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Background

The information and communication technologies (ICT) sector has seen a revolution since the last ICT sector strategy of the World Bank Group (WBG) was prepared in 2000. The number of mobile phone subscriptions in developing countries has increased from 200 million in 2000 to 3.7 billion in 2010, and the number of Internet users has grown more than tenfold. The progress in the ICT Millennium Development Goal (MDG) indicators has been remarkable: In 2010, the proportion of the population in developing countries with access to fixed or mobile telephone has reached 70 percent; and more than 20 percent of the populations of developing countries are Internet users. ICT is thus no longer a luxury good but an essential utility for the poor including those in low-income countries. As a result, its vital role in advancing economic development and reducing poverty has been expanded and increasingly recognized.

Technological progress has lifted more than 10 percent of the world's population out of poverty since 1990, making it the biggest driving force behind economic growth¹.Development of ICT infrastructure particular in has attracted considerable amounts of investment, and generated significant fiscal revenues and employment opportunities in developing countries. ² More recently, the information technology (IT) service industry has become another engine of job creation in developing countries -- especially for youth and women -- and it has promoted trade and competitiveness through exports.

In addition, by providing access to information, making markets more efficient, fostering social inclusion, and equalizing opportunities in rural areas, ICT offers an innovative and unprecedented tool to directly reduce poverty³. The wireless communications networks, with more than 5 billion subscriptions globally, are now the world's largest platform to deliver useful information as well as a wide range of public and social services, including to those in rural and poor areas. Examples of such services emerge continuously. Farmers in remote villages of Kenya are using mobile phones to access the most current crop prices. Rural fishermen in Sri Lanka know where to fish based on satellite mapping of fish colonies. Migrant workers in Sierra Leone have cut out intermediaries and can now transfer money almost instantly through mobile banking to relatives in remote villages. Land registration, education programs, health care, and voting are other examples of services that are often difficult to access by poor people in remote areas but are now being extended to these communities in a timely, cost effective manner.

ICT also has strong spillover effects on long-run productive activities in other sectors. In the last 10 years, high-speed communications networks and the innovative applications they carry have made the impact of ICT as an enabler significantly more powerful. It is not just a technological phenomenon; ICT promotes innovation and can trigger fundamental economic transformation. Individuals, by accessing global knowledge, are unleashing the potential of their human capital and creativity.

¹ Global Economic Prospects 2008: Technology Diffusion in the Developing World.

² See the following litereature on the positive link between ICT and economic growth: Hardy (1980), Norton (1992), Röller and Waverman (1996), Canning (1997), and Madden and Savage (1998), Sridhar and Sridhar (2004), Waverman, Meschl and Fuss (2005), and Qiang (2009).

³ See relevance of ICT to poverty in *Application of Empowerment* on the World Bank Poverty webpage at http://go.worldbank.org/S9B3DNEZ00 (last accessed October 8, 2010).

Companies in developing countries are increasingly integrated into global production chains and markets. Enterprises in both manufacturing and service sectors that use ICT more intensively are more productive, grow faster, invest more, and are more profitable.⁴ Governments are becoming more efficient and transparent by offering information and services online. These are all contributing to long-term growth through efficiency and productivity gains.

These remarkable developments in the ICT sector the increasing near ubiquity of mobile phones in developing countries, the growing penetration and affordability of Internet services including broadband, and the emergence of innovative ICT applications in many sectors of the economy highlight the huge potential development impact of ICT. In this context, the WBG needs to reassess and refocus its role and priorities for engagement in the ICT sector and across sectors.

This approach paper presents a roadmap for preparing the WBG's new ICT sector strategy. It summarizes WBG accomplishments since the last sector strategy was prepared and discusses the rationale, main emerging directions, and issues to be addressed in the new strategy. This document also introduces preliminary considerations for a results framework, a draft outline for the new strategy, and a timetable for preparation. A plan for consultations is also provided. In this approach paper, the WBG proposes to formulate a new strategy around three directions:

- Connect Expand affordable access to voice, high-speed Internet, and information and media networks;
- Innovate Use ICT for innovation across the economy and promote the growth of IT-Based service industries; and
- Transform Support ICT applications to transform efficiency and accountability of services for increased development results.

The WBG wishes to use the strategy formulation exercise to seek views from stakeholders, including client governments, the private sector, civil society, and the research and development communities. The consultations will focus on how the WBG should position its lending, investment, and advisory services in order to help developing countries (and respective public and private sectors) to harness the next wave of opportunities presented by ICT.



⁴ Qiang, Clarke and Halewood (2006).

ICT at the World Bank Group

As a major development partner in the field of ICT for development, the WBG has long recognized the critical role of ICT in catalyzing inclusive economic growth as well as in promoting human and social development. The WBG approaches ICT both as a sector in itself (ICT connectivity, infrastructure, and ICT industries) and as an enabler of transformation across sectors.

The World Bank's ICT Sector Unit is anchored in the Sustainable Development Network (SDN) and leads work related to **ICT as a sector**, at the operational (policy support and lending), analytical, capacity building, and knowledge-sharing levels. The World Bank also hosts *info*Dev, a multi-donor partnership program under the Finance and Private Sector Development Network (FPD) which mainly focuses on promoting technology innovation (including "clean technology") at the small and medium enterprise level. The International Finance Corporation (IFC) leads WBG support to private sector investments, includingequity and loan financing. The Multilateral Investment Guarantee Agency (MIGA) is also actively supporting the sector through political risk insurance.

Support to ICT as an enabler of transformation across sectors is mainly carried out through ICT components in projects of different sectors, e.g. Education, Health, Social Protection, Agriculture and Development, Urban Development, Rural Infrastructure, Environment, Social Development, Public Sector Management and Governance, Economic Management, Finance and Private Sector Development, etc. The World Bank's ICT Sector Unit serves as the focal point to support ICTenabled development across sectors, working in partnership with the other sectors. It also manages stand-alone ICT projects that put in place crosssector foundations, policy and institutional frameworks, and specific programs for ICT-enabled transformation. The World Bank Institute (WBI) is also active in this area with a specific focus on governance and innovation. In addition, the WBG's development economics department (DEC) and WBI are encouraging development of ICT applications that make use of open World Bank data.⁵

⁵ WBI and DEC launched the "Apps for Development" challenge on October 7, 2010 at http://appsfordevelopment.challengepost.com/.

