	Finance size	Finance source
Australia	National Broadband Network	Public	USD 43bn (initially USD 4.3bn)	Building Australia Fund and the issuance of Infrastructure Bonds
Canada	Broadband Canada: Connecting Rural Canadians (part of Canada's Economic Action Plan)	Public	USD 223m	The Canadian government
Finland	Finland (general broadband investment plan)	Public	Total USD 280m with USD 94m from State	Finnish state will pay up to a third; municipalities, regions and the EU another third; and telcos at least one third
Germany	Broadband strategy	Public	USD 356m (basic broadband) and USD14m (high speed pilot project)	Uses a large portion of the digital dividend from frequency liberalization to achieve the first-phase target. The government will also use funds from its second economic stimulus
Greece	Greece (general broadband investment plan)	Public	USD 983m	Greek government (USD 983m); private sector investment (USD 1.97bn)
Republic of Korea	The ultra broadband convergence network (UBcN)	Public	USD 30m	Korea Communications Commission (USD 30m), incl. USD 29.5m from private sectors in the country's IT infrastructure
New Zealand	N/A	Public	USD 1.16bn	The New Zealand government plans to invest up to USD 1.16bn in its network, and seeks additional private sector investment to create a national market in dark fibre and wholesale broadband access
Spain	Plan Avanza	Multi-national entity	There is a budget of USD 125m for overall infrastructure development, which includes broadband	Actual budget depends on the additional funding from the European Fund for Regional Development
United Kingdom	Britain's Superfast Broadband Future	Public	USD 1.35bn	Government investment of USD 860m of which USD 486m will come from spectrum sales.

Source: OECD, "Fibre Access: Network Developments in the OECD Area", OECD Digital Economy Papers, No. 182 (OECD Publishing, 2011), pp. 17-19, http://dx.doi.org/10.1787/5kg9sqzz9mlx-en.

5. RISKS IN PPP PROJECTS FOR E-GOVERNMENT

"Risk" refers to any factor that decreases the certainty of a desired outcome. Risk varies with needs and circumstances. And risk is based on facts as well as perceptions.

There are risks associated with e-government / ICT projects and there are risks associated with PPPs. The public and private sectors and other stakeholders, including civil society and the general public, have to be aware of these in order to be able evaluate options carefully and come to a sound decision that is based on an impartial analysis of the facts. Managing and mitigating risks in the PPP process is essential in order to avoid failure as well as resistance to other PPP opportunities.

5.1 Risks Associated with ICT Projects[77]

ICT projects carry a high risk of failure largely because of some of the characteristics of the IT components of these projects. In 1995 the influential Standish Group *CHAOS Report*[78] showed that only 18 per cent of 13,000 government IT projects surveyed were successful.[79] Following a series of high profile IT project failures identified by the Auditor General of Canada, the GoC decided to move to a common approach for managing IT projects to overcome the problems identified and increase the probability of project success.

This common approach is called the Enhanced Management Framework (EMF).[80] It is a comprehensive model for managing IT projects in government. To ensure implementation of the EMF by individual ministries, the Treasury Board of Canada[81] (the central agency responsible for ensuring value for money) endorsed a staged approach to implementing EMF. Research on adopting a highly structured process (such as the Software Engineering Institute Capability Maturity Model Integration) for IT projects (which is part of the EMF) does demonstrate gains in efficiencies and quality. Module 7 of the *Academy of ICT Essentials for Government Leaders* module series focuses on project management, which is essential to enhancing the chances of success of ICT projects.

The application of a structured and considered planning and implementation process resulted in the following advantages:

- Productivity increases ranging from 10 to 100 per cent
- Defect and error rate reductions of 45-70 per cent
- Savings of USD 4-6 for every dollar invested in process improvement
- Improvements in scheduling that in some cases led to improvement rates ranging from 50 to 100 per cent over the project schedule

77 This section is drawn from information provided by Ron Santos, Business Analyst and Software Engineer, Ottawa, Canada.

78 The Standish Group International, *The CHAOS Report* (1995).

79 Success is defined as an IT project being delivered on time, on budget and with all required features/functionality. By the time the report was published, these figures had improved but the majority of all IT projects are still not considered successful.

80 The failure of large IT projects is a preoccupation of many OECD countries and the GoC is not alone in standardizing IT Project Management Best Practices. The UK has a similar initiative called "Reliable Project Delivery".

81 The Treasury Board of Canada Secretariat provides advice and support to Treasury Board Ministers in their role of ensuring value for money. It also provides oversight of the financial management functions in departments and agencies of the GoC. See http://www.tbs-sct.gc.ca/tbs-sct/index-eng.asp.

- A reduction in the need to redo or repeat the effort already undertaken from 40 to 25 per cent of total project effort

Other ICT project risks

Fast changing technology may increase costs and can add a dimension of uncertainty and risk that is difficult to manage. Projects using established technologies, such as those most likely to be encountered in development projects and especially in projects in low income countries, should not be a concern in this regard. Some technologies are considered to be relatively future proof.

Building a fibre optic backbone that is compatible with wavelength division multiplexing (WDM) technology will guarantee its future use. WDM allows the greatest multiplexing and is a technology that can be used for years to come. However, using a proprietary wireless broadband technology may not provide the same guarantee.

In more complex ICT projects involving system design and mapping business processes to allow automation, the scope of the project and the level of effort required may be difficult to estimate.

Human factors such as resistance to change are also difficult to measure and estimate. Projects involving many different entities such as large scale e-government projects present similar difficulties.

Some projects involve intangible assets such as websites and related content and intellectual property, brand, franchise, goodwill, trademarks, patents and/or copyrights. Because of the ease with which these assets can and have been tampered with and even stolen, they involve a risk to the author or copyright owner.

5.2 Managing ICT Projects to Reduce Risk

In short, the IT component of ICT projects requires special attention. The issues that may arise should be anticipated and addressed.

Interoperability is essential for consolidating and rationalizing services. The use of open standards encourages interoperability and common formats for storing, retrieving and exchanging information. Applications that use common standards instead of proprietary standards for outputting data make it easier to operate on data produced by different software applications without the need for data transfer sequences and the possible losses of formatting and/or data completeness that can sometimes occur when data is exported and/or imported between programs using different data standards and formats.

Developing a common solutions framework is another way to reduce the risk associated with ICT projects. The emphasis here is on developing detailed project management rules and procedures. This involves several steps, namely:

- Planning and control
- Quality control
- Procurement
- Risk management
- Change management—managing the changes at the project level, i.e. in the project cycle for implementing individual projects

In some cases, institutional arrangements have to be made to ensure quality and control.

PPPs are a different way of financing projects, but there is still a need to procure the work to be undertaken. Tender documents will have to be developed. Because PPP projects are different from the usual contracts for work and/or services, there is a special need to ensure that the procurement procedures are clear and that the tender is comprehensive and unambiguous especially if the PPP project is being undertaken for the first time.

It is not uncommon at this stage to hire a firm specializing in writing PPP project proposals and tender documents to lend a hand in drafting the tender documents and in advising the government on the approach to be taken. Once a PPP project has been tendered, the PPP consultants can continue to provide advice to the government in preparation for and during the negotiations that need to take place before an agreement for a PPP can be concluded. In some cases, the private sector firm will also retain expertise to assist them in the negotiations and in structuring the agreement.

Change management is important to e-government projects. Automation and computerization implies a radical change in the ways things are done. To secure the greatest support possible from public sector employees and staff, change management programmes may need to be established.

Paying special attention to project management is another way of managing and mitigating risk. A Project Management and Design Team are associated with the preparation of the project. A Technical Team provides the technical expertise that may be required. The experience, but especially the successes, that the institution or organization in question has achieved in project management are documented to institutionalize best practices so that lessons can be learned and shared.

5.3 Risks in PPP Projects

Some of the risks associated with PPP projects are related to the novelty of the approach and resistance to the idea of working with the private sector as partners and not as sub-contractors, for example. Overcoming these risks may require a significant change in the way things are done, as well as a change in mentalities and perceptions.

In many countries, it is the public sector that is the major player and the private sector has an important but secondary role to play. Similarly, in many jurisdictions, the private sector is a relatively new player and to accord equal treatment to private operators as that granted or assumed by the public sector partner requires a change in perspective.

For these same reasons, in many countries, the private sector is weak and unable to assume the role of a partner to the public sector. And bringing in foreign partners in a joint venture arrangement is not always possible or desirable. If there is resistance to the private sector, it is likely to remain when foreign partners are brought into play. On the other hand, in some cases a foreign partner may actually make a PPP proposition a reality.

Factors that increase risk in PPPs are discussed below.

- **Project scope:** Large and complex ICT projects carry a lot of risk. Understanding the business processes of different agencies and ensuring that an ICT solution can solve everyone's problems require much effort and consultation, which is very time-consuming. Business process re-engineering and change management are often necessary, and the outcomes are not always clear or predictable.

- **Experience with PPPs:** Lack of experience with PPPs on the part of either party could result in lack of confidence, misunderstandings, lack of coordination and costly mistakes, among others.

- **Project cost and financing requirements:** It may be difficult to properly scope out the costs and financing requirements of a PPP, especially if the project is complex and involves many different actors. Moreover, the costs of obtaining financing may be higher than planned for depending on the assessed level of risk of the venture in the hands of an unproven private sector operator.

- **Public perception:** What the public thinks about PPPs influences their acceptance of PPPs. In some countries, interactions between the public and private sectors may be viewed with caution because in some instances it may have led to favouritism and rent seeking behaviour. There could also be anxiety over the impact of PPPs on public sector employment. PPPs may be perceived by public employees, unions and others as a way of downsizing the public sector, which could elicit resistance to PPPs.

- **Number of actors involved:** The involvement of many actors increases risk because there is increased complexity (see #1) and more people and factors to deal with.

