



High Impact, Pro-Poor e-Governance Applications

**Identifying 'Killer Applications' and
Best Practice Models of e-Governance
through Community e-Centers in the Philippines**

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HIGH IMPACT, PRO-POOR e-GOVERNANCE APPLICATIONS

Identifying “Killer Applications” and Best Practice Models of e-Governance through Community e-Centers in the Philippines*

Gigo Alampay and Joel Umali

EXECUTIVE SUMMARY

The use of *killer applications* – i.e., applications and services that create a high and pro-poor developmental impact, and encourage replication – is important to the long-term sustainability and viability of Community e-Centers (CeCs) in the Philippines. These include, particularly, services that residents find relevant enough that they are willing (and able) to pay for their use, such as Internet access, communications software and productivity suites. It also covers other services such as photocopying and CD replication that, while not necessarily Internet or computer-related, do provide CeCs with additional sources of revenue that help ensure their survival, especially in rural and unserved areas.

These basic applications are pre-condition for more advanced CeC uses such as e-governance, and will provide the foundations for the use and appreciation of e-governance applications by community residents. It is the demand for these basic applications that are presently driving the set-up and development of CeCs throughout the Philippines.

CeCs are in a strategic position to offer e-governance applications at the local level. CeCs can impact communities and citizens in several ways. By making the right tools and applications available, it can improve accountability and effectiveness of government services and operations, it can enhance government service delivery for industry and businesses and more importantly, it can modernize and ensure the efficient delivery of services to the citizens.

The Philippine Government, particularly Local Government Units (LGUs), have utilized the CeC model to offer various e-governance services. Although most LGUs are still in the infancy stage of offering basic access to government information, some have made great strides in offering killer applications. Distance learning and skills enhancement applications have been exploited by LGUs especially for remote schools. CeCs have also been instrumental in efficient delivery of national government and LGU services to citizens, businesses and even other government agencies. Further, CeCs have provided one-stop shop portals in health care and preventive medicine, business development, agriculture, livelihood promotion and jobs creation. Finally, CeCs can be catalysts for change within the LGUs themselves. Government officials

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have become more open and receptive to the use of ICTs to improve work productivity and service delivery to people.

One challenge now for the Philippine Government is taking full advantage of the promise and potential of CeCs to deliver public services down to the remotest areas, and in a manner that is relevant, efficient and effective, by helping to identify killer applications and best models of e-governance that can be replicated and deployed through CeCs.

The first section of this paper proposes a methodology or guide for evaluating killer applications. The second section identifies possible killer applications and best practice models, and discusses how different communities have benefited from their use. The list is by no means comprehensive, but ideally, LGUs and CeC managers will be able to look at this list, and then use the methodology outlined to determine which applications/models may or may not work in their respective CeCs.

I. INTRODUCTION

The world has experienced and continues to benefit from tremendous developments in Information and Communications Technology (ICT). Not only has it enhanced business productivity, ICT permeates the social and political sphere in ways that have never been possible in the past.

ICT increasingly and demonstrably creates opportunities for governments to formulate new leadership approaches to develop better policy-making strategies and improve the effectiveness and efficiency of service delivery. ICT helps to broaden the involvement of citizens and makes it possible for them to participate in government's decision- and policy-making processes. ICT also enables government to provide better and faster services, extend its outreach and access even in the remotest areas, and reduce the cost of both running and transacting with government itself.

In short, ICT fosters good governance – or the exercise of political, economic and administrative authority in the management of a country's affairs – by promoting public participation, transparency, efficiency and government accountability.

The use of ICT to enhance or provide for the efficient, effective and transparent delivery of government services is now broadly taken to mean digital governance or e-governance.¹

International Experiences in e-Governance

More than 90 percent of all developing countries now practice e-governance.² In South-East Asia, for example, ASEAN has committed to employ ICT in the provision and delivery of services by the government. Included in its e-ASEAN Framework is a commitment to take steps to provide a wide range of ICT-enabled government services and transactions to facilitate linkages between public and private sectors; as well as to enhance inter-governmental cooperation for promoting the use of electronic means in the procurement of goods and services, thereby promoting transparency and facilitating the freer flow of goods, information and people within ASEAN (ASEAN, 2000).

¹ Definition culled from the UNESCO website available at <http://portal.unesco.org>, accessed on November 2006. Note that e-governance and e-government are used often interchangeably in defining how government uses ICT in its delivery of services to citizens, businesses and other government institutions. Strictly speaking, these two terms can be differentiated as the latter focuses on the development of online services to the citizen, while e-governance deals with the usage and application of ICTs for the purpose of enhancing good democratic governance processes, and involve th interaction between citizens and the democratic processes such as online public hearings, electronic votings, feedback systems and participation in decision-making (Riley, Thomas B. 2003. 'E-government. E-governance: Examining the Differences in a Changing Public Sector Climate', International Tracking Survey Report 3).

² Statistics based on OECD, 'ICT in Poverty Reduction Strategy Papers', 2003.

Governments are also using ICT as tools to improve service delivery. For instance, citizens of Bahrain can file their visa applications online while Bangladesh developed an Electronic Birth Registration System to reduce error rates in birth registration. Citizens can also participate in the decision-making processes of the government through online discussions in government portals.

Access to education is also improved through ICT. The blind in Ethiopia are trained in Braille technology using computers. In Ghana, farmers and traders are trained to keep farm records in simple databases. Tunisia has a virtual university to provide open distance education at all educational levels using multimedia technology. Skills of African writers are improved through linkages formed with UK mentors.

Women greatly benefited from the introduction of ICT in developing countries. In Egypt, APC-Africa-Women, an organization that aims to empower women in Africa, utilizes ICT to promote equality and development by providing information about gender issues and health care as well as basic ICT skills training to women.

The agriculture sector in China and India has also benefited from ICT. Farmers can access agricultural weather messages and farm produce supply information through information networks, and receive skills training using ICT. They can also buy and sell products online.

ICT has also helped to deliver health care services. The Healthnet and the Mapping Malaria Risk in Africa Projects of Ghana were developed by the government to reduce malaria deaths using digital maps. In Uganda, the use of personal digital assistants (PDAs) in field surveys by medical practitioners resulted in improved information sharing and quicker medical response among health practitioners. India uses a system to enable donors of blood to register online.

The United Nations has created a compilation of innovative e-governance applications from all regions of the world to learn from country experiences, create a venue for promoting e-governance solutions, contribute to the global knowledge pool, and replicate best practices.³

More examples of e-governance solutions and best practices are provided in Annex A.

³ Compendium of Innovative e-Government Practices. 2005. New York: United Nations, Department of Economic and Social Affairs.

Setting the Context

One ICT development strategy now used by a number of developing countries, including the Philippines, is a shared ICT resource model called the community telecentre or e-centre. CeCs are seen as effective and affordable tools for bridging the digital divide and harnessing the full potential of ICT. They provide new opportunities for social and economic integration and can serve as a catalyst for synergies between development goals and good governance.

The Philippine Government, through the Commission on Information and Communications Technology (CICT) launched the CeC Program to provide the general public with meaningful and affordable access to voice and data services through CeCs. The CeC Program intends to set up 1,500 CeCs all over the country by 2010 through which citizens will be able to participate in e-commerce, distance learning and e-governance, among others.

The CeC Program involves more than simply providing ICT equipment and facilities. CeCs require affordable bandwidth, as well as applications and content that will create a compelling reason for citizens to use CeC facilities and services. Consistent with this, CICT is prioritizing the identification of high-impact e-governance applications and replicable best practice models that can be offered by CeCs.