Outcomes of the Existing ICT Sector Strategy

The existing ICT sector strategy, which was approved by the Board in 2001, was prepared taking into account the trends in the sector during the 1990s. At the time, mobile technology was emerging and private investment was expanding in the telecommunications sector due to market liberalization. In that context, the International bank for Reconstruction and Development (IBRD), the International Development Association(IDA),⁶ and IFC played complementary roles to support development of ICT connectivity infrastructure in developing countries. IBRD/IDA focused on facilitating sector reform to open services to private sector provision and competition, build regulatory capacity, and support privatization of state-owned enterprises. In turn, IFC focused on making direct investments in the private sector, mainly by providing long-term financing to telecommunications and media service providers that were expanding or modernizing, as well as to state-owned enterprises that were on the path to privatization.

In the area of ICT applications, IBRD and IDA have financed a large portfolio of government-managed ICT applications spread across various sectors, with a focus on automation of government processes and management information systems. IFC has also developed a portfolio of investments in IT companies. Recently, the WBG has begun to help countries develop local IT services industries and to foster grass-root innovation supporting bv

incubators and hosting competitions for innovation grants.

The following summarizes a preliminary assessment of the main outcomes achieved under each of the four pillars of the 2001 strategy: The first two pillars of the 2001 strategy have helped produce significant positive outcomes. The WBG has made significant contributions to reforming the sector in a large number of countries. These reforms have attracted considerable amounts of private investment, have led to mass market access to ICT infrastructure services (especially in the mobile voice segment), and have triggered an information revolution that is having far reaching impact on growth, poverty reduction and empowerment, including in low income countries. However, the third and fourth pillars of the 2001 strategy have only partly realized their potential, because much more remains to be done to increase human capacity in ICT and to make use of ICT as a transformational enabler across sectors. This preliminary assessment will be enhanced by the evaluation of the WBG's intervention in the ICT sector currently being conducted by the Independent Evaluation Group (IEG).

⁶ IBRD/IDA: International Bank for Reconstruction and Development and the International Development Association



Pillar 1 of existing strategy Broadening and deepening sector and institutional reform

The WBG has supported the sector reform agenda in more than 95 developing countries with a strong focus on low income countries. WBG support has played a significant role in helping to liberalize telecommunications markets, privatize incumbent operators, revamp regulatory frameworks, and build regulatory capacity⁷. Such support has been delivered through a range of instruments, including technical assistance components under investment operations; investment in sector institutions including ministries and regulatory agencies; direct World Bank dialogue and advisory services; and support to policy reforms under development policy operations. IDA countries have implemented deep sector reforms, in many cases supported by the WBG. Theyhave attracted some US\$50 billion in investment between 1995 and 2010 and have achieved large increases in access to ICT services. WBG support to sector reform has also expanded beyond voice telephony to include data and media. Finally, the WBG has continued its limited support to postal sector reform in 15 low-income countries, building on its earlier success of organizational separating changes in postal and telecommunications services. Activities under this pillar have produced a major impact.

Pillar 2 of existing strategy Increasing access to information infrastructure

World Bank support to sector reform in more than 95 countries has also made a major contribution to increasing access to information infrastructure and services. Sector reforms and competition have led to exponential growth in access to mobile telephony. Among the low-income African countries, those with more competitive markets have rates of mobile penetration that are 31 percent higher than those with uncompetitive markets⁸.

To meet public objectives of increasing access, the World Bank has also supported innovative financing mechanisms in the form of public-private partnerships (PPPs) to leverage funds and expertise from the private sector. The World Bank has financed output-based aid (OBA) in about 20 countries to offer incentives to private sector players to provide services in rural areas that otherwise would not have been commercially viable. Since 2005, the WBG has invested in PPP mechanisms, particularly in Africa, to increase access to broadband and high-speed Internet. Focus has been placed on supporting development of national and regional (multi-country) backbone networks to bring down the cost of international bandwidth and improve affordability of high-speed Internet. Examples of such PPPs include the IFCsupported Eastern Africa Submarine System (EASSy) and the IBRD/IDA Regional Communications Infrastructure Program (RCIP) in East and Southern Africa. EASSy and RCIP have triggered a race for connectivity with prices expected to decrease fivefold or more.

⁷ In addition to having directly supported reforms in many countries, the WBG has contributed to knowledge creation and sharing that focused on drawing and disseminating lessons from sector reforms, for instance through *info*Dev's ICT Regulatory Handbook which is among the most popular reference documents used by regulators in developing countries.

⁸ See Africa Infrastructure Country Diagnostic. More information at

http://www.infrastructureafrica.org/aicd/sectors/ict

The approach is being adapted in Central and Western Africa, the Caribbean and the Pacific.

Over the past ten years, IFC has also committed US\$3.5 billion on extending mobile and data network infrastructure. This has taken the form of senior loans, equities, guarantees, and risk management products. Of this amount, US\$1.8 billion were committed for 84 projects in 32 lowincome countries. During the same period, IFC helped mobilize more than US\$1.3 billion for the account of syndicated banks in the form of B loans and guarantees, of which US\$500 million was committed in low-income countries. In addition, IFC has supported expanding access to ICT by developing and replicating innovative programs, such as the Village Phone program⁹, which are now being rolled out in multiple countries. Similarly, MIGA has focused mainly on helping reduce the telecommunications risks for infrastructure investment, issuing 38 guarantee contracts for 21 projects (including 12 in Africa) over the past ten years. The ICT portfolio accounted for 6 to 10 percent of MIGA's gross exposure and contributed to support about US\$6 billion in foreign direct investments over the period.

Pillar 3 of existing strategy **Supporting information and communication technologies' human capacity**

Only a limited number of WBG operations have focused on rolling out ICT education at the school, college and adult education level, or on providing skills training for government officials and entrepreneurs. Much more needs to be done in this area. Innovative pilots have, however, been supported by the multi-donor partnership program infoDev. As part of its business incubator initiative, infoDev has arranged for financing and technical assistance to 300 incubators supporting more than 20,000 micro, small and medium businesses in 80 countries. infoDev has also promoted new efforts on ICT in Education with a comprehensive set of knowledge products (toolkit, knowledge map, and surveys of ICT in Education in Africa and the Caribbean).