- **Project design:** Poor design can result in higher costs and greater risks.

- **Regulatory capacity:** An inadequate regulatory environment means lack of safeguards against abuses by either party, ultimately at the expense of the public.

- **Procurement process:** The procurement process for a PPP can be longer than usual if it is being done for the first time.

- **Interaction between actors and partners:** The risk of failure in PPPs is high when there is poor coordination among the partners, insufficient exchange of information, lack of collaboration, unclear leadership, unclear ownership and lack of accountability. These are more or less directly related to the capacity of the responsible agencies or partners. They are also related to experience in managing projects in general and PPPs in particular (see #2 above).

The foregoing are factors that make PPPs risky, or vulnerable to failure. We can also look at risk in PPPs in terms of negative consequences (of entering into the partnership) for each of the partners.

Risks for government

For government, one of the risks associated with PPPs is lack of understanding and support from public servants for the changes that e-government entails. This lack of understanding could feed fears for job security and therefore increase resistance to change. A change management programme is one way of addressing this.

Another risk for government is the erosion of popular support for the government if the results of the PPP do not live up to the expectations of the public. This in turn could lead to loss of support from politically influential groups, such as government employees' unions and citizens' groups.

A third risk for government in PPPs is loss of public sector control. By allowing the private sector to operate and even own a public service, the public sector loses control over that service or will be perceived to have lost control. In BOO concession, the risk of losing control is higher. To address this, an ongoing oversight procedure needs to be put in place for operating concessions.

Risks for the public

In some cases, the public may see PPPs as the government giving away public goods for exploitation by the private sector at the public's expense. Some specific concerns that the public may have about putting public information and services into the hands of private sector operators are the following:

- The private sector operator ends up owning a public service.
- The private sector operator establishes a monopoly over a public service.
- The private sector operator is driven only by profit, not the public good.
- There could be data security breaches, with personal information being inadvertently misplaced or shared or made public.

Security risks would exist even when the government is solely responsible for managing citizens' personal information. However, it is a valid concern and a real risk, as are the others mentioned above. Unless these risks are mitigated, they can lead to an erosion of public trust in the government.

The government has to be concerned about what the public thinks if it is to succeed in encouraging the public to use the services that are being developed with the help of the private sector partner.

Risks for the private sector

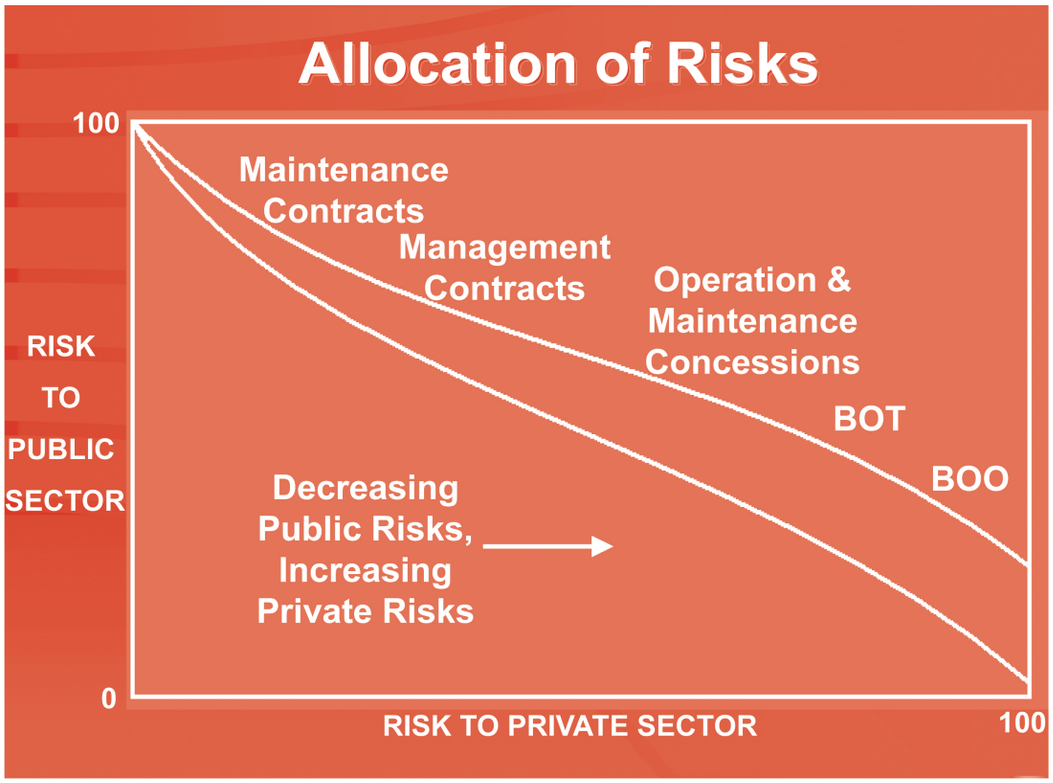
For the private sector, the risks of a PPP arrangement include the following:

- There are no guarantees that the market will bear the commercial proposal from the private sector partners. If the result is negative, then the project will fail.
- The risks (discussed above) may be more than the project or business case can bear.

Allocating risks in PPPs

In different types of PPP, risks are allocated between the public and private sector differently (see figure 9). Where the risk to them is greater, the private sector usually requires higher rates of return.

Figure 9. Allocation of risk in PPP projects



Source: World Bank, *Toolkit for Public Private Partnerships in Highways* (Washington D. C., 2002), http://rru.worldbank.org/Documents/Toolkits/Highways/1_overdiag/.

5.4 Managing and Mitigating Risk in PPPs for e-Government

Risk management is a central component of the PPP process. Risk management applies to project externalities such as public perceptions and regulatory issues related to the management of the PPP project.

To manage risks, partners should undertake as much research as possible on the project itself as well as on the procedures associated with PPPs; acquire the assistance of external experts; undertake detailed project planning; and engage in ongoing consultation throughout the life of the project. And both parties should ensure that the contract deals with all issues to their mutual satisfaction.

At every step in the project, the following must be done:

1. Risks must be identified.
2. These risks must be defined.
3. The risks must be assessed.
4. The risks must be allocated between the public and private partners.
5. Mitigation measures must be identified.
6. Probabilities and cost should be calculated.

A risk register should be maintained to monitor risks.

Once risks have been identified, it is customary to develop risk mitigation measures. Risks can be categorized as either political in nature (P) or commercial (C). Tables 6 to 8 describe different risks at various phases in the implementation of a PPP project, along with the risk mitigation mechanisms that are recommended to deal with specific risks.

Table 6. Sample project preparation risks and mitigation mechanisms

Description of risk	Type of risk	Risk mitigation mechanism
Conflicting authorities	P	Strong institutional implementation framework
Change in authorities/selections	P	Strong institutional implementation framework
Failure to obtain all permits, approvals and licenses	CP	Strong institutional implementation framework
Delays in approvals	P	Strong institutional implementation framework
Public sector monopolies	P	Sector liberalization
Inappropriate legal structure for project finance	P	Legal reform
Resistance/protests by interest groups (unions, NGOs, etc.)	CP	Cooperation and integration of all involved
Bidding risks	C	Interests should be maximized, not mitigated
Legal challenges to project award	P	Transparent award procedures
Financial closure delays	CP	Closure deadlines need to be realistic

Table 7. Sample project construction risks and mitigation mechanisms

Description of risk	Type of risk	Risk mitigation mechanism
Cost overruns	C	
Completion delays	C	
Failure to meet performance specifications	C	
Changes to contracts and approvals	P	Negotiation/arbitration
Failure to renew all approvals, permits and licenses	CP	Strong institutional implementation framework
Unforeseen delays	CP	Project agreement
Force majeure	CP	Project agreement
Default by contractors or equity holders	C	Shareholders' agreement/step-in rights

Description of risk	Type of risk	Risk mitigation mechanism
Liability risks	C	Private insurance
Change of law	P	Government guarantees
Exchange rate, interest rate and inflation movements	CP	
Strikes, demonstrations	CP	Private/multilateral insurance

Table 8. Sample project operation risks and mitigation mechanisms

Description of risk	Type of risk	Risk mitigation mechanism
Cost overruns	C	Project agreement
Failure to meet performance specifications	C	Project agreement
Demand risk	C	Offtake contract in the absence of a competitive market
Supply risk	C	Supply contract in the absence of a competitive market
Payment risk	CP	Private enforcement capability by law
Breach of contract by public sector partner	P	Government guarantees, international arbitration
Government guarantee withdrawal	P	International arbitration
Cost escalation/price adjustment mechanism	P	Independent regulation
Changes to contract	P	Independent regulation, international arbitration
Creeping expropriation	P	Independent regulation, international arbitration
Liability risks	C	Private insurance

Managing external risks

There are broader risks in addition to the immediate risks associated with specific PPP projects. These are related to the business and governance environment in a given country or jurisdiction, as well as local capacity to support PPP projects. It is important to address these because they influence private sector participation, and the number and quality of PPP suppliers that public administrations can choose from. The following are some measures to mitigate these external risks:

1. Provide a climate of business certainty by developing an open and competitive business and regulatory environment that is compliant with WTO rules and agreements, such as GATS and Agreement on Basic telecommunications (ABT) in the case of telecommunications and ICTs. WTO compliance will reassure foreign investors and build a climate of trust that will encourage outside investors to consider PPP and other business opportunities.

2. Adopt a clear PPP policy and legal framework that –

    - Recognizes that public sector bodies can transfer to the private sector, through concessions, the right to provide a public service. Laws to this effect should either recognize PPPs per se or, at the very least, not be seen to be an impediment to the establishment of a PPP agreement.
    - Applies laws in a fair and equitable manner, in accordance with international standards and indexes, and ensures adherence to or compliance with rulings of courts, regulators and arbitrators. This reduces risks for the private sector and fosters predictability in business relations.