This paper responds to a formal request from CICT for assistance in determining effective ways of attracting citizens (especially the urban and rural poor that have never used an Internet application) to the CeCs and, more specifically, to develop a methodology or guide for identifying 'killer' applications and best practice models of e-governance that might be suitable for deployment in CeCs throughout the Philippines.

What makes an application 'killer'? For purposes of this effort, *killer e-governance applications* are loosely defined as applications, and/or uses of the CeC in a particular community that: build on the delivery of e-governance services; create a high and pro-poor developmental impact that measurably benefits residents; and encourage replication as best practice models in other similarly situated communities.

In other words, the term 'killer' is not limited to those applications that will likely have universal impact (in the way that email was a killer application for the Internet). Rather, it encompasses applications that could have a profound or significant impact on a given community, and are likely to have similar beneficial effects in similar communities.

It is in this context that CICT and local governments need a methodology to identify and/or evaluate a particular killer e-governance application or best practice model by its relevance and potential impact on a given community.

If government is to push, or if a local government is to invest, in particular applications or models, what steps can institutions take to ensure that the applications/models will have the desired impact? Given the perceived needs and capabilities existing within the community, what applications or models will yield the greatest benefit for the constituents? This paper seeks to provide guidance for CICT as it pursues its efforts to identify, develop and/or deploy e-governance applications through CeCs.

Specifically, this paper focuses on two inter-related components. First, is a methodology or guide for evaluating killer e-governance applications. The effort to provide killer applications and best practice models can come from: (a) above as government pushes applications and models throughout the CeCs; and (b) below as innovations and best practices that emerge from the experience of the communities themselves. Depending on the flow (top-down or bottom-up), what factors and issues need to be clarified to ensure the successful deployment of such killer applications?

The second component of this paper identifies possible killer applications and best practice models of e-governance, and discusses how different communities have benefited from their use. The list is by no means comprehensive, but ideally, LGUs and CeC managers would be able to look at this list, and then use the methodology outlined in the previous section to determine which may work in their respective CeCs.

A Final Note

It is important to point out that the identification of such applications and models is premised on one basic assumption. That is, e-governance applications are relatively advanced tools, and their successful deployment and use presupposes that the foundations for such deployment and use are already in place. The pursuit of e-governance through the CeCs, in other words, presupposes that CeCs are able to get the basics right first.

In many parts of the Philippines, especially rural and remote areas, the challenges facing CeCs are much more basic. Many constituents could be seeing computers for the first time, or could be intimidated or uncomfortable with new technologies, or might not have a good grasp of how ICTs can tangibly affect their daily lives.

Basic applications and services such as Internet connectivity, web browsing, and productivity software (for word processing, spreadsheet applications and presentation, among others) need to be in place.

Infrastructure and sustainability are also issues of paramount importance, and are preconditions for the deployment of e-governance and indeed, other more advanced applications and services. How will connectivity be obtained? How

will the CeC pay for connectivity, and other necessary expenses like salaries, utilities, or rent? Is there a market for their services, and can that market be expanded?

Issues related to CeC sustainability include: How will it be funded? What is the business model? How will it pay for set-up and recurring costs? These should be addressed by CeCs first, before they can truly be used as conduits for e-governance on an effective, and sustained basis.

These issues are beyond the scope of this present paper, but nonetheless, as part of the field research for this paper, the authors visited several CeCs – pre-identified with the CICT – and conducted surveys, focus group discussions and in-depth interviews with community stakeholders. The results of these efforts, including data and information that directly address these basic questions are the subject of a separate paper, herein attached as Annex B.

II. COMMUNITY E-CENTERS AND E-GOVERNANCE IN THE PHILIPPINES

Before going into the main points of this paper, it is useful to begin with an overview of the CeC Program in the Philippines and outline existing programmes and efforts that are being pursued to utilize CeCs for e-governance.

CeC in a Nutshell

Developing countries such as the Philippines are characterized by relatively low PC penetration and poor bandwidth capacities compared to developed and newly industrialized countries. Low PC penetration and Internet usage especially in the rural areas partly reflect the financial inability of citizens to own computers (much less with Internet connectivity), and relatively low skill levels in using computers and online applications.

The use of *shared facilities*, such as CeCs, has been shown to help increase PC penetration and Internet usage. The core concept of a CeC is the ability to pool community resources so that residents can afford the use of ICT services, that otherwise would have been beyond their means as individuals.

CeCs are strategically located, and offer the public with access to ICT-based equipment, services and applications. They are commonly equipped with information infrastructure such as telephone lines, computers, printers, facsimile, Internet connection, and content applications to address the needs of a community.

A basic feature that distinguishes a CeC from a typical public phone access is the wider variety of services CeCs make available via the telecommunication link – voice, facsimile, email, web, etc. In this way, CeCs exploit the convergence in computer and telephone technologies, making investment in telecommunication infrastructure more attractive because the telecom facility can now deliver more services than simply voice telephone calls (Basilio et. al, 2006).

The ‘shared access’ approach has already been shown to be successful in launching public calling telephony stations in rural and remote areas in developing countries. In the same way, CeCs allow telephony, Internet connection, and other ICT services to be economically and technically feasible.⁴

⁴ Handbook on New Developments in Rural Telecommunications. Telecommunication Development Bureau, International Telecommunication Union Study Group 2, Document 2/12 –E, 3 August 1998, p. 42.

Basilio, Faustino, Mirandilla and Umali. 2006. *Achieving Universal Access in the Philippines through Community Telecenters*. Ottawa: International Development Research Centre.

With such shared access enabled, it becomes possible for e-governance services to efficiently and effectively be extended, even to far flung areas. CeCs can use ICTs to offer a variety of different activities and can serve as providers of:

- information and access to the Internet;
- learning centres for different sectors of the society;
- assistance in business development, health, finance and agriculture; and
- government services; *among others*.

Apart from providing ICT services, CeCs are also expected to have a positive impact on social development, poverty alleviation, skills development, employment generation, good governance and the integration of isolated communities into the national and international information network.

In this manner, CeCs can facilitate and enhance the delivery of public services. The ability to access and share information through the CeCs can also contribute to the development process by improving effectiveness, efficiency and equity.

CeCs as Conduits for e-Governance in the Philippines

Important elements of Philippine e-governance efforts include infrastructure development, establishment of an appropriate and effective legal and regulatory environment, increased capacity of LGUs to act as conduits of e-governance, increased and affordable access of ordinary citizens to e-governance, among others. The CeC Program plays a critical role in providing these elements, particularly as avenues for facilitating e-governance and moving towards universal access to ICTs.

The CeC Program is part of the national development strategy of the current administration to increase access to the ICT infrastructure. CeCs are envisioned to provide greater access to and affordability of ICTs, in line with the Medium-Term Development Plan of the Philippines 2004-2010 which states that

The digital divide within the country will be reduced by establishing more public access points such as CeCs for delivery of e-government and other services to provide universal access to information and communications services in unserved areas, link communities, facilitate trade and commerce, and empower rural communities socially, economically and politically.

In 2003, with leadership from CICT, the concept of a national CeC Program was developed. The Program has three sub-programmes each handled by an Office within CICT.

The iSchools Program, managed by the Human Capital Development Group, equips schools with ICT infrastructure, enhancing schools' capabilities in e-learning skills development. These iSchools are also transformed into CeCs, which are then opened to community residents after school hours. To date, 40 iSchools are currently being deployed and 320 more are expected to be operational by 2010.

Another CeC sub-programme, handled by the Telecommunications Office, aims to transform existing Public Calling Offices (PCOs) into CeCs thereby upgrading the PCOs from merely offering voice calls to a complete data centre where communities can use computer and Internet applications. The CeC is equipped with three to four computers, a digital camera, overhead projector, a coloured laser printer and a 3-in-1 printer, photocopier and facsimile machine. Services include Internet access, national and international phone service, email and texting, money transfer and remittances, and faxing and social telegram services, as well as common services that can be found in a computer shop such as printing, scanning and photocopying. As of June 2007, the Telecommunications Office had already transformed 120 PCOs to CeCs.