Recently, the World Bank has placed a new emphasis on building partnerships with leading companies in the ICT industry to facilitate technical skills training for an ICT workforce. In 2008, the Africa Region Human Development Department, the Finance and Private Sector Development Department and the ICT Sector Unit jointly initiated the New Economy Skills for Africa Program (NESAP-ICT), which is being implemented in eight African countries with notable progress in Nigeria, Ghana, and Kenya. Building on this effort, a global ICT Skills Development Initiative is being launched to accelerate ICT skills development. The WBG has also supported an active program of knowledgesharing events that help build capacity of leaders and practitioners in the ICT area through the edevelopment Thematic Group (e-TG). The e-TG has an active membership of more than 300 internal WBG staff members, 1,600 external members, and,

⁹ The Village Phone program encourages women entrepreneurship and extends mobile phone services in areas with limited signal coverage. More information at http://go.worldbank.org/DLO51A2IQ0



through partners, has a reach of more than 100,000 policy makers and practitioners.

IFC has also made contributions to developing human capacity in ICT. By the end of 2008, IFC's portfolio of 23 IT companies (over and above the IFC investment mentioned under Pillar 2) had helped create about 57,000 jobs, of which 16,000 were filled by female employees. All 54 IT services companies in which IFC has invested in the last 10 years have extensive in-house training programs. Some of these companies focus specifically on the education sector.

While the WBG has supported a number of valuable initiatives under this strategic pillar, the activities have been limited in scale and are not sufficiently integrated with the core operational instruments of the WBG.

Pillar 4 of existing strategy Supporting information and communication technologies applications

The World Bank has financed a large portfolio of ICT applications across a wide range of sectors, with the largest amounts having taken place in public administration, education, health, urban and rural development government ministries and agencies. In the large majority of cases, ICT components have supported computerized automation of back office processes and development of management information systems. About half of all projects approved in the 2000s contain some form of ICT component, more than double the proportion experienced during the 1990s¹⁰.

In 2006, the active portfolio of ICT components was estimated by the World Bank Quality Assurance Group (QAG) to be worth US\$7.7 billion. The 2006 QAG assessment found that projects with ICT components had, on average, a lower quality-atentry than average Bank projects (The QAG assessment did not include a review of stand-alone ICT projects. Ratings of stand-alone ICT projects have been above World Bank average). QAG pointed to the need for greater strategic attention to ICT components, and in particular to the challenge of integrating ICT components with broader organizational reform efforts without which technology investment often goes to waste. QAG also identified the lack of ICT specialists' systematic involvement and the need to streamline IT procurement processes as two major concerns.

¹⁰ World Bank Business Warehouse.

Despite the recognized macro-level impact of information technology on productivity and growth, IT investment can often fail to produce the desired results at the project level. To address this challenge, co-investment in IT and in organizational reform makes a substantial contribution to project success¹¹.

In recent years, the World Bank has also developed a small but growing portfolio of stand-alone ICT projects focused on e-government and ICT applications, for example in Ghana, Ethiopia, Kenya, Mongolia, Morocco, OECS, Rwanda, Sri Lanka, Tunisia, Ukraine, and Vietnam. These new operations integrate diverse aspects of ICT sector development into single operations, comprising national ICT strategy and policies, e-government applications in key sectors, and support to IT industry development. As these operations are in most cases still at an early or intermediary stage of implementation, it is too early to assess the approach and project results.

Within IFC, the portfolio of investments in IT companies has been one of the most successful, with high quality ratings. IFC has supported the use of ICT applications enhancing public administration efficiency and private sector development (for example, through investments in e-government applications in Chile, Russia, Turkey and China), or having significant social development impact (for example, through e-Health in Africa and Latin America, m-banking in South Africa, or Education in Nigeria).

Although not all IT investments produce the desired results, there is now clear evidence of the strong causal link between IT investment, if well executed, and productivity growth¹². Given the recent sector developments that augment the opportunity in developing countries (in particular the exponential growth of mobile networks and of innovative applications for development), the use of ICT as a transformational enabler still represents a relatively unrealized potential in WBG activities and calls for a strategic approach in the years ahead.

¹¹ MIT research about the use of IT at the firm level shows the critical importance of co-investing in IT and organizational reform. See "Intangible Assets: Computers and Organizational Capital, Erik Brynjolfsson, Lorin M. Hitt, Shinkyu Yang, 2002.

http://ebusiness.mit.edu/research/papers/138_Erik_Intangibl e_Assets.pdf

¹² For instance, see Wired for Innovation, How Information Technology is Reshaping the Economy, <u>Erik</u> <u>Brynjolfsson</u> and <u>Adam Saunders</u>, 2010.

Rationale for a New ICT Sector Strategy

ICT is a fast-evolving sector. A number of disruptive changes have taken place in recent years and call for a new strategy to provide guidance on WBG interventions related to ICT:

Growing demand for universal access to high-speed broadband Internet

Broadband and high-speed Internet are playing increasingly important roles in developing countries, helping to stimulate private sector development and transform local economies and service delivery in many sectors. Information and content availability over the Internet is seen as critical to enable greater inclusion, empowerment and human development. Despite the phenomenal private-sector progress in connectivity led infrastructure during the last decade, citizens, businesses and governments in middle-income and low-income countries (as well as in high-income countries) are increasingly concerned by the need to accelerate the roll out of high speed broadband connectivity networks and to improve their affordability. This is particularly true forthose parts of the networks where return is deemed too low for the private sector to invest alone to provide access to affordable high-speed Internet services. Convergence of technologies (voice, data and media) also triggers new business models and market structures and presents new opportunities as well as challenges to existing policies and regulatory frameworks. In this context, there is a surge of interest in many countries to reform policies and regulatory frameworks and to support public-private partnerships to accelerate the rollout of high-capacity networks and ensure universal or quasi-universal access to affordable broadband services.

Growth Opportunity in the IT-Based Services Industry

The IT-based services industry is experiencing rapid global growth and can be a significant engine of exports, growth and employment generation for many developing countries, as has been seen in India, the Philippines, Mexico and elsewhere. India, for instance, exported more than \$40 billion worth of IT-based services in 2007, or one quarter of the country's total exports and nearly half of its service exports¹³. In the Philippines, IT-based services employed 442,000 people (up from 4,000 in 2001), of which about 65 percent were women¹⁴. The opportunity is especially attractive because only about 15 percent of the potential global market has been exploited so far, and there remains significant room for growth for new country entrants, including small and low income economies, to join the industry¹⁵. Public policy can have an important impact on a country's competitiveness in this industry, notably through interventions aimed at developing ICT skills, ICT connectivity and urban infrastructure, e.g. high-technology parks, and through pro-active engagement with industry to remove administrative constraints for investment

¹³ See IC4D 2009: Extending Reach and Increasing Impact, http://www.worldbank.org/ic4d.