3. Put in place operational guidelines and institutional mechanisms for negotiating, overseeing and implementing PPPs. For example, the Ministry of Finance should have a PPP unit within the ministerial procurement unit or equivalent. This unit should be responsible for working with any government body wishing to undertake a PPP agreement, providing support and advice to the government body and helping to structure the PPP project to ensure that the rights of the government and of the public are respected.

4. Provide a reliable, transparent, equitable and consistent public procurement process. A transparent and efficient tender process increases competition and attracts expertise, technology and capital. If the process is not transparent or believed to be fair, there will be fewer private sector partners bidding and probably no TNCs and other foreign firms. Foreign firms bring in expertise, financing and management skills that could benefit all concerned, including local joint venture partners, aside from the government and the public.

5. Satisfy priority demands that can generate support and goodwill for PPP. Look at public services that are in great demand and try to implement these projects first because if they are successful, they will garner public support and make it easier to move onto other PPP project opportunities.

6. Look for projects where the benefits are easily understood by the public. Projects that enhance access to services at the local and community level through, for example banks and telecommunications operators, may sometimes be more popular than projects that focus on improving internal government processes. For instance, the public may prefer public services that deliver cash payments to citizens in the form of pension, child support, marriage and childbearing cash incentives and any other cash incentive the government may have implemented.

7. Reduce complexity – Avoid complex undertakings initially in order to reduce risk and better manage the first implementation.

8. Reduce uncertainty – Work on projects that are understood and about which partners have some experience. These projects will be easier to implement.

9. Look for easy wins –

    - Work on simple projects with limited perceived risk.
    - Work with institutions that are easy to work with because they have more experience, more capacity and greater willingness to assume risk (more risk tolerant).
    - Look for opportunities that can deliver quick and positive results that will draw public notice while improving on the delivery of public services.

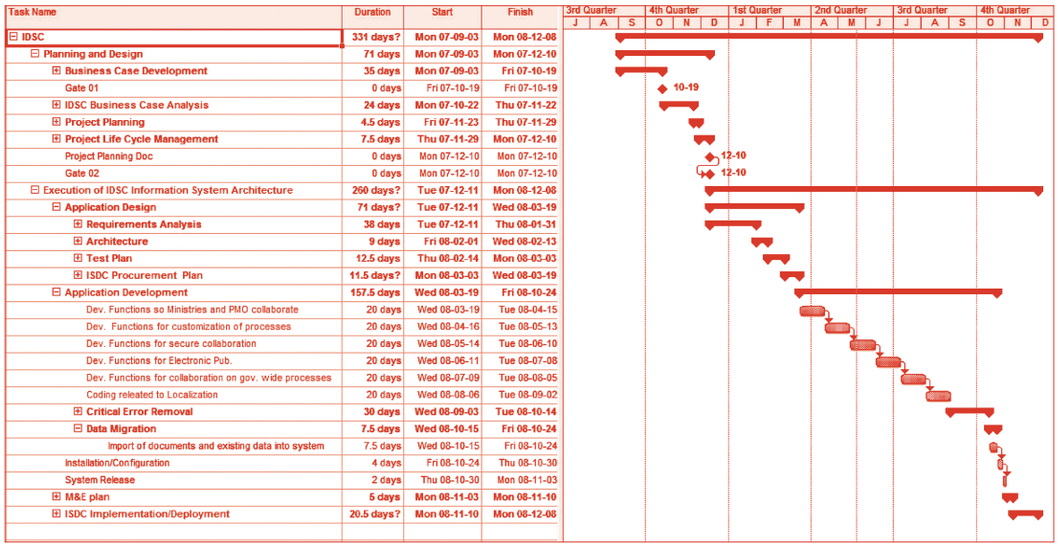
10. Put in place checks and balances – Many PPPs are monopolistic opportunities that must be carefully managed and regulated to prevent abuse and to secure the public good. Checks and balances should be provided for in the contract. This includes provisions for regular review. In some cases, the way of limiting this type of risk is by requiring regular renewals of the contractual terms with a provision that the government is under no obligation to renew a PPP project once the initial terms of the PPP project have been met. In the event of BOO projects, legal recourse is open through the courts, but this may be a risky proposition.

Managing internal risks

1. Prepare the business case and undertake a pilot. That is, undertake a feasibility study and prepare the business case. If the business case is not sound, the project should not be pursued. In preparing the business case, hire outside experts if required and involve the private sector if possible. To test some of the assumptions underlying the project idea, it may be necessary to undertake pilot projects on a smaller scale to test assumptions and hypotheses.

2. Undertake detailed planning and continuous monitoring. The following Gantt chart describing a decision-making support system using accepted IT project management practices shows the level of detail that is sometimes required to properly plan and implement ICT projects.

Figure 10. Sample Gantt chart showing a decision-making support system for ICT project management



3. Put in place risk management procedures, including a risk register (see above).

Managing ICT / e-government project risks

1. A common approach to IT project management

Adopting a common approach to IT project management makes projects easier to implement, track, manage and follow up. Adopting a common approach includes the following:

- Put in place a common IT policy and do not allow independent IT units to operate. Put into place common procurement rules as opposed to allowing each cost centre or ministry its own procurement rules and authority. All procurement should be undertaken by a central procurement body for government such as a "Procurement and Asset Disposal Board" or a similar body.

- Agree on standards and guidelines.
  - Ensure interoperability through open standards.
  - Use open standards to reduce costs and ensure longevity.
  - Avoid single source applications, or applications that tie you to only one vendor.

- Implement shared services and a common policy on IT project implementation. Shared services and data centres allow different government entities to share information, procedures and systems, thereby reducing costs as well as uncertainty.

2. Ensuring data security and privacy

As mentioned previously, some of the risks that e-government projects pose for citizens have to do with information security and privacy. The specific risks in this regard include:

- Mishandling of private information of individuals, leading to breaches in privacy
- Data security
- Legal liability
- Reduced government accountability for ensuring information security and privacy
- e-Government failure – Over 60 per cent of e-government initiatives are expected to fail or fall short of goals
- Threat of market closure, or the complete transfer of public goods and services into private hands

There are ways of dealing with these risks. A common government-wide approach to ensuring information security and data integrity is important. Shared services and a common data centre may be the best way of dealing with these issues that are common to all government entities even though they are more of a concern for certain ministries, such as defence, national security, health, finance and human resources.

In addition, there should be an independent and competent competition bureau as well as regulators, including telecommunications and ICT regulators, to sound alarm bells when market dominance or closure threatens. A strong PPP and procurement office in the Ministry of Finance or equivalent is also required to mitigate this risk.

It may also be helpful to have a national CERT to respond to cyberthreats and a national certification authority for government electronic transactions.

Implementing a shared services approach means that security issues can be addressed in a comprehensive and consistent manner across government, instead of piecemeal and on a ministry-by-ministry basis, which could easily lead to confusion and incompatibility as well as security breaches and lapses.

Something To Do

Break out into smaller groups (4-8 people) and discuss your experience in managing ICT projects. Which projects were successful and what made them successful?

6. OTHER FUNDING OPTIONS

This section aims to describe ICTD project funding options other than PPPs.

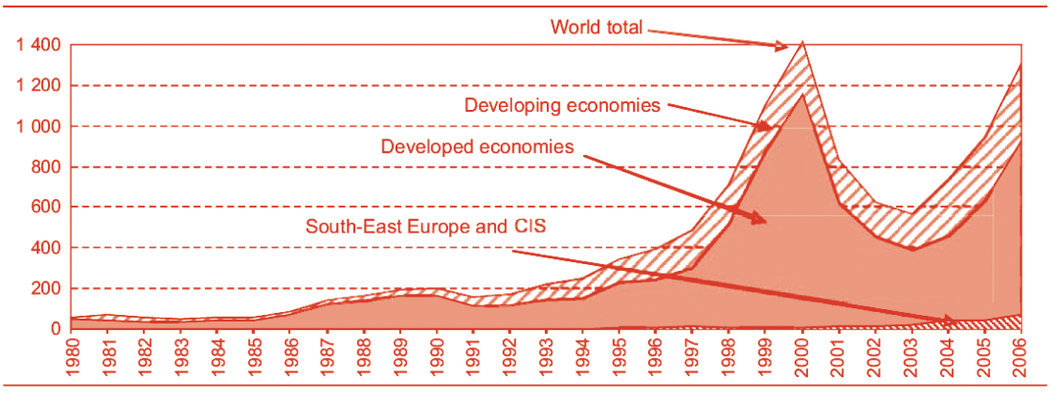
6.1 Foreign Direct Investment

One of the most important sources of funding that governments can consider is FDI. The United Nations Conference on Trade and Development (UNCTAD)[82] and International Monetary Fund (IMF) define FDI in *Balance of Payments Manual 5th Edition* (BPM5)[83] as:

> An investment made to acquire lasting interest in enterprises operating outside of the economy of the investor. Further, in cases of FDI, the investor's purpose is to gain an effective voice in the management of the enterprise. The foreign entity or group of associated entities that makes the investment is termed the "direct investor". The unincorporated or incorporated enterprise—a branch or subsidiary, respectively, in which direct investment is made—is referred to as a "direct investment enterprise". Some degree of equity ownership is almost always considered to be associated with an effective voice in the management of an enterprise; the BPM5 suggests a threshold of 10 per cent of equity ownership to qualify an investor as a foreign direct investor.

There was a dramatic decrease in the extent of FDI inflows to developed economies after the Dotcom Crash of 2000. But since then, the situation has been reversed with an increased amount of FDI heading to developing countries. The developing countries of Asia account for more than two thirds of the total inflows to developing countries. China, Hong Kong and Singapore have maintained their lead as the three largest recipients of FDI in the region.