To fast track the implementation and deployment of the CeC Program, CICT established a CeC Project Management Office (PMO) to set up CeCs with other stakeholder such as LGUs and cross-oriented institutions.

Each CeC deployed by the PMO will be equipped with four interconnected computers, an Internet connection, office equipment such as photocopier, printer, scanner and digital camera and basic data processing software. Assessment of needs of the municipalities were also done by the PMO prior to the implementation of the project to further explore how the CeC can be of help to the community. As of June 2007, 259 CeCs sites were deployed across the country. However, only 101 sites have broadband Internet connection as connectivity in remote areas are not yet available.

In addition, the National Computer Center (NCC), an agency attached to the CICT, is one of the leading government agencies promoting CeCs at the local level. Its 'Jumpstarting e-Governance in the LGUs' or the e-LGU Project aims to assist LGUs in making headway in their computerization initiatives.

Each CeC under this project will receive three to four computer units, a 4-in-1 scanner, printer, photocopier and facsimile machine, one web camera and local area networking peripherals. LGU personnel are provided with basic training and assistance in familiarizing (or socially preparing) local residents to ICTs. NCC's partner research institution, the Development Academy of the

Philippines (DAP), will handle social preparation in Luzon, while Central Visayan Network (CVISNET) will handle Visayas and Mindanao.

The host LGU will provide Internet connection, telephone lines, a 30 square metre office space for the CeC, and personnel to manage it. The first CeC under this project was established and launched on 20 October 2004 in the Municipality of Upi in Maguindanao Province, which is under the Autonomous Region for Muslim Mindanao. As of June 2007, 103 CeCs have been deployed by NCC in LGUs across the country.

The following are the major e-governance-related services available at these e-LGU CeCs:

- eLGU services – access to LGU information, which includes the issuance of barangay clearances, residence certificates, real estate tax payments, business permits and licenses, and complaints desk;
- National Government Online Services – birth certificates, Social Security System loans, Philhealth, PagIbig, Government Service Insurance System loans and contributions tracking, and Philippine Overseas Employment Agency overseas application;
- Community-based services – price monitoring of agricultural products, local tour packages/bookings, local content development and data entry; and
- Special Overseas Filipino Workers (OFW) services - voice over Internet protocol (VoIP), e-mails with webcam, and job search and placement.

To further boost efforts for CeC development, NCC signed a partnership with DAP and the Department of Science and Technology (DOST) Regional Office VII to set up, launch and pursue the sub-programmes under the CeC Program. This includes the establishment of CeCs in 43 LGUs in Mindanao, 21 in the Visayas and 49 in Luzon. The MOU included, among others, provision of equipment, the conduct of appropriate training and social preparation activities. DOST Region VII and DAP will cover the provision of the trainings, community mobilization and social preparation for the earlier identified 33 Year-1 CeC recipients.

NCC heads the PMO to synchronize all CeC efforts within the CICT and other concerned organizations and agencies. The PMO provides management, and technical support to all CeC-related projects of the government. Aside from managing CeC deployment and overseeing CeC initiatives of the government, NCC has been at the forefront of bringing together experiences of all CeC initiatives of both the public and private sectors. For the past three years, it has organized three knowledge exchange conferences for all CeC stakeholders. Further, it has created the Philippine CeC Network where stakeholders can

share and discuss CeC best practices and experiences.

The CICT is now spearheading an effort to create the Philippine CeC Roadmap that will serve as the country's blueprint for CeC initiatives and provide overall policy direction and strategies in CeC development. In parallel with the Roadmap formulation, the NCC is developing the Philippine CeC portal as a tool to realize the goals of the roadmap and to provide online support and services to all CeCs.

Other Public-Private Partnerships to Support the CeC Program

The establishment of CeCs is seen as a way for the government to bridge the digital divide between the rich and the poor, and between urban and rural areas. CeCs can help to alleviate poverty by opening up new opportunities for creating jobs, selling products, promoting tourism, extending government and public health services, and competing in the larger domestic and global markets.

Beyond the CICT, there are numerous government, private sector and non-government initiatives that pursue or support similar set-ups.

One of the pioneers of ICT innovations in the Philippines is the Global Learning Opportunity on the Web (GLOW) Centers.⁵ The GLOW Centers originated from Australia with pilot centres in South-East Asia, particularly the Philippines. It seeks to provide opportunities for poor deserving youths in urban areas to learn vocational and Internet skills for free. At present, 20 centres in the rural areas of Australia and developing countries, such as the slum areas of Metro Manila in the Philippines and Timor-Leste are established and operational.

The DOST, through the Philippine Council for Health Research and Development (PCHRD) established pilot Multipurpose Community e-Centers (MCTs) in four barangays⁶ in Mindanao with existing PCOs.⁷

The Government of Cebu along with the private sector, non-governmental organizations and barangay leaders initiated the Barangay.net Project to increase IT awareness and appreciation down to the grass-roots level through Internet connectivity. The project's goal is to establish e-centres or one-stop information resource centre in every barangay. The e-centre will serve as a venue for residents to avail and access information for their needs, and receive training on ICT applications. Ultimately, it is hoped that all barangays will be e-enabled to create opportunities for jobs, businesses and trading among

⁵ Full prospectus of the Glow Program is available online at <http://www.digitaldividend.org>

⁶ A barangay is a village, district or ward.

⁷ Opena, M. 1999. *Multipurpose Community Telecenters in Selected Philippines Barangays*. Ottawa: International Development Research Centre.

communities.

The private sector and development organizations have also utilized the telecentre model in developing their own CeC programmes. Public schools are mostly the beneficiaries of private sector-led initiatives such as the Gearing Up Internet Literacy and Access for Students (GILAS); SMART Schools of the Philippine Long Distance Telephone Company and SMART Telco, Microsoft Connected Learning; and Engineers without Borders and the CLIC Program of United States Agency for International Development (USAID) GEM. The B2BPriceNow organization targets cooperatives and entrepreneurs who will set up and manage business-to-business (B2B) CeCs.

Finally, development institutions such as the Last Mile Initiative Philippines (LMIP)⁸ of the USAID seek to develop innovative CeC models which can be scaled up and replicated by the CICT.

⁸ <http://www.lastmileinitiative.ph>

III. THE CHALLENGE: IDENTIFYING KILLER E-GOVERNANCE APPLICATIONS FOR COMMUNITY E-CENTERS

Killer applications for CeCs certainly exist and have been documented. Indeed, killer applications contribute to the long-term sustainability and viability of CeCs by providing services (killer applications) that residents find relevant enough and are willing (and able) to pay for their use.

These include, particularly, Internet access, communications software (email and increasingly video-enhanced chatting applications), office productivity suites (word processing, spreadsheets, presentation software), as well as more business-related services such as photocopying and CD replication that, while not necessarily Internet or computer-related, do provide CeCs with additional sources of revenue that help ensure their survival, especially in rural and underserved areas.

These basic applications, it should be emphasized, are pre-condition for more advanced CeC uses such as e-governance, and will provide the foundations for the use and appreciation of e-governance applications – i.e., applications and technologies that enable the delivery of government services through and using ICTs – by community residents.

For instance, e-governance could facilitate the efficient, speedy and transparent process of disseminating information to the public, and other agencies, and performing government administration activities through the electronic medium (UNESCO,2005). e-Governance could also increase the participation of citizens at all levels of governance through the provision of online services to citizens in an efficient manner, among many other possible benefits.