¹⁴ See The Global Opportunity in IT-based Services, World Bank 2010

¹⁵ See analysis justifying the opportunity for small economies in The Global Opportunity in IT-Based Services, Sudan et al. World Bank 2010

Unprecedented potential to use ICT as transformational enabler

Mobile networks continue to expand their reach rapidly, including to the lowest income segments of low income countries. The Internet itself is becoming "mobile". There is also a mushrooming of disruptive applications such as social networking, cloud computing and location-aware geo-spatial technologies that can customize services to the needs of the individual and that allow citizen collaboration and feedback about services. The trend of "open government data" also unleashes initiatives from citizens and private enterprise to produce a wide range of new services. These trends create an unprecedented development opportunity to use technologies to improve service delivery in many sectors, and to increase bottom-up pressure to improve performance. The transformative power of ICT presents a strategic opportunity that the WBG must focus on in the years ahead, with implications for a wide range of agendas – including climate change and green growth, food security, pursuit of the Millennium Development Goals, social accountability and good governance, etc.

Lessons from past World Bank Group experience

The experience of the WBG in the ICT sector during the last decade provides important lessons for the new sector strategy, including: (i) The role of the **private sector** in extending connectivity has been paramount, and efforts to increase competition and improve the enabling environment should continue;

(ii) The high overall levels of **access to ICT connectivity** hide significant variation between countries, particularly in the proportion of their populations that have access to services. The potential to leverage ICT for transformation will be different in countries where the majority of the low income population has access to mobile services, compared to countries where reforms are lagging and that have less than 15 percent of mobile penetration. This calls for a differentiated approach of support for the different agendas of the new strategy;

(iii) The **availability of relevant skills** has been identified as a binding constraint for countries to develop their local IT Industries and support ICT applications. This calls for a major focus on skills development;

(iv) **IT components of projects** in different sectors present high risks at the implementation level. They require greater selectivity, attention to integrating technology and organizational reform investments, and strengthening IT procurement processes;

(v) **Coordination of ICT systems** across sectors and levels of government can lower overall costs and create greater productivity. This suggests the need to invest in horizontal foundations of e-government in parallel to sector-specific ICT applications;

(vi) Use of ICT may in many cases mirror existing **gender-related discriminations**. Deliberate policies may be required to promote inclusion and gender equality around ICT interventions.

Objectives and Scope of the New ICT Sector Strategy

The objective of the new sector strategy is to orient the work of the WBG to help client countries leapfrog development and become leaders in the digital future. By leveraging ICT infrastructure and innovation, countries can transform government and business services, increase productivity and competitiveness to achieve inclusive smart growth and improve the reach, efficiency and accountability of poverty reduction efforts.

The strategy will take stock of WBG work related to ICT and consider industry trends and evolving needs of country clients. Drawing from results achieved and lessons learned, it will identify strategic directions going forward. It will frame how the WBG will work with partners and client countries to address key opportunities and challenges, and it will shape WBG's business model accordingly. As mentioned above, the strategy will take into account findings from the evaluation currently being conducted by IEG. Preparation of the strategy will also include a skills mix analysis to guide ICT capacity-building requirements across the WBG. Given the fast-changing nature of the sector, the strategy will be supplemented by periodic updates in order to adapt to the evolving context. Attention is being given to align the ICT sector strategy with other WBG strategies, including those being prepared in parallel, such as for Climate Change, Environment, Energy, Urban, Education and the Agriculture Action Plan¹⁶.

¹⁶ The formulation of the ICT strategy will be an opportunity to advance the mainstreaming of ICT in other sectors within the World Bank, notably through joint work on the sectorspecific annexes proposed in the draft outline of the Strategy listed in Annex 2. This joint work will also be an opportunity to ensure linkages with the other sector strategies being prepared by the World Bank.

Emerging Directions and Issues to be Addressed

The World Bank Group proposes three main <u>directions</u> for the new ICT sector strategy:

Connect



Expand affordable access to voice, high-speed Internet and information and media networks

The WBG will maintain its emphasis on ICT policy and reform by promoting competition, private participation, and efficient market structures while helping to reduce risk levels in private investments. The WBG will share international experience and good practices with client countries regarding key policy issues including market competition, convergence, infrastructure sharing, nondiscriminatory licensing, and efficient management of scarce resources such as radio spectrum for wireless connectivity. In areas where the market is not fully achieving public policy objectives, such as for the rapid rollout of comprehensive inter-country and national backbone networks, the strategy will spell out approaches to support targeted and catalytic public investmentand demand stimulation. In addition, given the rapid evolution of technologies allowing media distribution (such as the Internet and mobile phone networks, as well as community radio), the World Bank will offer demand-driven support to client countries interested in developing enabling environments for media industries, e.g. by fostering the rollout of high-speed networks, by promoting competition, establishing appropriate standards, and providing guidance in relation to the digital switchover¹⁷. IFC will also continue to invest in frontier markets and in innovative business models to increase access to voice, data and high-speed Internet services. IFC may also consider specific investment opportunities in the media industry. In this respect, the strategy may formulate guidelines for IFC investments in media. Finally, the strategy will articulate both the role of WBG organizations, including IDA, IBRD, IFC, MIGA and *info*Dev and the mix of instruments available to support the **Connect** agenda.

¹⁷ Digital switchover refers to the migration of analog broadcasting services to digital broadcasting. This allows a more efficient use of spectrum and frees up bandwidth for other services (notably wireless services).

Innovate

Use ICT for innovation across the economy and promote the growth of IT-based service industries

The WBG will help countries achieve growth of local IT-based service industries, first by assessing their likely competitive advantages and possible positioning in the industry, and then, where relevant, by supporting an innovation ecosystem focused on skills development congruent with ITbased service industries, as well as by supporting private sector-led technology parks and targeted research and development. Through infoDev and other lending and non-lending World Bank and IFC instruments, the WBG will also support incubators, facilities for SME financing, and training programs to foster grass-roots innovation and empower entrepreneurs to generate innovative ICT applications and IT-based solutions that address critical development challenges. IFC will also help entrepreneurs turn innovative ventures into viable businesses, including in clean technology. The WBI will support knowledge sharing on early-stage development and innovation under initiatives such as the Development Marketplace and Innovation Radars.