Figure 11. FDI inflows, global and by group of economies, 1980-2006 (in billions of USD)



Source: UNCTAD, *World Investment Report 2007: Transnational Corporations, Extractive Industries and Development* (New York and Geneva, United Nations, 2007), p. 3, *http://www.unctad.org/en/docs/wir2007_en.pdf*.

82 UNCTAD, "Foreign Direct Investment (FDI)", http://www.unctad.org/Templates/Page.asp?intItemID=3146&lang=1.

83 IMF, *Balance of Payments Manual 5th Edition* (Washington D.C., 1993).

In 2006, FDI in Asia-Pacific reached about USD 200 billion, while FDI in Oceania reached USD 400 million. According to the World Investment Report 2007, the number of investment projects increased by 13 per cent to 11,800 projects, notably in developing countries and in the services sector.[84]

Much FDI is coming from mineral and oil producing and energy economies that have seen income and profits soar over the past years. The US has by far the largest stock of outward FDI. However, this may change as SWFs start looking to offshore opportunities for investment.

There are some organizations that fund the development of SMEs through FDI. This model is partially based on the one used by venture capitalists in the industrialized world and is based on business incubation (see section on Venture Capital).

Foreign companies are interested in commercial opportunities. Whatever can attract investment and encourage the development of the private sector will be of interest to foreign investors.

Commercial entities will develop a business plan after first determining that an investment has a greater than reasonable chance of producing a profit for the investor. The business plan includes a budget as well as an expected rate of return based on sales, operations, rent, or a combination of these income sources. This will require cash flow analysis, among other tools.

One concern of foreign investors is stability and predictability. Any political or societal change increases uncertainty and risk. Investors tend to avoid investing in jurisdictions where the transition of power is not clearly defined and a climate of uncertainty prevails.

National rules for FDI are increasingly published online and are an indication of openness to business, which will encourage the private sector. Many countries will also maintain a commercial or business development section in some if not most of their embassies and consular delegations abroad to further publicize and explain their investment objectives and modalities to foreign investors.

Adherence to the WTO increases the appeal of a country to FDI as it provides the investor with certain guarantees as an outside investor with rights of appeal and redress under international law.

Many countries are very interested in attracting large ICT firms such as Microsoft, Cisco, Intel, IBM, SAP and others to set up shop in their countries or jurisdictions. Many countries have ambitions to use ICTs in order to become a services, transport, or financial hub for the region or beyond. Jurisdictions such as China, Egypt, Hong Kong, Malaysia, Singapore and Taiwan have had success in attracting ICT companies to invest in their economies. But not all countries can expect to become a Microsoft regional services hub or Intel manufacturing centre. Aside from a stable and predictable operating environment, where the rules of operation do not change frequently, the following need to be considered to attract FDI:

- A well defined policy, legal and regulatory environment
- The rule of law – the laws are adhered to and the courts are functional; foreign companies can expect to be treated fairly and on equal terms with national firms
- International guarantees such as those accorded to countries that have favoured trading status with other countries or jurisdictions, or that adhere to free trade agreements, whether regional or national
- Adherence to the rules of international law and trade, with adherence to the WTO as an added form of guarantee

84 UNCTAD, *World Investment Report 2007: Transnational Corporations, Extractive Industries and Development* (New York and Geneva, United Nations, 2007), p. 4, http://www.unctad.org/en/docs/wir2007_en.pdf.

- Respect for intellectual property rights (IPR) – this is an issue in some countries where firms are in fact encouraged to drop their IPR in exchange for access to the national marketplace
- Local management and technical expertise – the availability of an educated workforce
- Ability to speak a major language, with English favoured
- History of relations to foreign investors and private sector operators in particular
- Positive attitude towards the private sector

The impediments to FDI are also the impediments to business development, namely:

- High taxation
- Corruption
- Bureaucracy
- Impediments to starting and operating a business
- Limitations on the repatriation of profit

The annual "Doing Business"[85] reports published by the World Bank Group are a useful source of information on which policies encourage private sector development and which countries are innovating and which ones are lagging in terms of private sector development. Country surveys available from publishers such as the Economist Intelligence Unit also provide foreign investors with information about opportunities and risks they would expose themselves to in foreign locations.

The success of FDIs is measured through indicators such as those published by international financial institutions (IFIs), OECD, UNCTAD and others. In Asia, the experience with FDI of China, Hong Kong, Singapore, Taiwan and the Republic of Korea point to the importance of the following factors in successful use of FDI:

- Vision
- Dedicated and strong political leadership
- A focus on science and technology in education
- A strong understanding of the international marketplace, the needs of the private sector, trends in commerce, and the like
- Openness to the private sector, including incentives for private investors

Below is a case study of a successful FDI engagement in Costa Rica. The case demonstrates that proactive government initiatives, a pro-business environment, strong and ongoing commitment from a country's leadership, and a clear development and investment strategy are essential elements of a successful FDI strategy.

Intel in Costa Rica: Attracting high technology investment

Intel, the largest and most successful microprocessor design and manufacturing company in the world, invests abroad to build large amounts of new capacity as quickly and as cost-effectively as possible and to reduce risk by producing in several different plants. A typical Intel chip fabrication plant usually requires two years to construct and costs upwards of USD 1 billion. But because of the speed with which chips are cloned by competitors, Intel needs to upgrade existing plants or, where expansion is no longer feasible, develop a new site. The "ramping-up" of new production capacity must be rapid and blend seamlessly with existing capacity if Intel is to maintain its technological lead and earn the returns to which the company has grown accustomed. Intel cannot afford to waste any time in the planning

85 See *Doing Business*, World Bank Group, http://www.doingbusiness.org.

or construction of its facilities. As one Intel manager explained, “A delay of just one week can cost tens of millions of dollars in lost sales—and a critical lead over rivals.”

Aside from speed, Intel (like other cutting-edge technology firms) relies on a dependable and well-educated labour pool. The plants demand specific and fairly complex manufacturing skills. Consequently, Intel will build plants only where it is assured of access to a highly technical and highly trainable supply of labour. Once it has invested in this workforce, Intel is unlikely to leave, even as the technology in its plants quickly becomes obsolete. Instead, the company traditionally has preferred to re-invest in existing sites, using its trained workforce to launch production at a revamped facility as quickly as possible. Craig Barrett, Intel’s chief executive officer from 1998 to 2005, noted that it is “considerably easier to phase in future generations of chips at existing facilities with experienced staff rather than starting from scratch with new and untested people.”

In choosing sites for its overseas plants, Intel is also not immune to the enticements of capital incentives, particularly in the case of fabrication plants, which are considerably more capital intensive than assembly and test facilities.

Because Intel is constantly seeking to expand capacity, it is essentially always in the midst of reviewing possible sites and evaluating investment alternatives. The Costa Rican facility emerged from one of these ongoing reviews.

Early in 1996, Intel’s executives decided to research sites for a new assembly and test plant (ATP). Such a plant would cost roughly USD 100 million to 300 million to construct and would usually employ between 1,500 and 4,000 people whose wages would usually account for 25-30 per cent of total operating costs. To run the new ATP as cost-effectively as possible, Intel had to find a low cost yet highly trainable workforce. It would also have to find a location where highly qualified engineers were available, and where employee turnover could reasonably be kept to a minimum. Before formally launching the site selection process, Intel executives had also decided to make this ATP a new plant in a new country, rather than an expansion of existing capacity. This decision stemmed from management’s determination to diversify its asset base geographically, and to avoid concentrating more than 30 per cent of its revenues from any product category at any one facility or in any single geographical region.

Meanwhile, the Costa Rican Investment Promotion Agency (CINDE), Costa Rica’s national investment promotion agency, had since the late 1980s adopted a focused strategy of attracting foreign investments. For several years, this focus had been textiles, but as Costa Rican wage levels rose and competition from lower-wage emerging markets mounted, CINDE shifted focus to electronics. With a high level of technical knowledge in the country, relatively low labour costs (for this industry) and an abundance of bilingual workers, Costa Rica seemed to mesh well with the needs of the growing global electronics industry. Since 1993, CINDE had been assiduously courting Intel and other big companies in the electronics industry. In November of 1995, Intel at last responded with interest and invited the director of CINDE’s New York office, Armando Heilbron, to its headquarters in Santa Clara, California.

After CINDE staff sent Intel a detailed and extensive information package, Costa Rica made it to Intel’s long list of possible investment sites. To be considered a serious contender, a country had to have positive economic conditions, an established and reliable political system, and a relatively transparent operating and legal environment. It also had to meet the following requirements:

- Human resources – A sufficient supply of professional and technical operators and a non-union work environment.
- Reasonable cost structure – A workable financial situation for Intel, driven in large part by the cost of labour and overheads, taxation rates, tariffs, customs fees, and the ease of capital repatriation. Because all of the plant's products are intended for export, tariffs and customs fees were particularly important.
- A "pro-business" environment – A government interested in assisting economic development and foreign investment, and signs of economic liberalization.
- Logistics and manufacturing lead time – Given the time pressures under which Intel generally operates, products coming from its plants must be able to move efficiently from the plant to an international departure point, and then expeditiously through customs and any other export procedures.
- Fast track permit process – An assurance that all necessary permits will be received within 4-6 months, as any delay could seriously compromise the project's very tight schedule.