Thus, while it is the demand for basic applications that is currently driving the set-up and development of CeCs throughout the Philippines, one major challenge for government is to take it one step further and take full advantage of all these initiatives – and of the promise and potential of CeCs - to bring public services to the remotest areas, and in a manner that is relevant, efficient and effective. What killer applications and best practice models of e-governance can they provide?

CeCs are rightly seen as potentially very effective conduits for e-governance, and killer e-governance applications will not only help to attract citizens to use CeC services, they can also help make government more relevant and effective in the delivery of their services, particularly in rural and remote areas, and for poor and vulnerable groups. e-Governance for the poor or pro-poor e-governance assists governments in reaching the yet 'unreached' and contribute to poverty reduction in rural and remote areas. At the same time, this process also enables involvement and empowerment of marginalized groups through their participation in the political process.

Choosing to push or promote a particular service, model or application inevitably requires investments and costs, which government – whether on a national or local level – must be able to justify. What makes an e-governance application ‘killer’? How does government choose – or is it even wise to attempt to choose? Would it not be better to let these developments emanate from the bottom-up, rather than to push the choices from the top-down?

A Proposed Methodology for Identifying and Evaluating Killer Applications and Best Practice Models of e-Governance for CeCs

In this section, we propose a framework methodology that aims to aid government decision- and policy-makers in identifying effective high impact, pro-poor e-governance applications that can be deployed in CeCs.

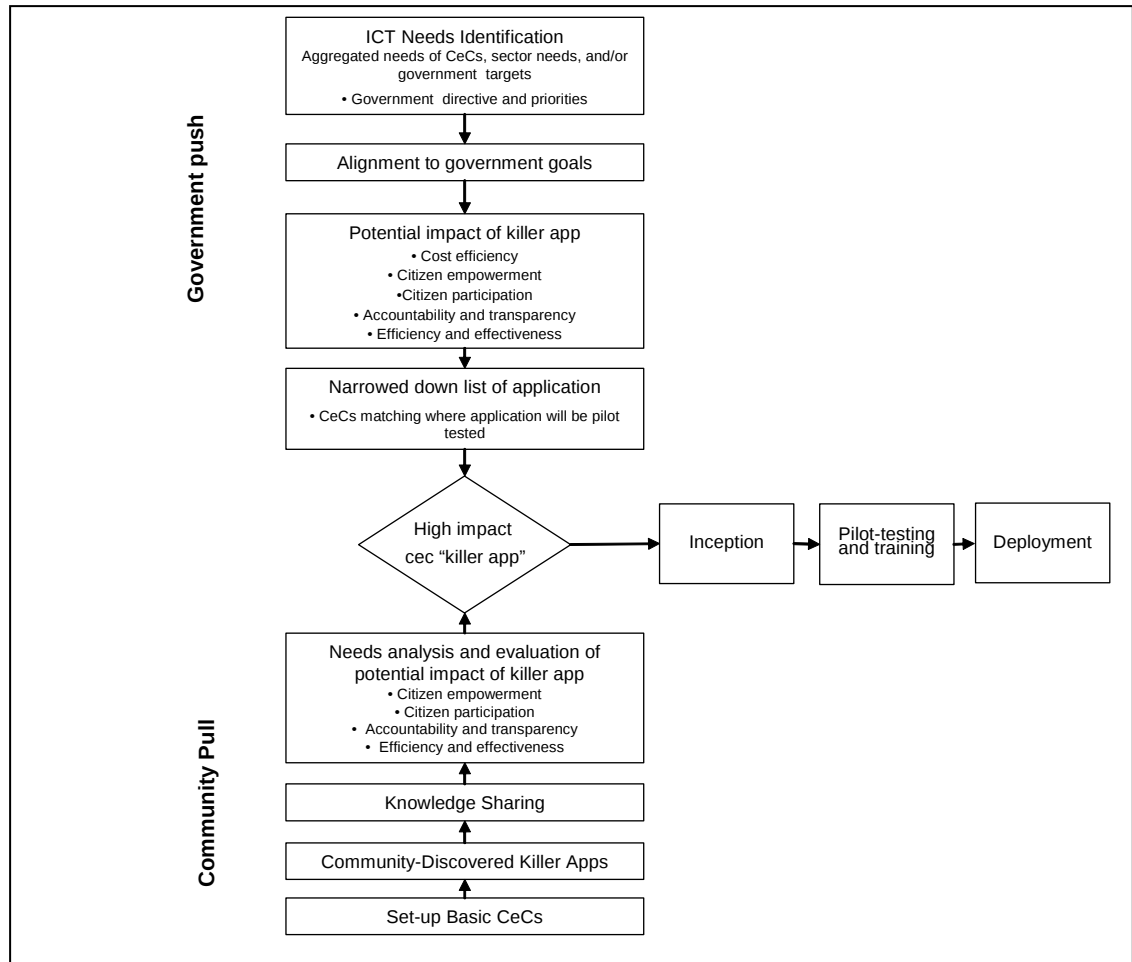
As stated earlier, we use the term *killer e-governance applications* loosely to mean applications, and/or uses of the CeC in a particular community that: improve or innovate upon the delivery of e-governance services; create a high and pro-poor developmental impact that measurably benefits residents, and encourage replication as best practice models in other similarly situated communities in the Philippines and elsewhere.

The identification and selection of e-governance applications that can and should be deployed through CeCs can be pushed by government or pulled in by community needs or realizations.

Government Push: A Top-Down Approach

Government can proactively push certain models and applications as part of its implementation of strategic plans to promote, deploy and use ICT for development. Through national level agencies such as the CICT and the NCC, the national government can and does deploy tools for e-governance, such as ICT tools to facilitate business registration or real property tax collections, or simply requiring government agencies to have an online presence that allows for web-based transactions.

In this approach, government starts by identifying the priority needs to respond to, and that can be addressed by using ICT and particularly, CeCs. Data can come from sector needs identified by the government, aggregated needs from CeCs, or government thrusts based on consultations with various stakeholders. Additional data can be sourced from national and regional plans, as well as relevant information on population and ICT literacy, international best practices, and through the conduct of surveys and need assessments.



Once these needs are identified, a broad list of applications can be made based on innovative ideas from government and other stakeholders, international best practices, and CeC experiences on what works. It is thus important to develop a databank of local best practices of CeCs to serve as repositories of ideas for benchmarking and formulation of innovative ideas.

Potential applications can then be evaluated against the government's goals and objectives, and their capacity to actually implement them.

- *Does it support existing national/local development plans and goals?*
- *How much investment is needed, and how will this investment be sourced (grants, loans, savings)?*
- *Is this something government should push, or is it better left to the private sector? Are there openings for public-private partnerships?*
- *How can government deliver the services on a sustained basis?*

- *Does ICT, in this case, promote cost-effective delivery?*
- *Is the technology/software/infrastructure needed affordable and/or available?*

Potential benefits of the applications should also be fleshed out, and measurable parameters identified that will allow for objective evaluations of their respective development impact. For instance:

- *Who are the target users/beneficiaries of the application?*
- *How will they benefit constituents (e.g. Increased income? Increased exports? Increased literacy levels? Lower incidence of disease? More jobs?)*
- *Does the potential benefit outweigh the expected cost?*

Finally, pro-poor and high impact applications should be analyzed based on its value, impact and replicability. As a framework of analysis, potential application, model or service is considered in the context of the broader social goals of e-governance:

- *Citizen Empowerment – Does it provide the citizen with more tools to participate in the global economy? Does it help him/her identify new opportunities, challenges, useful information, etc. that will improve his/her quality of life?*
- *Citizen Participation – Does it encourage and increase citizen involvement and awareness of government policies, goals, programmes and services? Does it make it easier for citizens to transact with government and provide government with feedback, comments, suggestions and criticism?*
- *Accountability and Transparency – Does it promote greater transparency in the delivery of government services? Does it deter, if not prevent, corruption and fraud in government transactions?*
- *Efficiency and Effectiveness – Does it help government deliver services more effectively and efficiently? Is it more responsive, both in substance and in time of delivery?*

BOX 1.**iSchools Web Board: An example of a killer application identified using the top-down approach**

The iSchool Program is an initiative of the CeC Program to help the Department of Education provide computer laboratories, e-learning resources and trainings to teachers in more than 5,000 public high schools by 2010. One of the components of the iSchool Program is to help public school teachers develop their own web boards, thus enabling the development and sharing of e-learning resources.