Transform

Support ICT applications to transform efficiency and accountability of services for increased development results

The WBG will scale-up support to client countries to use ICT to improve social, economic and business services, to extend the reach of such services to the poor, and to promote accountability to citizens. The WBG will help governments to transform both back-end applications such as in taxation, customs, e-procurement, and financial management, as well as the way they deliver services to constituents and partners in areas such as health, education, agriculture, disaster risk management, green growth, and climate-resilient water management, among others. The strategy will outline how media may play an important role in helping bring about positive behavioral change amongst citizens, e.g. by promoting hand washing for water-borne disease control, or the use of mosquito nets for malaria control and giving voice to citizens to help improve government transparency, job creations, and economic growth.

The strategy will also highlight principles to strengthen the policy and business environments for ICT applications and content development, including in relation to cross-sector issues such as interoperability, open standards, cyber security, data privacy protection, access to information, intellectual property rights, electronic signature, electronic contracts, and political and organizational challenges. The strategy may prioritize sectors in which the WBG should intervene while keeping room for opportunistic priorities that may emerge in the future. The conditions for success under this agenda are greater today than they were in the past. Today's ICT connectivity is more ubiquitous than before, providing an opportunity to reach an unprecedented number of citizens. In addition, with numerous and visible technology innovations including mobile applications, the transformative potential of ICT is now more widely recognized. The strategy will propose a new process within the World Bank to enhance the shared ownership of this agenda.

For each of the three directions mentioned above, the strategy will spell out how key cross-cutting issues, such as climate change, governance and anticorruption, and gender equality, are to be addressed. For instance, in the case of climate change adaptation, the Connect and Innovate sections of the new sector strategy will elaborate how ICT infrastructure development may contribute to climate change mitigation, such as by improving energy efficiency of data centers and base transmissions stations and through ICT-enabled innovations such as for electronic waste and ICTenabled renewable energy. Similarly, the Transform section will elaborate how the WBG may assist countries to use ICT to help other sectors reduce energy consumption and curb carbon emissions, by digitizing processes that are carbon intensive, building smart grids, or using clean technology¹⁸.

The strategy will also place an important emphasis on the cross-cutting objective of empowerment and poverty reduction. It will provide specific guidance on how ICT may be used to achieve two-way information flows between government and citizens, thereby enhancing the power of citizens to achieve more accountable service delivery and governance. Informed citizens are better equipped to take advantage of opportunities, access services, exercise their rights, negotiate effectively, and hold state and non-state actors accountable.

ICT applications (such as geo-referenced photographic evidence of water supply problemssent by citizens to a publically-accessible website) can empower citizens to meaningfully provide feedback to government in a manner that places effective pressure for performance.

Other examples include improved national governance and monitoring of public expenditures by placing government budget online, thus improving public accountability. Similarly, the strategy will explore how the Bank could help its clients replicate and scale up applications that have a particular relevance to the poor. The provision of basic mobile phone services can indeed help poor people's access to and effective use of information to improve their livelihood¹⁹. Innovations such as use of mobile phones to make payments or to receive health-related text messages are two of many examples of how ICTs can be used to extend the reach of services to the $poor^{20}$.

¹⁸ SMART 2020, a 2008 report commissioned by the Global e-Sustainability Initiative estimates that while ICTs account for 2.5% of the world's greenhouse gas emissions, ICTs have the potential for reducing total emissions by up to 15%. The report also estimates that smart grid technologies could help reduce up to 14% of emissions related to the power sector (equivalent to a 2.03 Giga Ton reduction of CO_2 emission in 2020).

¹⁹ See Annex 3.

²⁰ See Annex 3.

Operationalizing the New ICT Sector Strategy

Preparation and implementation of the new ICT sector strategy will need to be broadly owned across the institution. Starting in 2010, each Region and Network Vice-Presidency within the World Bank is setting up a cross-sector team to drive the ICT agenda in their respective Vice Presidential Unit (VPU). These teams will play a leading role in ensuring the integration of ICT in regional, country and sector strategies and programs.

The strategy will include sections on:

Comparative advantages and selectivity

For each of the three directions (Connect - Innovate - Transform), the strategy will assess the comparative advantage of the WBG relative to other financing institutions, development partners and private sector stakeholders. Accordingly, the strategy will be selective and identify priority areas. It will also adopt a differentiated approach for WBG interventions in countries at different levels of income and ICT infrastructure. Particular attention will be given to country-specific issues, where possible, linking to country assistance / partnership strategies. The strategy will also provide clarity on the relative importance of each of the three directions, recognizing that this will vary between regions and countries.

Instruments

The strategy will suggest instruments that match the rapid pace of innovation in the sector as well as the varying needs of client countries. It will identify for different contexts the relevance of regional (multi-country) sovereign lending programs, development policy lending, debt and equity private sector financing of players, riskmanagement products, results-based lending, as well as traditional investment lending. The new sector strategy will also recommend approaches or instruments that can adequately support publicprivate partnership (PPP) programs. The relevance and lessons learned about technical assistance and analytical work will also be discussed.

Processes

The new sector strategy will suggest a possible evolution of WBG procedures to adapt to specific aspects of ICT operations, such as those related to ICT procurement or to ICT PPPs. This will be done in close cooperation with the Global Expert Team on PPPs, with the Operations Policy and Country Services (OPCS) Department, and with the Legal Department.

People, skills, and organization

A skills gap analysis will be carried out, including a review of the distribution of ICT expertise across the institution. In addition to addressing the nature and quantity of skills required, the strategy will recommend where skills may need to be located within the WBG and ways to strengthen the staffing model, e.g. the extent to which staff positions should be used versus consultants given the fast-changing nature of the sector and the associated need for continuous renewal of skills).

The strategy will also suggest approaches for skills development including training of Task Team Leaders on the transformative use of ICT in their respective sectors. In addition, the strategy will articulate how the different stakeholders within the WBG, namely IBRD, IDA, IFC, MIGA, WBI and other sector units, will collaborate to implement the strategy. This will include recommendations related identification effective to the earlv and management of possible inter-institutional conflicts of interest.