During a preliminary visit by Intel, CINDE had also arranged for the site selection team to meet with Jose Rossi, Costa Rica's Minister of Foreign Trade, and with Jose Maria Figueres, the country's president. The young, Harvard-educated president, in the middle of his one and only presidential term, was keenly aware of the potential impact Intel could have in helping to lead the country's growth. He took a strong personal interest in relations with Intel, and was a critical element of Costa Rica's eventual success. During the initial visit, he spent two and a half hours with the Intel representatives, during which he pledged to "do whatever was necessary" to make Costa Rica competitive in the race. He was engaged, enthusiastic and energetic in his pitch, and responded directly to Intel's concerns. When the team expressed doubts about the quality of the workforce and the adequacy of technically trained graduates in the country, Figueres suggested the idea of an enhanced training programme the government could create to meet Intel's needs. In what would become a critical move, Figueres also appointed Rossi to manage the Intel project for the Costa Rican government. CINDE would remain a key contact for Intel and a facilitator for any subsequent meetings or negotiations, but Rossi, a high-ranking and well-respected government official, would serve as the central point of coordination within the Costa Rican government. A businessman before he joined the Figueres administration, Rossi recognized the importance of speed, and the value Intel would derive from an expedited process and clear, consistent communication from the government.

Though renowned for its commitment to basic education and its high level of literacy, Costa Rica did not generate sufficient numbers of the kind of technically trained graduates that Intel demanded. In particular, the company worried that there was not enough educational capacity in Costa Rica to train the 800 technicians that an ATP would require. There were also some gaps in English language skills among technical students, and general competencies in physics and chemistry were lower than Intel preferred. The country also lacked any advanced curriculum in semiconductor manufacture.

Intel normally declares that a project would be located in the chosen country only if the government delivered on the provisions of an agreed upon contract. In Costa Rica's case, these provisions included the completion of Intel's registration in an authorized free trade zone, the awarding of a series of environmental and construction permits, and a government commitment to enhance technical curricula and training facilities at several institutions for students studying electronics. For the next several months, various Ministries, CINDE and Intel worked to prepare the relevant documentation and finalize the arrangements of their deal. In April of 1997, construction of the new ATP began.

The Intel executives decided to invest in Costa Rica because they liked the country. They felt confident about its long-term stability, prosperity and development. Four elements in particular appear to have impressed the site selection team:

- Political and social stability;
- A commitment to economic openness and liberalization;
- An explicit focus on economic development in the electronics sector; and
- A receptive climate for foreign investors.

Source: Abridged from Debora Spar, *Attracting High Technology Investment: Intel's Costa Rican plant*, Foreign Investment Advisory Service Occasional Paper 11 (Washington, D.C., International Finance Corporation and the World Bank, 1998), http://go.worldbank.org/LP5Z2FS9K0.

Questions To Think About

1. Is this model for attracting FDI appropriate in your country? Why or why not?

2. What are you country's strategies for attracting FDI?

6.2 Venture Capital

The United Nations Industrial Development Organization (UNIDO) describes venture capital as follows:

> The objective of the venture capital investor is to invest in rapidly growing companies in order to sell out, typically after some five to eight years, either to the entrepreneur, other parties or the stock market. The high risk of this type of investments is compensated for by the high return on successful ventures. A well-diversified portfolio can absorb a 20-30 per cent failure rate, compensated for by rapid growth in the rest of the portfolio.[86]

In addition to capital, venture capitalists support the young enterprise through close monitoring and technical and managerial support. "The most important areas of support are strategic decision making and building up the management and administrative organization, areas where new companies often fail."[87] Providing this kind of support increases the survival rate of the start-up company, which means a higher return on investment for the venture capitalist.

Venture capital is a well-established form of financing in developed countries. It comes into play when there is insufficient credit available to fund business. Venture capitalists are mostly interested in funding larger projects. In developing countries, venture capital has been used to fund large investments in the extractive industries, such as mining.

86 UNIDO, "Venture Capital for Industrial Development", Note for the preparation of the Finance for Development Conference, 19 September 2001, p. 2, http://www.arp.harvard.edu/AfricaHigherEducation/Reports/UNIDO-VC.pdf.

87 Ibid.

For smaller ventures, or for SMEs and small and medium industries, the model used in developed countries also applies to some extent in developing countries. That is, venture capitalists encourage the creation of incubators in which entrepreneurs can develop novel and potentially lucrative businesses with the assistance of expertise that the venture capitalists make available in exchange for a stake in the ownership of the business and in future profits.

Venture capital for SMEs in developing countries comes from foundations and business enterprises. UNIDO encourages this mode of investment in support of business development.

Interestingly, China has no venture capital for supporting promising businesses.

Businesses interested in attracting venture capital need to develop a business idea and submit the idea to a venture capital firm. With the increasing availability of private capital and SWFs, as well financially endowed State-owned companies, there is equity available. The challenge is attracting venture capital to developing countries in general and to entrepreneurs in those countries in particular.

Venture capital tends to follow FDI and seek out business-friendly and entrepreneurial countries and jurisdictions. Venture capitalists do not invest unless they possess much local knowledge and understanding, which is not likely to be the case, although there are exceptions. Many venture capitalists are based in Western countries that consider investing in the developing world too risky. The chances of attracting venture capital are higher where there are many successful businesses and large investments made.

In conclusion, venture capital is extremely risk averse. Venture capitalists may find it easier to invest in foreign firms with a good track record internationally before venturing into ICTD projects in developing countries. However, there is increasing realization that some of the best software engineers are not necessarily "born in the USA" and investing in opportunities to tap into this creative energy and intellectual capital in developing countries is probably already happening.

6.3 Transnational Corporations

According to UNCTAD, TNCs are incorporated or unincorporated enterprises comprising parent enterprises and their foreign affiliates. A parent enterprise is defined as an enterprise that controls assets of other entities in countries other than its home country, usually by owning a certain equity capital stake. TNCs are sources of FDI as well as potential partners in PPPs. This applies especially to large IT firms, large financial banks and TNCs operating in other sectors.[88]

An estimated 73 million workers were employed in foreign affiliates of TNCs in 2006, nearly three times more than in 1990, and their total employment accounted for an estimated 3 per cent of the global workforce. China has the largest number of employees in foreign affiliates. In 2004, around 24 million workers (3 per cent of total employment in China) were employed in foreign affiliates in that country compared to less than 5 million in 1991.[89]

88 UNCTAD, "Transnational corporations (TNC)", http://www.unctad.org/Templates/Page.asp?intItemID=3148&lang=1.

89 UNCTAD, *World Investment Report 2007: Transnational Corporations, Extractive Industries and Development* (New York and Geneva, United Nations, 2007), p. 10, http://www.unctad.org/en/docs/wir2007_en.pdf.

TNCs have privileged access to global supply chains. Working with a TNC can open up access to these resources and market opportunities. Specific advantages include financing, as well as technical and managerial expertise and the opportunity for transferring these skills to national partners.

What makes for an encouraging climate for TNC financing? The same factors that attract FDI encourage TNCs to set up shop in a country or jurisdiction. The availability of local expertise and qualified graduates is important, as well as a strong science and technology sector. This implies the presence of strong technical institutions of higher learning (i.e. universities) and research and development units. Knowledge and technology transfer and management skills are important.

6.4 International Financial Institutions

According to Wikipedia:

> International financial institutions, or IFIs, refers to financial institutions that have been established (or chartered) by more than one country, and hence are subjects of international law. Their owners or shareholders are generally national governments, although other international institutions and other organisations occasionally figure as shareholders. The most prominent IFIs are creations of multiple nations, although some bilateral financial institutions (created by two countries) exist and are technically IFIs. Many of these are multilateral development banks.[90]

The following are the main categories of IFIs:

- Bretton Woods institutions – the World Bank, IMF, the IFC and other members of the World Bank Group

- Regional development banks –
  - Inter-American Development Bank
  - Asian Development Bank
  - African Development Bank
  - European Bank for Reconstruction and Development

- Bilateral development banks

- Other regional financial institutions –
  - European Investment Bank
  - Islamic Development Bank
  - Nordic Investment Bank

Funding from IFIs and bilateral agencies is closely tied with national development planning priorities and development modalities. To secure support, public sector organizations need to align their proposal as closely as possible with the priorities of the government. There is therefore a need to ensure that the project for which funding is sought is supported locally and is viewed as a priority by the government.

90 Wikipedia, “International financial institutions”, Wikimedia Foundation, Inc., http://en.wikipedia.org/wiki/International_financial_institutions.

The Paris Declaration on Aid Effectiveness agreed by DAC of the OECD encourages donors to provide funding directly to the exchequer of the recipient country. The recipient country decides according to its development planning priorities and modalities how the funds are to be disbursed. Increasingly, the donors of OECD countries work closely together along with the IFIs to ensure coordination in the planning and delivery of development assistance. Countries with a strong and proven track record of governance are the first to benefit from this form of aid. Countries without such a track record are less likely to receive untied aid of the sort proposed by the Paris Declaration unless they make significant progress in supporting good governance, eliminating corruption, and creating an open and transparent regulatory regime and investment climate for the private sector.

However, there are many non-OECD donors now appearing that are not constrained by issues of governance and democratic development that are also very much interested in promoting development aid and in working in partnership with developing countries on shared development goals.

Many of the advantages and disadvantages associated with FDI also apply with funding from IFIs.

6.5 Government-to-Government Funding

Government-to-government funding is classified under "aid", which Wikipedia defines as follows:

> Aid is the help, mostly economic, which may be provided to communities or countries in the event of a humanitarian crisis or to achieve a socioeconomic objective. Humanitarian aid is therefore primarily used for emergency relief, while development aid aims to create long-term sustainable economic growth. Wealthier countries typically provide aid to economically developing countries.[91]

In 2006, OECD aid donors increased their contributions to about USD 75 billion, up from USD 53.7 billion in 2002. The actual figures reported to the OECD for 2006 are USD 77.8 billion, including the contribution to Iraq (USD 7 billion). Most of this increased aid was for debt relief.