"I always thought that building a website for the schools and the regional office is such an expensive endeavour that requires technical know-how and huge funding. This is partly why we haven't really used ICT for improving education," said Mr. Alfonso Estolas, a Regional ICT Coordinator of the Department of Education. "The training (iSchools Web Board) taught us how to use free online resources which are all useful in improving the educational system in public schools."

"This is the first technical training we attended that really equipped us on how to maximize the potential of Internet resources for learning. Now, we have a digital space where we can share lesson plans, multimedia materials, educational content and even monitor web boards and ICT competencies of teachers," said Dr. Cathy Petilos, Regional ICT Coordinator from Region VIII.

The training seeks to build a regional web board where individual teacher web boards are integrated for interaction, sharing of best practices in teaching and development of educational materials.

The iSchools Program is a good example of a government-led identification of a killer application deployed through CeCs that supports government's larger development goals for education. Its successes has solidified the plan to deploy the web board model in all of the education's organizational structure levels, including more than 5,000 planned iSchool CeCs throughout the country.

In the past year, the LMIP, a USAID-funded project to support the CeC Program conducted web board trainings at the regional, division and school levels with more than 120 participants from 40 schools. The LMIP will conduct management training for the national office to equip them with skills on how to manage the web boards, and deploy and cascade them to all public high schools.

The result of the process flow should be a narrowed-down list of potential high impact pro-poor applications to be pilot-tested in CeCs. These applications can then be matched with specific CeCs' needs that can be addressed by the identified e-governance solution.

Community Pull: A Bottom-Up Approach

The bottom-up approach or a demand-driven approach recognizes the fact that many, if not most, of the truly transformative innovations are unanticipated, serendipitous and emerge in the communities. Such practices result from the new-found ability of people to explore and push the applications of ICT that they can now access through CeCs.

CeCs provide an invaluable starting point to introducing ICT tools; demonstrating their convenience, relevance, affordability and usefulness; making community residents comfortable in using new technologies; and initially providing, but ultimately allowing users themselves to find and make useful content to add value to the CeC.

Using this approach, the starting point is to make CeCs relevant and immediately useful to community residents, believing that with repeated and collective use, the community will eventually call for, identify or even discover the e-governance applications that will best address their needs and the needs of different stakeholders the CeC is serving.

Proactively, a needs assessment for the citizens and different stakeholders can be undertaken by the CeC as the initial step in identifying high impact e-governance applications. ICT needs can be obtained from consultations with various sectors, surveys, group discussions and client exit interviews.

Government's role is to put into place a programme that encourages the development of community-based innovation; enables community members to learn of best practices that emanate from the ground; and systematically document and share these with other communities for appropriate scaling and replication.

The criteria for evaluating such community-discovered application, model or service, and classifying them as 'killer applications' or best practice models can largely be the same as the top-down approach:

- Citizen Empowerment – *Does it provide the citizen with more tools to participate in the global economy? Does it help him/her identify new opportunities, challenges, useful information, etc. that will improve his/her quality of life?*
- Citizen Participation – *Does it encourage and increase citizen involvement and awareness of government policies, goals, programmes and services? Does it make it easier for citizens to transact with government and provide government with feedback, comments, suggestions and criticism?*

- Accountability and Transparency – *Does it promote greater transparency in the delivery of government services? Does it deter, if not prevent, corruption and fraud in government transactions?*
- Efficiency and Effectiveness – *Does it help government deliver services more effectively and efficiently? Is it more responsive, both in substance and in terms of time of delivery?*
- Sustainability – *How does government deliver the services? Does ICT, in this case, promote cost-effective delivery? Is the technology/software/infrastructure needed affordable and/or available?*

Beyond merely sharing best practices and success stories, it is crucial that government proactively recognize, promote and support those communities, areas or sectors where bottom-up-identified killer applications can be replicated and deployed.

The following questions can serve as guides – both for governments and for stakeholders within the communities themselves – for evaluating the relevance and possible use of an identified application or service:

Inception

- *Is there critical mass of potential users where the application will be deployed?*
- *Are there appropriate skill sets in developing the application?*
- *Are there resources to develop or adapt the application in the local setting?*
- *Are there mechanisms to generate participation of stakeholder in providing inputs for applications development?*
- *When is the most appropriate time to deploy the application considering manpower, financial resources, capability building, community awareness, social acceptance, and marketing?*

Pilot testing

- *Does the community have the necessary skills set to develop, test, deploy and evaluate and monitor the application?*
- *Are there appropriate pilot sites for the deployment?*

- *Are stakeholders including the LGU, community, CeC management and users involved and/or supportive of the project? Have they been consulted for comments and inputs? What are their roles?*

BOX 2.

Using CeCs for Job interviews: An example of a killer application identified using the bottom-up approach

It all started with a simple idea of providing the municipality of Manolo Fortich, in the province of Bukidnon, Mindanao, with a CeC that local residents could use.

As Congressman Nereus Acosta related, “we wanted Manolo Fortich to serve not only as a gateway to central Mindanao but also as *the* gateway of Mindanao to the 21st century. Through this CeC, this Municipality will be the model of others in taking the last mile initiative to a new future,” Cong. Acosta said.

It was a simple set-up: five computers in a room set aside in the municipal hall. The LMIP provided assistance by introducing the local government to a broadband provider, and later providing trainings on how to sustainably manage the CeC and train community residents on Internet and productivity applications.

The municipal government involved its Public Employment Service Office, and soon, citizens were going online to find jobs being offered by Manila-based Internet jobsites. The CeC also arranged for interviews with Manila-based employment agencies using webcams and VoIP facilities of the centre.

Mayor Socorro Acosta spoke with pride over the immediate impact of the CeC, as she related how numerous job interviews between locals and Taiwan-based firms were made possible by access to VoIP and webcam facilities. This resulted in the successful placement of ten applicants on their very first try at online job interviews.

“Ultimately, we want our Municipality to become the centre for people looking for opportunities through our job database,” Mayor Acosta added. “Through our CeC facilities, applicants can now arrange for online interviews and eventually land jobs.”

News of the services and benefits being provided by the CeC in Manolo Fortich traveled fast, and nearby municipalities in Bukidnon and provinces such as Misamis Oriental have already inquired with Mayor Acosta on how they can participate in or replicate this model in their CeCs. This early success and the interest shown by other local governments and communities provide encouraging signs for replicating and scaling up the model to other CeCs throughout the country.

Monitoring and evaluation

- *What monitoring tools are going to be used to evaluate the acceptance, usability, sustainability and impact of the particular application?*
- *Are performance monitoring system set in place at the CeC?*
- *Who will be in charge of monitoring outputs and outcomes, and have they been adequately trained/briefed for such duties?*

IV. POTENTIAL E-GOVERNANCE KILLER APPLICATIONS AND BEST PRACTICES FOR COMMUNITY E-CENTERS

CeCs are in a strategic position to offer e-governance applications at the local levels. CeCs can impact communities and citizens in several ways. By making the right tools and applications available, it can improve the accountability and effectiveness of government services and operations, it can enhance government service delivery for industry and businesses and more importantly, it can modernize and ensure the efficient delivery of public services to the citizens.⁹

Basic CeC Applications

It cannot be overemphasized that there are certain basic services that all CeCs should be able to provide if they are to truly get community residents to use their CeC facilities on a regular basis.