The results framework, as discussed in the next section, will spell out responsibilities and accountabilities for results. The analysis will take into account IFC's recent reorganization and World Bank internal reform efforts, including organizational reforms, new internal IT strategy, new research and knowledge agenda, etc.

The new strategy will make a deliberate attempt to address challenges the WBG has faced in the past when working to to promote ICT applications and help develop ICT human capacity in developing countries.

Internal and external partnerships for knowledge sharing and learning

In the fast-paced ICT sector, knowledge and expertise about industry trends and innovations reside mostly outside the WBG. Through partnerships, the WBG can access relevant knowledge and expertise and link them to operations in client countries. The multi-donor partnership program infoDev, the recently launched eTransform Initiative²¹, the ICT Skills Development Initiative. and the World Bank Institute's Development Marketplace initiative are examples of such partnerships. The new strategy will also assess the potential WBG contribution to support technology transfer and its financing and will look into how best to leverage the technology diagnostics prepared by partners.

²¹ The eTransform Initiative is a partnership with the industry sponsored by World Bank Group President Robert Zoellick to connect government, industry leaders and practitioners, and to foster knowledge exchange and development of new programs and projects related to ICTenabled Transformation.

Results Framework Considerations

The new ICT sector strategy will develop a resultsbased framework for monitoring implementation progress. The results framework will specify measurable indicators and major milestones to monitor inputs, outputs, intermediate outcomes, and impact of the strategy within a specified time horizon. Consultations will explore how the results framework may be best aligned with Country Assistance Strategies (CASs), Regional Action Plans, the Sustainable Infrastructure Action Plan, and Core ICT Indicators. The results framework will be used to provide periodic implementation updates. Collection of data and information relevant to the results framework, will build on the existing collaboration with the World Bank's Development Economics Data Department in the sector.

Updating the World Bank's ICT thematic coding for projects is a necessary parallel process. There is an urgent need to include ICT-enabled development in the thematic codes. Without this, it is difficult to track ICT components across sectors, hindering quality control, tracking of lending volumes and disbursement, and assessment of sector impact or outcomes. This amendment of the thematic coding has been agreed with the Operations Policy and Country Services Department (OPCS). Realigning codes will contribute to monitoring results in a more effective way and in sharpening management of ICT activities within the WBG.

Plan for Internal and External Engagement and Consultations

Formulation of the new ICT sector strategy will include global multi-stakeholder consultations. It will be undertaken in a transparent and inclusive manner to gather inputs and views, build consensus, and ensure quality of the new ICT strategy. The consultations will build on lessons learned in previous consultations for similar major World Bank documents, including for the Strategic Framework on Development and Climate Change in 2008, as well as the ongoing consultations on the Environment, Energy and Urban Strategies. The ICT sector strategy consultations process will consist in a phased approach:

I. Global Consultation for Strategy Preparation

(November 2010 to March 2011)

Global and regional consultations will be held with multiple internal and external stakeholders to gather inputs to prepare the strategy. Consultations with internal WBG audiences will take place with regions, networks and other business units of IBRD/IDA, as well as with MIGA and IFC. Incountry consultation sessions will be conducted mainly through the Global Distance Learning Network. Online consultations will also be conducted. In addition, Bank staff will attend selected relevant events (conferences, forums, mission trips and donor meetings) to solicit inputs. Main issues, discussion highlights, and recommendations at each consultation will be summarized and used as inputs to formulate the draft strategy.

II. Consultations on the Draft Strategy

(July 2011)

Once discussed by the World Bank Group's Committee on Development Effectiveness (CODE), the draft strategy will be posted on a dedicated website and shared with stakeholders for a period of online consultation. As needed, targeted global and regional consultations with multiple stakeholders will be undertaken mainly through web-based tools such as blogs, discussions boards, webcasts sessions, and videoconferences. (For more information, see detailed Consultation Plan in Annex 4.)

All feedback from the consultation process will be documented in a brief post-mortem note of roughly five pages for internal circulation. The final Strategy Results Framework will also be posted online along with the strategy itself and will be used as a basis for staying in touch with stakeholders after the consultation is completed.

MILESTONES & PROPOSED DATES	
Consultations with Stakeholders	November to March 2011
CODE Discussion of Draft ICT Sector Strategy	June 2011
Consultations on the Draft Strategy	July 2011
Circulation of Draft ICT Sector Strategy to WBG Board	September 2011
Dissemination	October 2011
Launch at Annual Meetings	October 2011

Note: These dates may be revised once the completion date of IEG's ICT Sector Evaluation is known.

Annex 1

ICT Sector Strategy Task Team

The strategy will be prepared by a core team of ICT sector specialists paired with colleagues from other sectors, working in coordination with focal points across sectors, regions, and organizations of the WBG.

Task Team – The team will be guided by the management team of the World Bank's ICT Sector and		
more specifically by Philippe Dongier, Sector Manager, ICT Sector.		
Coordination Team		
Laurent Besançon, ICT Strategy Task Team Leader, and ICT Coordinator for Sub-Sahara Africa		
Anat Lewin and Zaid Safdar, Operations Officers		
Jannina Flores Ramirez, Program Assistant		
Main Contributors for the New Strategy		
Christine Qiang, Lead Economist, ICT Sector		
Deepak Bhatia, Lead e-Government Specialist, and ICT Coordinator for Eastern Europe and Central Asia		
Doyle Gallegos, Lead ICT Policy Specialist		
Edward Anderson, Young Professional, ICT Sector		
Randeep Sudan, Lead ICT Policy Specialist		
Tim Kelly, Lead ICT Policy Specialist, infoDev		
William Kerr-Smith, Chief Industry Specialist (IFC)		
Andi Dervishi, Investment Officer (IFC)		
Olivier Lambert, MIGA		
Bjorn-Soren Gigler and Boris Weber, World Bank Institute		
Pierre-Laurent Chatain, Finance Sector		
Elizabeth J Ashbourne, Health Sector		
Maria Amelina, Social Development Sector		
Michael Trucano, Education Sector		
Cem Dener Public Sector Governance Sector		
Susanne Scheierling, Water Sector		
John Wille, Private Sector Development Sector		
Marcelino Madrigal, Energy Sector		
Eija Pehu, Agriculture and Rural Development Sector		
Sameer Akbar and Ana Elisa Bucher, Environment Sector		
Emma Phillips, Disaster Reduction and Recovery		
Communications Team		
Communications Officer (ongoing recruitment)		
Oleg Petrov, Knowledge Management Officer		