Middle income countries like Brazil, China, Indonesia and Thailand, and resource-rich countries like Angola are receiving less official development assistance (ODA) as donors prefer to assist countries that are less able to finance their own development. The proportion of ODA going to least-developed countries and other low-income countries has risen significantly—from 40 per cent in 2002 to 46 per cent in 2006. Moreover, a higher proportion of aid is untied, that is, not tied to purchases from the country supplying the aid.

The first priority of IFIs is reducing poverty, strengthening governance, empowering women, protecting the rights of minorities and protecting the environment. Projects that can be clearly linked to poverty reduction and these other goals are more likely to be approved. Donors have reduced their support for ICT projects, preferring instead to deal with ICTs as tools in the fight against poverty and in support of governance. Climate change has recently been recognized as a major trend and developing countries can expect significant support from developed countries in building capacity for mitigating and also adapting to climate change and its impacts.

91 Wikipedia, "Aid", Wikimedia Foundation, Inc., http://en.wikipedia.org/wiki/Foreign_aid.

Funding is based on treaty-like agreements between a donor country and a recipient country. This agreement oversees the modalities of collaboration. Different bilateral agencies have different requirements for obtaining development assistance and for reporting on use of development funds. According to the Paris Declaration of the OECD, development aid will increasingly be channeled to the treasuries of developing countries directly. Developing countries will eventually be in a position to decide for themselves how this aid money is spent. A prerequisite is ensuring that the countries have the financial management, governance, procurement and oversight capacity to properly use these funds while meeting the requirements for openness, transparency, and fairness and equity that the OECD countries support. Thus, many of the issues discussed under FDI also apply.

The success of development aid is measured in terms of:

- Contribution to poverty reduction;
- Contribution to economic development and pro-poor growth;
- Contribution to achieving the MDGs; and
- Long-term impact of the aid provided.

7. PREPARING A RESOURCE MOBILIZATION STRATEGY

This section aims to:
- **Describe the steps to be taken in developing a proposal for funding ICT projects; and**
- **Provide an overview of the main issues in developing such a proposal.**

7.1 An Overview of Resource Mobilization

There are several steps involved in preparing a resource mobilization strategy. Let us start with the definition of resource mobilization strategy and related concepts.

Resources can be financial, human, or in-kind—that is, goods and/or services made available to undertake a strategy, plan, programme, project or activity.

A resource mobilization strategy is a plan explaining how an organization will secure resources to undertake a project and achieve set objectives over time.

Developing a resource mobilization strategy is usually one of the first steps in developing a funding proposal. It is a plan identifying potential partners and donors, and explaining how and what resources they may contribute. It is also a component of a project proposal. If sources of funding and other resources cannot be identified, then perhaps the proposed activity or project is not viable.

Resource mobilization strategies can be at the level of national strategies, plans and activities; sectoral strategies and plans; or individual projects or organizations. In the private sector, a resource mobilization strategy is part of a business plan and it is profit-oriented. In the public sector, a resource mobilization strategy is directed towards ensuring project sustainability.

Resource mobilization strategies are not always included in project plans. Sometimes they are subsumed under headings such as the financial plan, or they may not appear at all in the project plan once the financing has been acquired. However, they are an important step in the project cycle. Resource mobilization is one of the first considerations that people who conceive projects think about.

The steps involved in putting together a resource mobilization strategy are:

1. Identify and quantify the resources required and explain why they are required. A budget may be sufficient for this purpose, along with a narrative about budget line items and their importance to the undertaking.
2. Explain how the resources will be acquired. Identify potential partners or collaborators who may provide resources.
3. Explain how the partners or collaborators will contribute to the project. Justify the selection of partners or collaborators and their role and contribution.
4. Identify how partners will be approached and how communication with them will be established.

5. Discuss and review options. Assess and justify choices.
6. Make recommendations.
7. Approach potential partners, make the proposal and assess their interest.
8. Negotiate agreement and modify the project proposal accordingly.
9. Approve and sign the agreement to undertake the project.

It is clear from the description of the steps involved why some of the information mentioned may not be required in the actual project document or proposal document. However, these issues have to be considered when seeking funding and how that funding will be obtained.

Something To Do

Form small groups and discuss resource mobilization strategies that you have used in the past. Assess the strategies' effectiveness.

7.2 Preparing a Funding Proposal

The intended recipients of a funding proposal are the traditional international development agencies such as the bilateral agencies of the OECD group of countries, the IFIs and the United Nations agencies. Other sources of funding that can be considered are SWFs and bilateral aid from countries like China and India, which are becoming increasingly important global players.

Many terms are used to describe funding proposals and different donors have different requirements and processes for developing funding proposals. However, the steps in preparing a funding proposal are basically the same.

The assessment phase

The first step is to diagnose the need for the project through assessment and analysis. This is an important first step because if the diagnosis is not compelling, the project may not attract funding.

After clearly defining the needs, it is important to also assess the circumstances and related factors that influence the need for the project and the required financing. Ideally, measurable data showing need, demand for and readiness to use ICTs should be collected, as well as information about the priority attached to the proposed project by the government, beneficiaries and stakeholders. This information will help justify the intervention proposed and the budget associated with it.

Alignment with national and international development priorities

Part of the justification for the project is how it relates to the overarching needs and priorities of the country or jurisdiction seeking support. The project proposal has to be situated in an overall national development strategy and plan.

For many donors, the main objective of development aid is poverty reduction under normal circumstances. “Normal circumstances” means in the absence of conflict, disasters and/or extensive humanitarian assistance operations that are necessary to bring a country back to a situation where the government is not operating in a crisis mode. The goal of poverty reduction is the first of the globally agreed upon MDGs.

With the assistance of international donors, many developing nations have developed a planned approach to fighting poverty that is defined in the Poverty Reduction Strategy Paper (PRSP) process.[92] The World Bank has been closely associated with the PRSP process and World Bank funding is focused on achieving the aims and objectives of poverty reduction and economic development outlined in the PRSPs at the national level. The PRSP process has evolved somewhat and now includes a component to promote economic growth. This can be summarized as the Economic Development and Poverty Reduction Strategy (EDPRS) process used in some countries.

International donors have also agreed that other development priorities have to be addressed as well, as they are necessary for poverty reduction and economic growth. These other priorities include:

- Promoting good governance;
- Promoting the empowerment of women;
- Promoting sound environmental management, which is sometimes captured by the concept of sustainable development;
- Fighting climate change by promoting measures to help countries mitigate and adapt to climate change;
- Ensuring that basic human needs are met in the areas of nutrition and health, education, and shelter, with a strong emphasis on dealing with the HIV/AIDS crisis; and
- Crisis prevention and recovery.

Funding ICTD

If these are the priorities of donor countries, then where do ICTs fit in? Until recently, funding for ICT projects came from various donor agencies, especially the large donor executing agencies such as UNDP and some of the bilateral agencies such as the UK’s Department for International Development (DFID). However, bridging the digital divide is no longer considered an important objective in and of itself, and using ICTs as tools for development is the approach that needs to be taken.

The World Bank funds e-government projects regularly and has been supportive of countries developing national ICT strategies and action plans. However, these plans and strategies have to demonstrate that they deal with the MDGs and specifically with the fight against poverty and the promotion of economic growth and development. The concept of pro-poor growth has emerged and projects that can be demonstrated to promote pro-poor growth are encouraged and have a better chance of being funded.

Some agencies still address ICT projects directly. The ITU has responsibility for implementing many of the recommendations made under the action plan for WSIS. But the ITU is not one of the larger executing agencies and it has limited means for implementing WSIS. Other agencies also deal directly with ICTs, including the International Development Research Centre (IDRC) of Canada but under the angle of science and technology for development. IDRC is a small agency and has limited means, focusing especially on ICT research and development activities

92 To learn more about the PRSP process, see http://go.worldbank.org/FXXJK3VEW0 and the PRSP Sourcebook at http://go.worldbank.org/35ICHSR3M0.

that can help countries develop capacity to meet their development goals and objectives while at the same time achieving the MDGs.

ICT projects, especially e-government projects, can be linked with poverty reduction and/or governance and the promotion of many of the MDGs in the sectors concerned. For example, e-health projects can be demonstrated to contribute to greater efficiency in marshalling resources and reaching and treating patients suffering from disease. The main concern that many agencies have about ICTs is avoiding being seen to be funding ICT projects for the sake of purchasing computers and peripherals alone. Thus, in developing a proposal for an ICT or e-government project, the following should be addressed:

- Has this project been implemented before?
- Are there other activities or projects that are already addressing the needs expressed?
- How will funding this project address the priority development needs identified for the country or jurisdiction?
- Is the project feasible? Does the agency proposing to undertake the project have the capacity to manage the project and will the agency be able to benefit from this project over the longer term or will the project require continuous outside support to be successful? In short, is the project sustainable?

Cost is not the first issue that the donor will be concerned about. If the project is well conceived and appears to address many of the key issues and priorities that concern the donor, then it is likely to get donor support. A good funding proposal should therefore do the following:

- State how the project will contribute to national, government, ministerial and/or organizational goals and objectives.
- State the project objectives and place these in the larger context of national development goals and objectives as well as achieving the MDGs.
- Describe how the project will be implemented, project governance and institutional arrangements, and the approach to the project that the agency or ministry intends to take, including working with all stakeholders and not just those in government.
- Enumerate the ICT requirements, specifications and outputs.
- Adopt an RBM framework, which describes what will be achieved in terms of outcomes, in addition to outputs. Outputs describe what will be acquired or created by the project. Outcomes include processes and systems, and are important measures of success in development terms, i.e. in terms of poverty reduction or in terms that are relevant to achieving the MDGs. The RBM framework is based on the use of indicators and means of verification, along with a description of assumptions that will guide the use and measurement of these indicators.
- Provide an estimate of resource requirements, including the human resources and competencies required for the project.
- Draw up a project calendar and timelines. A Gantt chart can be very helpful in this regard.
- Provide an indicative budget detailing the main cost components and how the costs will be managed.
- Describe a monitoring and evaluation component that will use the RBM indicators to track and report performance and results over time.