Getting these foundations right is key and is a precondition to sustainably providing e-governance applications which are relatively more advanced. These basic applications also serve to introduce constituents to the benefits of using ICT in their daily lives, and help make technology less intimidating.

Equally, if not more important, they lay the predicates for more innovation as users begin to explore and find more and better uses for the technologies and the CeC facilities.

Basic ICT Services

The CeCs should offer a wide array of basic productivity applications such as basic word processing, Internet access and web browsing, and spreadsheet and presentation software.

It is also important that CeC managers and staff be trained as trainers who can teach constituents – many of whom may be seeing a computer for the first time – on how to use the facilities, and the software and services that they have to offer. This not only enhances the skills of the community residents, it also expands the market base of users thereby increasing the prospects for long-term, fee-based sustainability.

⁹ Annex B documents initial best practice and lessons learned in the course of an evaluation of CeCs set up under the government's CeC Program. This provides a comprehensive summary and detailed assessment of 12 CeCs across the archipelago based on interviews, surveys and focused group discussions.

Internet Access

Of the various CeC services, Internet service is one of the most accessed services. Clients use the Internet to chat, email, research for school work, find friends, download multimedia and use government online services. CeCs with webcams and headsets for chatting are observed to have more frequent and regular clients. Users also frequent the CeC to use office applications (both Open Office and MS Office), print and photocopy documents, and for VoIP and telephony.

Basic and Advanced Trainings

Eight CeCs offer basic ICT literacy training including the use of office applications and how to use the Internet. This is one way of increasing the knowledge base of citizens skilled with the use of ICT and at the same time increase the demand for CeC services. The trainings help to increase the number of community residents who will find the CeCs useful.

Of the eight CeCs offering training, three are equipped to offer advance training courses such as web design, information system management and e-learning. ICT training not only provides ICT skills to the community but also serves as a source of revenue, as in the case of the Tanauan CeC where the LGU charge fees for advanced training. One-on-one computer tutorials are also offered by CeCs that do not offer formal ICT training services.

Internet Telephony

The overwhelming users of CeC facilities have immediate family members, friends or distant relatives working abroad as OFWs. Gaining a deeper understanding of the role of the CeC as a channel for more affordable means of communication – particularly as a provider of VoIP – is, therefore, an important issue.

Note that, based on informal field surveys, mobile phones are the preferred and most convenient choice for communicating with their friends or loved ones abroad. It is cheaper, however, to receive calls from abroad, rather than calling abroad from the Philippines. Thus, Filipinos are likely to send a text message, or deliberately make a missed call, following which they are called back by the overseas Filipino with whom they wish to speak.

VoIP makes such call-backs unnecessary. Several respondents with access to broadband Internet at home already use instant messaging and VoIP (e.g. through webcam chatting or Skype). Some of those without Internet connectivity at home visit their CeC to access the webcam and VoIP services. They also prefer to use emails rather than the traditional snail mail system as emails are faster, cheaper and have the ability to send audio, video and pictures files.

A number of CeCs already use VoIP services to provide cheaper overseas calls to the community. The San Remigio CeC for instance can be reached via communication link with their website. CeCs in Maramag and Manolo Fortich have VoIP handsets that clients can use for international calling.

Other CeC Services

CeCs can also offer a wide array of services, not all of them necessarily Internet-related, such as basic telephony, computer applications, photocopying, graphic design, research, printing, scanning, and online government services, among others, not only to serve the community better, but equally important, to enhance its sustainability and income generating capabilities. In other words, CeCs can act as a one-stop shop that caters to community interests and needs by offering services that allow community residents to use its facilities for activities such as research and other work-related activities, communications (email, chatting, VoIP), job search, and e-government services.

Potential e-Governance Killer Applications for CeCs

The following discussion deals with potential killer e-governance applications, classified along sectoral lines or development goals, which governments (top-down) or communities (bottom-up) could consider for deployment either on a national/regional scale or for their own more limited areas, respectively. The list is by no means comprehensive, and is offered merely as a starting point for further discovery and exploration.

Education and Human Resource Development

- *Distance Learning.* In addition to **iSchools** (see Box 1), CeCs can be used for alternative learning. They can use VoIP and webcams for distance learning. For instance, CeCs are avenues for the Philippines' **eSkwela Program**, an alternative education programme of the CICT where out-of-school youths use the ICT-based learning modules on basic subjects such as mathematics, science and English to prepare for equivalency examinations that, if they pass, will earn them their high school diplomas. Deployment to CeCs can either be web-based, or done through CDs (especially for CeCs that are not or have difficulties in being reliably connected to the Internet).
- *Skills Enhancement.* Citizens visit the CeCs to learn basic ICT skills. ICT training offered by the CeC is among the top services that empower citizens and make them more productive. To the extent that increasing the basic ICT skills of constituents helps to increase demand for CeC services, and, more broadly, helps people become more productive beyond the confines of the CeC, local governments can easily justify providing these trainings for free or at heavily subsidized rates. Training modules are

already readily available from the CICT or through the LMIP, as well as through various non-profit organizations like World Corps and CANVAS.¹⁰

- *Accreditation.* CeCs can tie up with government's accreditation institutions such as the Technical Education and Skills Development Authority in training, testing and giving out official certificates which can be used by the citizens in applying for work to show that they possess ICT skills needed for the job.
- *Responding to Special Needs.* CeCs can also offer innovative applications to allow marginalized sectors to participate in development. For instance, the CeC can offer training modules for persons with disabilities such as ICT training, computer repairs and livelihood modules all tailor made for their specific disabilities. In Ethiopia, for example, a computer training centre was created for the blind. It provides training, software and equipment for the visually impaired through the use of Braille technology.

Citizen empowerment

- *Providing access to information.* CeCs can harness a wealth of information from the Internet to empower citizens and uplift their welfare. CeCs can provide relevant information on agriculture, education, environment, and health, among others. The task at hand is to find good materials and transform them to appropriate and relevant training courses. It is also important to consider developing courses using the vernacular language.
- *Self-expression.* CeCs can help individuals express themselves to further enhance e-democracy. CeCs can teach citizens how to use emails, create blogs and websites, build and upload multimedia content, among others.

The **iSchools Web Board**,¹¹ again, is a good example to the extent that it enables teachers to develop and share their own lesson plans, based on content found on the Internet, and still would conform with education standards set by the Department of Education.

- *Database management and usage.* CeCs can be access points for community-based database systems. CeCs can provide a graphical user friendly interface for users to access certain information that is useful to them. For instance, database of programmes and projects, infrastructure of the town, tourist destinations and contacts, health records, LGU income and expenditures, demography and other information can be shared. This is useful not only for the local constituents but for national government, donors agencies and civil society groups.

¹⁰ <http://www.canvas.ph>

¹¹ <http://www.ischoolwebboard.orgfree.com> and <http://www.ischoolwebboard.edublogs.org>

The CeC of Barangay Basak Pardo in Cebu, for example, utilizes a geographic information system (GIS)-based database map to account for the infrastructure and demography of the town including the number of roads, hospitals, schools, lamp posts, etc. This is an invaluable tool to determine the areas for improvement and to address gaps in development.

- *OFW Services.* CeCs can extend ICT-based OFW services to its constituents. It can provide basic ICT training on how to use the PC and Internet to make them more productive. CeCs can build a database of OFW information to track and monitor OFW status. Lastly, they can help OFWs build an online presence where CeCs can teach OFWs to create email and how to use it to communicate with people in the Philippines and provide status of their living conditions.