Annex 2 Draft Outline for the Forthcoming Strategy

Chapter 0 – Executive Summary

Chapter 1 – Taking Stock

- Defining the ICT Sector and its impact on growth, development and the poor
- Assessment of WBG work in the ICT Sector
 - Was the WBG's program in the sector consistent and well aligned with strategic goals?
 - What results have been achieved during the previous sector strategy period? Overview of available information on outcomes and key outputs of relevant WBG activities.
 - What are the general lessons learned? What has worked or not worked for WBG support to connectivity and ICT applications?
 - Are there any lessons from relevant IEG evaluations, QAG reviews or self-evaluations?
- Assessment of changes in external environment, ICT industry and needs of our clients
 - What are the new circumstances (emerging technology advances and industry trends, market forces in the industry, changing client needs in the public sector and private sector)?
 - What are the new opportunities where WBG support may be needed?

Chapter 2 – Introducing the New Strategy

- Objectives of the strategy; How has the business evolved since the last strategy?
- How have client needs evolved compared to what was anticipated in the previous strategy and what are the key changes in the external/operating environment?
- To what extent has WBG adapted to changing clients needs?
- Availability of ICT connectivity as a game changer for development
- How have external consultations been conducted? What was the extent of these consultations, and how have external consultations shaped the direction of the new strategy?

Chapter 3* – Connect – Expand affordable access to voice, high-speed Internet and information networks

Chapter 4* – Innovate – Use ICT for innovation across the economy and promote the growth of ICT industries

Chapter 5* – Transform – Use ICT applications to transform how sectors operate and how public sector services are delivered for an increased development impact

*For each of Chapter 3, 4 and 5:

- What are the key internal and external development opportunities and challenges?
- What are the key adjustments in strategic direction?
- How are the key cross-cutting issues (such as climate change adaptation, governance and anti-corruption, gender equality, and others) integrated across *Connect, Innovate* and *Transform*?
- What are the expected bottlenecks, constraints and challenges for implementing the new strategy and for monitoring results
- How will this strategy be relevant for country client needs?
- How do the objectives support global and corporate goals?
- What is the implication for knowledge-sharing and global public goods?

Chapter 6 – Implementation of the Strategy and the ICT Sector Results Framework

- What is the delivery business model for WBG for each of the strategy directions? Operational and organizational considerations
- How does the WBG pursue the mainstreaming/transformation agenda and structure partnerships between the ICT sector and other sectors within the WBG and across the institutions of client countries? How does itskill up?
- What are the implications in terms of procurement in the context of public private partnerships, ICT applications, IT services?
- How can challenges related to quality at entry and implementation of ICT applications activities be addressed?
- How do we take into account client differentiation for the types of support provided by WBG?
- Results measurement framework and availability of data;
- Division of responsibilities; monitoring and evaluation
- How is the results framework relevant /realistic about available data and data collection?
- Are synergies within the Bank Group sought?
- What are the contributions of partnerships and trust funds to achieving sector level results?

Annex 1 – ICT and Health

- Annex 2 ICT and Education
- Annex 3 ICT and Finance
- Annex 4 ICT and Private Sector Development
- Annex 5 ICT and Public Financial Management
- Annex 6 ICT and Energy
- Annex 7 ICT and Agriculture, Food Security, and Water Resource Management
- Annex 8 ICT and Transport
- Annex 9 ICT and Climate Change and Environment
- Annex 10 ICT and Good Governance and Social Accountability
- Annex 11 ICT and Disaster Relief, Risk Management, and Mapping for Results
- Annex 12 Role of World Bank Group in Media
- Annex 13 Results Framework
- Annex 14 World Bank Regional Action Plans to Leverage ICT across Sectors

Annex 3 ICT, Poverty Reduction and Empowerment

1. **Access to information** is critical for empowerment and poverty reduction. Two-way information flows from government to citizens and from citizens to government allow responsible citizenship, and responsive and accountable governance. Informed citizens are better equipped to take advantage of opportunities, access services, exercise their rights, negotiate effectively, and hold state and non-state actors accountable. Most investment projects and institutional reform projects, whether at the community level or at the national or global level, underestimate the need for information and under-invest in information disclosure and dissemination. Information and communications technologies (ICT) can play important roles in connecting poor people to information about rules and rights to basic government services, about state and private sector performance, and about financial services, markets, and prices, as well as to each other and to the larger society.

2. **Provision of basic services** refers to improving poor people's access to and effective use of basic services, including health care, education, water, roads, and basic financial services. Three different strategies for providing effective services to poor people can be highlighted. The first focuses on improving access to information, primarily by putting information about government performance in the public domain. The second makes use mainly of mechanisms for inclusion/participation. The third focuses on local organizational capacity and includes all four elements of empowerment, which act in synergy. Examples of provision of basic services using ICT include:

- Gyandoot information technology project, Madhya Pradesh, India
- Cellular telephones in Bangladesh to help empower women, provide access to market information to farmers, and improve the welfare of the poor
- Program for Pollution Control, Evaluation, and Rating (PROPER), Indonesia
- Water Districts Development Project, Manila, the Philippines
- Public Expenditure Tracking Survey, Uganda
- M-pesa (using mobile phone to make payments) in Kenya 25 percent of the population is now using mobile phones to make payments (less than 5 percent had access to a bank account previously)
- E-Society grant program, Sri Lanka, to allow local communities to design ICT applications relevant to improving their livelihood (farmers, fishermen, estate workers, etc).
- 3. *Improved local governance* is critical to better service delivery and greater responsiveness to poor people's priority problems. To improve local governance, local governments with authority and resources need to empower local communities through mechanisms that increase citizen access to information, enable inclusion and participation, increase accountability of governments to citizens, and invest in local organizational capacity. Examples of improving the demand side of local governance using ICT include:
 - Rights to information laws, India
 - Citizen report cards in Bangalore, India
 - Municipal websites with performance information, Argentina