Box 1. Components of a funding proposal

A funding proposal has the following components:

1. Executive summary including budget and line items and sources of funding
2. Project owner (signature/seal)
3. Project participants
4. Project description
   a. Situation analysis
   b. Justification
   c. Objectives
5. Implementation strategy
   a. Project outputs and outcomes
   b. Governance and institutional management arrangements
   c. Legal context
6. Budget – timeline and resource requirements
7. Monitoring and evaluation scheme

For more information on planning, implementing, monitoring and evaluating ICTD projects, see Module 7: ICT Project Management in Theory and Practice of the *Academy of ICT Essentials for Government Leaders* module series.

Something To Do

Form small groups and develop a funding proposal outline for a real or planned project. Be ready to present your outline at plenary.

ANNEX

Further Reading

Online resources on PPPs

BBC News. “What are Public Private Partnerships?” 12 February 2003. http://news.bbc.co.uk/1/hi/uk/1518523.stm.

C.R.E.A.M. EuroPPP and MasterPPPlan: Building Europe Together with Public Private Partnerships. http://www.cream-europe.eu.

Canadian Council for Public-Private Partnerships. Bookstore. http://www.pppcouncil.ca/bookstore.html.

Canadian Union of Public Employees. Public Private Partnerships (P3). http://cupe.ca/public-private-partnerships.

Centaur Media. Public Private Finance. http://www.publicprivatefinance.com.

Institute for Public-Private Partnerships, Inc. http://www.ip3.org.

Irish Government Public Private Partnership website. http://www.ppp.gov.ie.

Ministry of Finance. Public Private Partnership. Government of Singapore. http://app.mof.gov.sg/ppp.aspx.

PPP Bulletin. http://www.pppbulletin.com.

The Government of France PPP website (in French). http://www.ppp.minefi.gouv.fr/.

The National Council for Public-Private Partnerships. http://www.ncppp.org.

UNISON. Private Finance Initiative (PFI). http://www.unison.org.uk/pfi/.

Wikipedia. Private Finance Initiative. Wikimedia Foundation, Inc. http://en.wikipedia.org/wiki/Private_Finance_Initiative.

Resources on developing funding proposals

Craven, Jayne. *Basic Tips for Fund-raising for Small NGOs in Developing Countries*, 2006. http://www.wougnet.org/Links/docs/Basic_NGO_funding_final-JCravens.pdf.

Development Marketplace, “DM Toolkits”, World Bank Group. http://wbi.worldbank.org/developmentmarketplace/toolkit.

Eldis. Working with donors: Latest Additions. Institute of Development Studies. http://www.eldis.org/index.cfm?objectid=235440C9-DA51-65AF-A977B0B32DA841B3&id=1&pageNo=2.

Foundation Center. Proposal Writing Short Course. http://foundationcenter.org/getstarted/tutorials/shortcourse/index.html.

United Nations. Grant proposal writing guidelines. http://www.un.org/depts/dhl/sflib/libmgnt/grantproposals.htm.

Glossary

Agreement on Basic Telecommunications (ABT)	The Agreement requires each Member to ensure that all service suppliers seeking to take advantage of scheduled commitments are accorded access to and use of public basic telecommunications, both networks and services, on a reasonable and non-discriminatory basis.
Best Sourcing	In best sourcing, the government tenders proposals for service provision and challenges the market to come up with the most cost effective solution that is possible while ensuring and/or exceeding the specifications required of the service or product sought. The selection of the service provider is based on best value for money supported by the quality of the technical proposal.
Build-Own-Operate (BOO)	A contractual arrangement in which a private sector investor finances a public service asset and contracts for the requisite construction and subsequent operation of the asset. The private investor has ownership of the asset throughout its life. The investor is allowed to collect fees, rentals or service charges through which investment and operating costs are recovered. The ownership, although meant to be indefinite, in practice can have limitations, not least because the concession agreement typically has a finite term. Also, for the contract to remain valid the investor has to conduct business in accordance with the operating parameters set out in the concession agreement or by the regulator. The life of the assets may also impose a “natural” contract limitation.
Build-Own-Operate-Transfer (BOOT)	A form of project financing, wherein a private entity receives a concession from the private or public sector to finance, design, construct and operate a facility for a specified period, often as long as 20 or 30 years. After the concession period ends, ownership is transferred back to the granting entity. During the concession the project proponent is allowed to charge the users of the facility appropriate tolls, fees, rentals and charges stated in the concession contract. This enables the project proponent to recover its investment, and operating and maintenance expenses in the project. Due to the long-term nature of the arrangement, the fees are usually raised during the concession period. The rate of increase is often tied to a combination of internal and external variables, allowing the proponent to reach a satisfactory internal rate of return for its investment.
Build-Operate-Transfer (BOT)	Similar to BOOT, BOT reverts to the public service after a given period of operation by the private sector.
Business Process Outsourcing (BPO)	Hiring a third-party company or service provider to perform functions that are considered “non-core” to the primary business strategy, such as financial and administration processes, human resources functions, call centre and customer service activities, and accounting and payroll. BPO is distinct from IT outsourcing, which focuses on hiring a third-party company or service provider to do IT-related activities, such as application management and application development, data centre operations, or testing and quality assurance.
Content Management System (CMS)	A Web application that makes it easy for non-technical users to create, edit and manage a website. In addition to publishing content online, CMS provides options and features to: automatically generate navigation elements; make content searchable and indexable; keep track of users, their permissions and security setting, etc.

Customer Relationship Management (CRM)	A widely-implemented strategy for managing a company's interactions with customers, clients and sales prospects. It involves using technology to organize, automate and synchronize business processes – principally sales activities, but also those for marketing, customer service, and technical support. The overall goals are to find, attract, and win new clients, nurture and retain those the company already has, entice former clients back into the fold, and reduce the costs of marketing and client service.
Design Build (DB)	Under this model, the government contracts with a private partner to design and build a facility in accordance with the requirements set by the government. After the facility is completed, the government assumes responsibility for operating and maintaining it. This method of procurement is also referred to as Build-Transfer.
Enterprise Content Management (ECM)	The strategies, methods and tools used to capture, manage, store, preserve and deliver content and documents related to organizational processes. ECM tools and strategies allow for the management of an organization's unstructured information, wherever that information exists.
Enhanced Management Framework (EMF)	A comprehensive model for managing IT projects in government.
Equity Ownership	Interest in a corporation.
Enterprise Resource Planning (ERP)	Business strategies and enabling software that integrate manufacturing, financial and distribution functions to dynamically balance and optimize enterprise resources. ERP software suites include applications for manufacturing, sales and service, customer relationship management, etc. ERP can enable enterprises to optimize their business processes and analysis capabilities for improved speed and efficiency.
Foreign Direct Investment (FDI)	An investment made to acquire lasting interest in enterprises operating outside of the economy of the investor. The foreign entity or group of associated entities that makes the investment is termed the "direct investor". The unincorporated or incorporated enterprise—a branch or subsidiary, respectively, in which direct investment is made—is referred to as a "direct investment enterprise".
Gantt Chart	A bar chart that illustrates a project schedule. Gantt charts illustrate the start and finish dates of the terminal elements and summary elements that comprise the work breakdown structure of a project. Some Gantt charts also show the dependency (i.e. precedence network) relationships between activities.
General Agreement on Trade in Services (GATS)	A treaty of the World Trade Organization that entered into force in January 1995 as a result of the Uruguay Round negotiations. The treaty was created to extend the multilateral trading system to service sector.
Greenhouse Gas (GHG)	Gases in the atmosphere that absorb and emit radiation within the thermal infrared range, causing the greenhouse effect.
International Financial Institution (IFI)	Financial institutions that have been established (or chartered) by more than one country, and hence are subjects of international law. Their owners or shareholders are generally national governments, although other international institutions and organizations occasionally figure as shareholders. The most prominent IFIs are creations of multiple nations, although some bilateral financial institutions (created by two countries) exist and are technically IFIs. Many of these are multilateral development banks.
Independent Power (Generation) Plants (IPP)	Power plants that are not part of a centralized electricity grid.

Intellectual Property (IP)	Creations of the mind; includes inventions, literary and artistic works, and symbols, names, images, and designs used in commerce.
Intellectual Property Rights (IPR)	Copyrights, patents and trademarks giving creators the right to prevent others from using their inventions, designs or other creations. The ultimate aim is to act as an incentive to encourage the development of new technology and creations that will eventually be available to all. The main international agreements are: the World Intellectual Property Organization's Paris Convention for the Protection of Industrial Property (patents, industrial designs, etc.); the Berne Convention for the Protection of Literary and Artistic Works (copyright); and the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights. The digital world makes it possible to make perfect replicas of the first copy. There is no degradation of quality, as happens in the analog world.
Private Finance Initiative (PFI)	Provides a way of funding major capital investments, without immediate recourse to the public purse. Private consortia, usually involving large construction firms, are contracted to design, build, and in some cases manage new projects. Contracts typically last for 30 years, during which time the building is leased by a public authority.
Public-Private Dialogue (PPD)	Partnerships between governments and businesses but with a different goal from the usual public-private partnership. Their aim is to achieve private sector development through workable economic reforms.
Public-Private Partnership (PPP)	A cooperative venture between the public and private sectors, built on the expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of resources, risks and rewards.
Poverty Reduction Strategy Paper (PRSP)	Outlines the country's macroeconomic, structural and social policies and programmes over a three-year or longer horizon to promote broad-based growth and reduce poverty, as well as associated external financing needs and major sources of financing. Prepared by the member countries through a participatory process involving domestic stakeholders as well as external development partners, including the World Bank and IMF, and updated every three years with annual progress reports.
Results-Based Management (RBM)	A comprehensive, life cycle approach to management that integrates business strategy, people, processes and measurements to improve decision-making and to drive change. The approach focuses on getting the right design early in a process, implementing performance measurement, learning and changing, and reporting on performance.
Sustainable Development Networking Programme (SDNP)	A catalytic initiative to kick-start networking in developing countries and help people share information and expertise relevant to sustainable development to better their lives. Launched in 12 pilot countries in 1992 as one outgrowth of the Earth Summit, the SDNP offered assistance in establishing connectivity to national networks and the Internet, content aggregation and user training in 39 developing nations and 36 small island developing states. The SDNP is no longer operational.
Small and Medium Enterprise (SME)	Companies whose headcount or turnover falls below certain limits. To standardize the concept the EU categorizes companies with fewer than 50 employees as "small", and those with fewer than 250 as "medium". In the US, a small business is one with fewer than 100 employees, while a medium-sized business often refers to one with fewer than 500 employees. SMEs are also known as small and medium businesses.