BOX 3.

Idea 1: OFW-centric portal

With the amount of remittances (over US\$12 billion annually) provided by the OFW community, government can and should more proactively encourage OFW participation in Philippine, particularly in rural development. Government can provide the impetus for the creation of an OFW-centric portal that can be accessed through CeCs. This portal can provide web-based VoIP services to allow OFWs to communicate with loved ones back home. It can host moderated chatrooms and forums where OFWs can share practices and models they see abroad that might be applicable in local settings. It can even adopt a **donors-choose** model (see <http://www.donorschoose.org>) where CeCs propose development projects on behalf of their communities by posting requests and justifications for funding small community-based projects or investments on the portal, and OFWs choose which of these they wish to donate to. The idea is that a portal could provide OFWs with a digital bridge to participate more directly and proactively in Philippine

Direct Government Services

- *One-Stop Shop for Government Services.* CeCs can be accredited as one-stop shop for citizens' transactions with the government. This significantly saves resources and time in securing certificates and permits. CeCs can be access points for birth certificate application, business clearances and permits, passport renewal, security clearances, etc. which can be processed online.

CeCs can be instrumental in facilitating efficient and accountable business permit processing. CeCs can be set-up as a one-stop shop where permits are simplified and coordinated online. Users will just have to access an online system using a single form where application is processed electronically through the different LGU offices instead of the applicants going to the various offices for permit or approval.

- Virtual bidding or the **Government Electronic Procurement System (GEPS)**¹² provides a transparent mechanism for private sector to participate in developmental projects. Through this system, corruption and red tape are minimized as all information on project costs, bidders, fund availability and releases are made public through online access. To augment the GEPS, the CeC can provide an online update on the entire bidding process and can even extend monitoring to implementation until final delivery of outputs. CeCs can build online forums to track any government project life cycle and allow citizens to provide feedback, inputs or comments.
- CeCs can also be **accredited payment agents of government institutions** for permits, clearances and fines as well as for payments of utilities such as water, electricity, etc.
- In areas without **postal services**, CeCs can function as a postal or courier service serving as drop-off and pick-up partners of major private delivery companies.
- The CeCs can help the LGU by developing an **automated barangay or municipal clearance for citizens**. Clearances are used by citizens in applying for work or establishing a business. The database system can include a webcam snapshot of the citizen and their records.
- A database of **Voters' Information System** is an e-governance solution that ensures the transparency of the electoral process. A database of voters with their information improves transparency, minimize flying or unregistered voters, and can even avoid confusion during Election Day. It also accounts for the total voting population, and thus, minimizes errors and cheating. In Basak-Pardo, a Voters' database was created complete with voter's information. In the recently concluded elections, barangay residents could go to the CeC and enter their names to verify their status as registered voters, and obtain a personalized map showing them exactly in what room of what school in which precinct they were supposed to vote.

Public Health

CeCs can act as one-stop portal in health information such as preventive medicine, traditional herbal medicine, reproductive health care, etc.

LMIP is working with the University of the Philippines College of Medicine (UPCM) on a telemedicine training programme. UPCM is implementing a project called Buddyworks¹³ that utilizes ICT to provide and support health care for underserved communities and geographically remote areas where health

¹² <http://www.procurementservice.org>

¹³ <http://www.telehealth.upm.edu.ph>

care expertise is largely unavailable. The LMIP and UPCM partnered to develop four audio videos providing information on how to deal with common emergencies such as poisoning, stroke and tuberculosis; and to prepare for or prevent possible health crisis like the avian flu. These videos will be posted and made available on the web, and will be used to train rural health workers remotely. CeCs will then be able to schedule exhibitions of a video for health workers and community residents, and on the scheduled day, doctors from UPCM will be available by VoIP (and if possible, video IP) to answer questions and conduct actual demonstrations.

From here, it is not far-fetched to see CeCs acting as conduits for more advanced telemedicine applications, such as using IP-enabled ultrasound machines that are connected to CeC broadband facilities, and operated by trained rural health workers so that professional doctors can actually see and make diagnosis remotely in real time.

Remote access to Philippine doctors also bears special applicability to OFWs, who may not have easy access where they work. There is anecdotal evidence to indicate that many OFWs actually make long distance calls to their doctors in the Philippines, often because it is cheaper to do so, but also because they encounter language barrier problems as well. Government can easily provide creative and innovative solutions – for instance, this could be a service that could also be provided by the OFW Portal proposed above (see Box 3).

Agriculture Promotion

CeCs can partner with government institutions to promote livelihood by developing self-help multimedia interactive modules, which can be uploaded on its website. Topics can include backyard livelihood opportunities, food processing, handicrafts, livestock, etc. Further, it can tap e-commerce opportunities such as enrolling in the Cat Gen portal¹⁴ where it can advertise products over the Internet.

The CeC should be aggregators of sectoral information needed by the citizens such as materials on agriculture, health and livelihood. For instance, it can use materials from the Philrice website¹⁵ and tailor it to the needs of the particular landscape, topography and language. Further, CeCs can link up with DOST Farmers' Information and Technology Service Center¹⁶ for various information and materials on agriculture and fishery.

CeCs can also assist farmers and fisherfolks by providing better access to market prices, technology and even trade their goods online through the b2bpricenow portal.¹⁷

¹⁴ <http://www.telehealth.upm.edu.ph>

¹⁵ <http://www.philrice.gov.ph>

¹⁶ <http://opendbs.pcarrrd.dost.gov.ph/fits>

¹⁷ <http://www.b2bpricenow.com>

e-Commerce and Small and Medium Enterprise Development

CeCs can be instruments for business promotion and e-commerce, and can help community-based small and medium enterprises (SMEs) with electronic marketing and selling of goods and services. CeCs can partner with online trading portals such as the catalog online portal of the Center for International Trade, Expositions and Missions,¹⁸ tradelinephil,¹⁹ sme.com.ph, among others, to assist SMEs in e-commerce and marketing.

CeCs can be utilized to aggregate information, training materials and entrepreneurship courses to assist SME in business development. CeCs can tap the DTI's Go Negosyo Program²⁰ for training, online consultations and information on various enterprise tools.

The CeC can develop livelihood programmes in coordination with other government agencies such as the Department of Trade and Industry, and the Technology Livelihood Research Center, which have developed computer-based multimedia self-learning courses on entrepreneurship.

CeCs can be used as channels or access points for courier services especially in rural and remote areas where there is no private presence. It can partner with cargo and forwarding companies as drop-off or pick-up points and thus, extend the outreach of its local products.

Marketing and Tourism

CeCs can be tapped to advocate tourist destinations, local products and skills. CeCs can develop multimedia presentations which it can upload to its website or in video online communities such as YouTube.

The town of Kiangnan in the Province of Ifugao, for example, lies in the heart of the Banawe Rice Terraces, a UNESCO World Heritage Site. Its CeC served as the catalyst and meeting point for stakeholders (led by the LGU and a local non-profit organization) to create a website that promoted its **natural environment and ecotourism** attributes. LMIP and CANVAS trained them in website and graphic design as well as Internet marketing. Within two months of the training, their Internet marketing efforts paid off in the form of more than 100 new tourists, collectively generating in excess of US\$6,000 in tourism-related fees.

¹⁸ <http://www.citem.gov.ph/catalogonline>

¹⁹ <http://www.tradelinephil.dti.gov.ph>

²⁰ <http://www.gonegosyo.net>

BOX 4.
Marketing tourist destinations

CeCs began using VoIP facilities not only to enable families to call their relatives abroad but also to market community products and tourist destinations.