- 4. *Improved national governance* and public sector reform processes that focus on rationalizing and tracking public expenditures as well as modernizing financial management systems are critical first steps toward internal and public accountability. Public participation and public access to key information in forms that can be understood can further increase government accountability for improved performance. Examples of improving national governance using ICT include:
 - National government websites, Argentina
 - Freedom of Information Act, Romania
 - Programmatic Structural Adjustment Loan, Latvia
- 5. **Pro-poor market development** and economic empowerment is critical for poor people's wellbeing. Freedom from hunger, adequate income, and security of material assets are central issues in poor people's lives. Even in natural disasters such as floods and earthquakes, poor people often place themselves in peril by refusing to leave their meager assets, knowing that lost assets mean a slow but just as certain death. Examples of propoor market development using ICT include:
 - GrameenPhone, Bangladesh
 - E-commerce: Novica.com, PeopLink.org
 - Self-help groups, credit ratings, Andhra Pradesh, India
 - Smart cards in India to provide the poor with access to credit and financial services, health insurance even in remote and rural areas.
 - ATM banking, South Africa
- 6. Access to justice and legal aid and a new generation of judicial and legal reform projects are creating the legal environment for accountable governance and empowering poor people by increasing their access to justice. Examples of access to justice and legal aid using ICT include:
 - Judicial Reform Project, Guatemala
 - Judicial Reform Project, Ecuador
 - Supreme Court modernization, Venezuela
 - Urban Property Rights Project, Peru

For more information please visit <u>http://go.worldbank.org/S9B3DNEZ00</u>

Annex 4 Proposed External Consultation Plan

1. The Context

To help to develop an Information and Communication Technologies (ICT) strategy that best meets the needs of developing countries, the World Bank Group (WBG) will consult external stakeholders, including governments, international organizations, the private sector, and civil society. In particular, the WBG will seek input on the overall approach to strategy, priority issues and the role that the institution should play in this sector.

2. The Consultation Process

After approval of the approach paper, the WBG will hold web-based consultations and face-to-face meetings to seek input on the proposed approach from a range of constituencies: member governments, private sector bodies, national and international civil society organizations, academia, international organizations, donor agencies, and other stakeholders. Main external consultations will take place in two phases.

- Phase I November 2010 to February 2011: web-based and face-to-face meetings to seek input into the approach to and preparation of the strategy;
- Phase II July 2011: comments on the draft strategy paper.

3. Action Plan for Consultations

The consultations would allow stakeholders to provide input throughout the process of strategy development, from the early stages of drafting the strategy paper through its consideration by WBG management and board. The consultation process will include the following main steps: notification, electronic comments and face-to-face consultations, review of the draft strategy paper, and feedback to stakeholders. Proposed actions during each step are listed below.

- a) **Notification.** The WBG will announce its intention to consult on the strategy, using a dedicated website, country offices, private sector and civil society networks, and, as needed, local media in member countries.
 - The dedicated website will allow for consultations with a range of stakeholders, allowing them to view and access the approach paper, consultation plan, meetings calendar, and related reference information material, as well as provide comments and monitor the consultation process. Visitors to the site will also be able to sign up to be notified when significant updates are posted on the site.
 - The WBG will post the approach paper, draft strategy paper, and other resources to facilitate the review, e.g. background information on ICT issues and the WBG's ICT programs, and details of the review process on the website.



- b) *Electronic Comments and Face-to-face Consultations.* The WBG will use a combination of web-based consultations, face-to-face consultations in countries, and international meetings to reach key stakeholders.
 - **Web-based consultations.** The primary vehicle for global stakeholder inputs will be a web-based platform through which any individuals or organizations with reasonable Internet access can participate in the consultations. Electronic comments could be submitted via a form on the website or by e-mail.
 - Face-to-face consultations in countries. A series of consultative meetings will be held in selected countries. A wide range of stakeholders—country authorities, citizens, civil society organizations, business, academia, multilateral organizations including regional economic communities, donor agencies, media—will be invited to participate in these meetings. In addition, a series of videoconferences will bring together various stakeholder groups within and across Regions. Meetings in countries will be led by the country offices with support from communication staff, network anchor staff, and regional staff in Washington, using wherever possible the Global Distance Learning Network. Information about time and places for meetings will be notified as it becomes available.
- c) **Review of the draft strategy paper.** Following the external consultations, the WBG will prepare a draft strategy paper. The paper will be posted on the external website for a one month period to collect electronic comments.
- d) *Feedback to Stakeholders.* After each consultative meeting, the WBG will post the summary of the comments received on the website. At the end of each phase of consultations (I and II) the WBG will synthesize the comments received and post them on the website, along with a summary of how it proposes to address the key issues raised.

4. Discussion Questions

In soliciting comment and views from a variety of stakeholders, the WBG will consider questions such as the following:

- Where do you think the help of the World Bank Group in the ICT sector in developing countries is most needed?
- Do the proposed priority issues connect, innovate and transform adequately address and balance the needs of countries?
- What is the role of public sector financing and the World Bank Group in advancing the connect agenda and overcoming the gap in high-speed Internet connectivity?
- Should the World Bank Group be active in the innovation space and how?
- How could the World Bank Group adequately support countries planning to use ICT to transform their economies and the way governments deliver services to citizens and businesses?
- Which activities—lending, equity investments, guarantees, technical assistance, capacity building, research and other analytical work, and the provision of public goods—are the most effective in supporting countries and what is the optimal mix of the activities?

5. **Communication Tools**

The consultations will use a suite of communication tools: (a) to make the approach paper and other resource material available to as many stakeholders as possible prior to consultations, and (b) to ensure that the feedback from consultations is reported as accurately and consistently as possible. Specific tools and resources would include the following:

- a consultation website;
- briefing slides showing the guiding principles and key elements of the proposed approach;
- an electronic feedback form that would be posted on the web to solicit electronic comments;
- a short video on the overall consultations process and key points of the ICT approach to strategy (about five minutes);
- a standard PowerPoint presentation to share with stakeholders key ICT sector issues faced by developing countries and the support that the WBG has been providing; the proposed directions of the new strategy; and questions for discussion; and
- summary feedback

6. Timetable

Date	Item
November 2010 – February 2011	Phase I Consultations – web-based and face-to-face
November 2010 - May 2011	Preparation of strategy
June 2011	Submission of draft strategy to CODE
July 2011	Phase II Consultations: electronic comment on draft strategy
September 2011	Submission to Board for discussion
October 2011	Dissemination of strategy



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