Sovereign Wealth Fund (SWF)	A state-owned investment fund composed of financial assets such as stocks, bonds, property, precious metals or other financial instruments. SWFs have gained worldwide exposure by investing in several Wall Street financial firms including Citigroup, Morgan Stanley and Merrill Lynch. These firms needed a cash infusion due to losses resulting from the subprime mortgage crisis. Some SWFs are held solely by central banks, which accumulate the funds in the course of their management of a nation's banking system. This type of fund is usually of major economic and fiscal importance. Other SWFs are simply the state savings invested by various entities for the purposes of investment return, and which may not have significant role in fiscal management.
Transnational Corporation (TNC)	A corporation or enterprise that manages production or delivers services in more than one country. Also known as multinational corporation.
Universal Access Fund (UAF)	UAFs receive financing from various sources and provide targeted subsidies to encourage the provision of telecommunications services by private operators in otherwise uneconomic regions.
Wavelength Division Multiplexing (WDM)	In fibre optic communications, a technology that multiplexes multiple optical carrier signals on a single optical fibre by using different wavelengths (colours) of laser light to carry different signals. This allows for a multiplication in capacity, in addition to enabling bidirectional communication over one strand of fibre.

Notes for Trainers

As noted in the section entitled “About The Module Series”, this module and others in the series are designed to have value for different sets of audiences and in varied and changing national conditions. The modules are also designed to be presented, in whole or in part, in different modes, on- and off-line. The modules may be studied by individuals and by groups in training institutions as well as within government offices. The background of the participants as well as the duration of the training sessions will determine the extent of detail in the presentation of content.

These “Notes” offer trainers some ideas and suggestions for presenting the module content more effectively.

Further guidance on training approaches and strategies is provided in a handbook on instructional design developed as a companion material for the *Academy of ICT Essentials for Government Leaders* module series. The handbook is available at: http://www.unapcict.org/academy.

Structuring the Sessions

For a 90-minute session

Provide an overview of the importance of funding ICTD projects, the different funding modalities and issues affecting funding for ICTD. These include factors affecting ICT diffusion, global economic development, and demands for public services and infrastructure (see section 1).

For a three-hour session

After providing a brief overview of funding modalities for ICTD projects (section 1), focus on PPPs as a funding approach to ICTD projects. Describe the advantages of the approach and the key factors to consider. Discuss the types of PPPs (see sections 2 and 3).

For a full-day session (six hours duration)

A full day’s session allows you to discuss in more detail the relevance of PPPs for ICT and e-government projects, including advantages and issues and concerns. You can also include case studies of PPP in e-government (see section 4).

For a two-day session

A two-day session provides time for a discussion of the risks involved in PPPs for e-government and how these can be addressed or mitigated (section 4). Participants should also be given the opportunity not only to analyse the case studies of PPP in e-government provided in the module, but also to explore possibilities for PPPs in e-government projects in their own jurisdictions.

For a three-day session

The first two days should cover the topics listed for a two-day session above. On the third day, sources of funding other than PPPs can be briefly discussed (see section 6) either before or after a hands-on session on preparing a funding proposal outline for an e-government project (see section 7). Enough time should be allocated for the latter as a key training output.

About the Author

Richard Labelle is an independent consultant based in Canada. He has almost 30 years of experience in institutional strengthening and information and knowledge management in developing countries. Since 1992, he has undertaken missions to over 60 developing countries on behalf of UNDP and other organizations working in international development. In his consulting practice, he has advised governments, international development agencies, and other development actors on using appropriate ICTs and management practices for meeting national development goals. His current focus is on governance and public administration modernization and reform. He has undertaken evaluations of Internet connectivity and ICT capacity in various countries. He has also participated in the development of ICT strategies and action plans in parts of Asia and Africa, including Azerbaijan, Botswana, Djibouti, Gabon, Mauritania, Mongolia, Rwanda, Trinidad and Tobago, and Uzbekistan.

UN-APCICT/ESCAP

The United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development (UN-APCICT/ESCAP) is a subsidiary body of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). UN-APCICT/ESCAP aims to strengthen the efforts of the member countries of ESCAP to use ICT in their socio-economic development through human and institutional capacity-building. UN-APCICT/ESCAP's work is focused on three pillars:

1. Training. To enhance the ICT knowledge and skills of policymakers and ICT professionals, and strengthen the capacity of ICT trainers and ICT training institutions;
2. Research. To undertake analytical studies related to human resource development in ICT; and
3. Advisory. To provide advisory services on human resource development programmes to ESCAP member and associate members.

UN-APCICT/ESCAP is located at Incheon, Republic of Korea.

http://www.unapcict.org

ESCAP

ESCAP is the regional development arm of the United Nations and serves as the main economic and social development centre for the United Nations in Asia and the Pacific. Its mandate is to foster cooperation between its 53 members and nine associate members. ESCAP provides the strategic link between global and country-level programmes and issues. It supports governments of countries in the region in consolidating regional positions and advocates regional approaches to meeting the region's unique socio-economic challenges in a globalizing world. The ESCAP office is located at Bangkok, Thailand.

http://www.unescap.org

The Academy of ICT Essentials for Government Leaders

http://www.unapcict.org/academy

The *Academy* is a comprehensive ICT for development training curriculum with currently ten modules that aims to equip policymakers with the essential knowledge and skills to fully leverage opportunities presented by ICTs to achieve national development goals and bridge the digital divide. Below are the short descriptions of the ten modules of the *Academy*.

Module 1 - The Linkage between ICT Applications and Meaningful Development

Highlights key issues and decision points, from policy to implementation, in the use of ICTs for achieving the MDGs.

Module 2 - ICT for Development Policy, Process and Governance

Focuses on ICTD policymaking and governance, and provides critical information about aspects of national policies, strategies and frameworks that promote ICTD.

Module 3 - e-Government Applications

Examines e-government concepts, principles and types of applications. It also discusses how an e-government system is built and identifies design considerations.

Module 4 - ICT Trends for Government Leaders

Provides insights into current trends in ICT and its future directions. It also looks at key technical and policy considerations when making decisions for ICTD.

Module 5 - Internet Governance

Discusses the ongoing development of international policies and procedures that govern the use and operation of the Internet.

Module 6 - Information Security and Privacy

Presents information on security issues and trends, and the process of formulating an information security strategy.

Module 7 - ICT Project Management in Theory and Practice

Introduces project management concepts that are relevant to ICTD projects, including the methods, processes and project management disciplines commonly used.

Module 8 - Options for Funding ICT for Development

Explores funding options for ICTD and e-government projects. Public-private partnerships are highlighted as a particularly useful funding option in developing countries.

Module 9 - ICT for Disaster Risk Management

Provides an overview of disaster risk management and its information needs while identifying the technology available to reduce disaster risks and respond to disasters.

Module 10 - ICT, Climate Change and Green Growth

Presents the role that ICTs play in observing and monitoring the environment, sharing information, mobilizing action, promoting environmental sustainability and abating climate change.

These modules are being customized with local case studies by national *Academy* partners to ensure that the modules are relevant and meet the needs of policymakers in different countries. The modules are also been translated into different languages. To ensure that the programme stays relevant and addresses emerging trends in the ICTD, APCICT regularly revises the modules and develops new modules.

APCICT Virtual Academy (http://e-learning.unapcict.org)

The APCICT Virtual Academy is part of the multi-channel delivery mechanism that APCICT employs in the implementation of its flagship ICTD capacity building programme, the *Academy of ICT Essentials for Government Leaders*.

The APCICT Virtual Academy allows learners to access online courses designed to enhance their knowledge in a number of key areas of ICTD including utilizing the potential of ICTs for reaching out to remote communities, increasing access to information, improving delivery of services, promoting lifelong learning, and ultimately, bridging the digital divide and achieving the MDGs.

All APCICT Virtual Academy courses are characterized by easy-to-follow virtual lectures and quizzes, and users are rewarded with APCICT's certificate of participation upon successful completion of the courses. All *Academy* modules in English and localized versions in Bahasa and Russian are available via the Internet. In addition, plans for more content development and further localization are underway.

e-Collaborative Hub (http://www.unapcict.org/ecohub)

The e-Collaborative Hub (e-Co Hub) is APCICT's dedicated online platform for knowledge sharing on ICTD. It aims to enhance the learning and training experience by providing easy access to relevant resources, and by making available an interactive space for sharing best practices and lessons on ICTD. e-Co Hub provides:

- A resources portal and knowledge sharing network for ICTD
- Easy access to resources by module
- Opportunities to engage in online discussions and become part of the e-Co Hub's online community of practice that serves to share and expand the knowledge base of community of practice that serves to share and expand the knowledge base of ICTD