The San Remigio CeC in northern Cebu is using VoIP services to promote its tourist destinations. In the town's website, a tourist can find information on resorts, pricing and transportation services. More importantly, tourists can call the CeC for free to do some inquiries via a direct VoIP service on its website. All they have to do is to click a service icon from the CeC's website to be able to speak to a CeC staff.

CeCs serve as an excellent avenue for aggregating information on community products and services and marketing them online as a product of the entire community. CeCs can dedicate a webpage on its website for marketing and promotion of local and indigenous products or advertise products in various online trading sites. Moreover, CeCs can provide support to SMEs and businesses on online trading and e-payment facilities. The CeCs can also partner with the DTI's One Town One Product (OTOP) Program²¹ for product promotion.

Jobs Creation

BOX 5.
Idea 2: Job matching

CeCs can assist citizens in **job matching**. The CeCs can be access points of LGUs through their respective Public Employment Service Office (PESO) and national online jobs portal. Many LGUs already help job applicants find relevant jobs through the following: (1) assisting employers in disseminating information on job openings by posting of vacancies in bulletin boards; and (2) referring potential applicants to employers.

This process can be made more efficient and timely by linking the PESO with the CeC, as is currently being pursued by the local government of Calamba. In this case, the plan is to create a jobs database management system which will be integrated to the LGU website to provide an automated, intelligent, and interactive storage system which will allow the LGU, employers and applicants to systematically match employment opportunities with applicant skills.

LGUs can also integrate its own database with the national jobs search portal of the Department of Labor and Employment - PhilJobsNet.

²¹ <http://www.otopphilippines.gov.ph>

A jobs database management system which can be integrated with the CeC website seeks to provide an automated, intelligent and interactive storage system that will allow the LGU, employers and applicants to aggregate availability of jobs and skills. This can also be linked and integrated with the PhilJobsNet²² of the Department of Labor and Employment for access to both national and international jobs.

As demonstrated by the CeC of Manolo Fortich (see Box 2) complemented by the joint use of VoIP and webcams to facilitate online interviews. Note that in this model, everyone – even those who were not offered jobs – comes out ahead, as all applicants would not have to incur transportation and other incidental expenses to travel to the interview location, which is usually in Manila or regional/provincial financial centres.

Gender and Development

Field surveys and interviews (see Annex B) indicate that female users of CeCs outnumber male counterparts. Females usually use CeC services for Internet surfing, chatting, communicating with friends, read news online, apply for a job and avail of ICT literacy courses. They usually frequent online sites such as friendster, myspace, classmate, hi5 and chat applications such as msn and yahoo messengers. Indeed, interviewed CeC managers related that the webcam, which is used for chatting, is among the top demanded product of the centre especially by females who have chat mates from other countries.

Anecdotal evidence suggests that CeC facilities are being used extensively by females seeking companionship or even marriage, in part as a means of opening doors to better lives. While the view of the study team is that, given user rights to privacy, it is not the place of government to either encourage or discourage such use or practice, nonetheless, government can and should play a role in providing, through the CeCs, information or training on the possible dangers and consequences of such activities. CeCs can and should play a role in gender and development with emphasis on women and children. CeCs can build multimedia presentations on the rights of women and children which can be deployed through a website or an intranet system. CeCs can develop specific training modules for women using the computer and Internet, to expand livelihood opportunities, as well as increase their awareness of possible online fraud and mischief that, unfortunately, also exists in the online world.

CeCs as Catalysts for Good Governance

- CeCs can be catalysts for change within the LGUs themselves. In the case of the local government of Calamba, the presence of a CeC in the LGU building, by itself, demonstrates the use and benefits of ICT in a manner that government personnel cannot ignore. Interviews with LGU officials revealed that the

²² <http://www.philjobs.net>

deployment of new ICT-enabled procedures were made easier because personnel were already and increasingly becoming aware of the practical relevance that ICTs play in their individual lives – from emailing to doing research on the Internet, and even playing games. From these humble starts, government officials become more open and receptive to the use of ICTs to improve work productivity and deliver services to people.

- Accountability of government officials can be improved through CeCs by using ICT channels such as emails, online fora, and discussion groups, among others. CeCs should be able to develop mechanisms to monitor performance of employees and status of government programmes and projects, including bidding, implementation and finances.
- CeCs are in a strategic position to network with national and international institutions to mobilize resources. CeCs can build a website or blogsite to mobilize funds for socio-economic development. For instance, the Nueva Viscaya CeC partnered with the University of Basque in Spain for academic exchange and jobs placement. The Barugo and Tanauan CeCs used the Internet to generate funds from OFWs and migrants to upgrade CeC and public school's computer systems. The Upi CeC in Maguindanao received international grants from aid institutions to create a hospital, all through the capacity of the CeC to reach out to these institutions.
- One of the most effective e-governance applications deployed over CeCs is the **LGU/CeC website**. It provides a self-help portal for users to easily access information on the Internet. To maximize participation of the citizens and communities, CeCs need to develop the following website features:
 - o Basic information such as demographic and economic information, infrastructure, programmes and projects, services, and news and issuances.
 - o Links or materials on agriculture, education, health, and livelihood, among others.
 - o Interactive features such as downloadable government forms (i.e., birth certificate application, business clearances, permits, etc.) that can be downloaded in several formats.
 - o Online consultations and interactive feedback features to encourage citizens to participate in policy making, planning, monitoring and governance.
 - o Platform for articulating inputs of civil society organizations through online forums, community groups, emails and discussion boards.
 - o Online status of project implementation.
 - o A mirror site using the local language to facilitate knowledge exchange. Relevant content using the local language can also be developed to further assimilate ICT into the daily lives of the citizens.

- Effective tax administration is one of the critical elements in good governance. CeCs can act as conduits to various government services, such as online tax inquiry and payment.
- Government accountability and preparedness in times of disaster can be improved by CeCs. Disaster management, using ICT tools such as international weather reports, downloadable weather forecasts, Google earth satellite imaging, and other portals can be used by the LGU to create scenarios and forecasts on the impact of weather disturbances. Weather disturbances can also be broadcasted to fisher folks and farmers who can take early precautionary measures. In short, disaster management can be greatly improved through the aid of the CeC.

V. CONCLUSION

CeCs that effectively identify and deploy killer e-governance applications can help to bring governments closer to the people in a more efficient, transparent and accountable way.

The identification of possible applications and models is the first step towards this end. The successful examples provided above are just a start. Other models and killer applications exist, both in the Philippines and elsewhere, that are worth considering.

The second step that is equally critical, is to choose from among these applications and models, the ones that would be most relevant, applicable and affordable for the community.

The methodology offered above provides a system for selecting and analyzing these choices, so that scarce resources can be channelled to those applications that will yield the greatest benefit, given the concerned community's unique and particular socio-political and economic context.

To conclude, it should be emphasized that there are no single CeC model or e-governance applications that can be considered as the most effective, efficient or the one that provides the greatest impact. Each community have to determine for itself what needs and opportunities their respective facilities will seek to tap. The term 'community' needs to be stressed as the success of the endeavour will be greatly enhanced if everyone in the community – from government, the private sector, civil society, residents, women and men – truly consider themselves as stakeholders in the CeC.

In this light, it is important to realize that *killer* e-governance applications, like all other applications, should be understood in the context of specific community needs.

Government must therefore actively and consciously play its role, not only in replicating and deploying killer applications, but also in ensuring that an effective system for documenting and sharing of these best practices and lessons exists – precisely to ensure that communities are able to sift through as many options as possible, as they move to enhance the relevance, use and capabilities of their respective CeCs.

It is hoped that lessons learned from the Philippine experience will ultimately serve as models for other developing countries that are tackling similar issues.

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