How Can Pacific Island Economies Benefit from the Advent of ICT’s – Review of Best Practices in Education

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How Can Pacific Island Economies Benefit from the Advent of ICT’s – Review of Best Practices in Education

(Focus on e-community Learning Centers in Fiji)

Abstract

This paper explored implementation and use of information and communication technologies in Fiji, in order to gain insight into recent government initiatives to introduce computers and other ICTs for the community of Fiji. The focus of this paper in that it provided the framework for an in-depth exploration of e-learning centers around the country and the benefits from the advent of ICT’s in e-learning community centers in Fiji. Areas concentrated on are outcome of ICT’s in formal education to students and community as a whole in areas of agriculture, health, environment and infrastructure etc.

The research sought understanding from the perspective of e-learning centers representing the Ministry of Education, community members and the papers published by research fellows. Data was gathered from face-to-face interviews from the Ministry of Education for insight of e-learning centers, community representatives and articles published in the internet.

E-community learning center perceptions of ICT were mostly positive noting that its use contributed to higher levels of community interest, engagement, independent learning and motivation. As well, ICTs were mainly used to support ministry-centered pedagogies and contributed to the efficiency of information preparation and sharing. While ministries were keen to use ICTs in e-learning centers for the communities, they were hindered by lack of ICT skills and insufficient pedagogical knowledge of many communities in the rural and sub-rural parts of the country. E-community leaders perceived several obstacles to effective integration of ICTs in communities, which included: insufficient community and ministry access to computers; timetabling restrictions; a user pays system; maintenance and running costs; user plagiarism from the web and access to inappropriate sites as well as inadequate professional development for the use of ICTs.

On the other hand, there were remarkable benefits in different areas as highlighted in the body of this paper.

Introduction

Information and communications technology is an application encircling: cellular phones, television, radio, computer (Software and network hardware), satellite systems and the various services and applications associated with them, such as videoconferencing and distance learning. During the last decade information and communications technology (ICT) has experienced unprecedented growth, which has facilitated greater flow of resources, including monetary capital, physical goods, human resources and information.

ICT penetration and application vary significantly across the region that makes the benefit of ICT not universal, leading to the creation of the digital divide within countries. Use of ICT has been utilized in most sectors of profit and non-profit organizations, government and non-government sectors in Fiji and people
need to have at least basic ICT literacy to ensure they can find employment. It is very important that basic ICT are taught in schools so children do not find surprise in work fields.

The e-community centre is one way of providing access to ICT to rural communities. This enables communities to access new knowledge and information that can be incorporated with local knowledge. Such information can be education on employment, education, government, and technical information in the fields of agriculture, health, environment and infrastructure. The e-community learning centres can be based in schools and can also be used to train local people to learn computer and ICT skills.

The introduction of community-based ICT’s in Fiji took time to establish. Investing in community based ICT is a social investment: access to ICT’s required a social investment to take root in developing communities. Increasingly, this is understood as a role for international development agencies to play in tandem with the private sector and public institutions.

**Literature Review**

In every region of the globe; developed and developing countries, national and local governments are putting critical information online, automating once cumbersome processes and interacting electronically with their citizens. E-government is a process—call it “e-volution”—and often a struggle that presents costs and risks, both financial and political.

E-government” can refer to many different things, and e-government plans come in all shapes and sizes. Thus, be sure to establish a clear vision for e-government. There are many possible reasons and goals for e-government to list them all. However, there are broad categories of goals that are commonly pursued by societies, including for example:

- improving services to citizens;
- improving the productivity (and efficiency) of government agencies;
- strengthening the legal system and law enforcement;
- promoting priority economic sectors;
- improving the quality of life for disadvantaged communities; and
- strengthening good governance and broadening public participation.

The necessary pre-conditions for e-government depend upon a society’s most important needs. For example, the level of infrastructure, legal framework and human capital needed for e-government vary with the objectives being pursued. But if requirements vary, how can a government assess readiness for e-government? Even in developing countries where problems of low connectivity and human resource development (including low ICT literacy) are severe, creativity and careful planning can develop specific applications, services and information that can be delivered in a targeted, useful way to identifiable audiences.

E-government programs face many challenges. Like any ICT undertaking, there will be delays and mistakes. Technology will change in middle of the project. Complex government programs require complex software, which will have “bugs.” Inside government, the bureaucracy will resist changes in procedures and possibly the increased transparency that e-government provides. In the face of such problems, sustained progress in e-government will be achieved only if the leadership believes that the benefits outweigh the costs and risks. Therefore, e-leaders must champion the cause of e-government and make the effort to build political support across government. This also means protecting administrative e-government positions against political patronage; do not treat e-government positions as rewards for political supporters.

Picking the right e-government projects, especially the very first ones, is critical. A successful initial project can become the selling point for all future efforts and create the political momentum needed to move e-government ahead. A small success story can become a powerful example that others can imitate. It can be helpful to start with an assessment of how a government currently uses technology and
what ICT resources are available. An ICT “snapshot” might consider: Have any government units already undertaken successful projects of an e-government nature? Why did they work? What are current expenditures on technology? What have been the results? Are different units using compatible platforms? What are key obstacles current projects are facing?

The test of an e-government project’s success is how well the project meets its goals, for example, how well it delivers services, makes information accessible, or increases access to government. Judging both progress and performance means establishing metrics. Accountability requires measurable performance standards.

E-government is not something government can do alone. The private sector, in particular, has a key role to play, from the vision/planning process through implementation, monitoring and evaluation. However, the private sector and technology are not there to simply “tax, regulate, sue and control.”

Even if private companies contract to develop and manage e-government applications, the government must ensure that such companies do not use the data that they manage, especially personal information collected from citizens and other “customers.” This is crucial in order to protect the privacy of individual customers and build public confidence in e-government as a reliable, safe way to access services and information.

Public participation is an important element in many stages of the e-government process, from defining a society’s vision and priorities for e-government to determining e-readiness and managing e-government projects. E-government = participation, not automation. The public—which includes the private sector, civil society groups and individuals—can participate in e-government affairs in many different ways by: (i) commenting on e-government plans themselves; (ii) retrieving information (e.g., accessing information from government Web sites) or offering information (e.g., through public surveys, focus groups or emails); or (iii) participating in dialogues, both public dialogues with the government and citizen-to-citizen (C2C) dialogues hosted by the government.

Implementation until now in terms of Fiji’s e-Government services provision seems to be doing quite well. Most ministries and government departments have a web site and online presence. The websites inform the user about the functions of the ministry, location, contacts and future plans and strategies. It allows clients and customers etc. to download electronic versions of applications form; however, the completed forms need be physically sent. The information in many of the web site is quite dynamic in the sense that almost all the information at all levels is provided on the site. A user would not have to physically visit or make a phone call to get any further information.

Fiji has a relatively efficient and reliable telecommunications system with links to New Zealand, Australia and North America via access to the Southern Cross Cable. Its government has recently acquired the Cable and Wireless shares in FINTEL and transformed it into a fully local company. Previously the government has also provided protection to three major monopolies, through the incorporation of a public company called Amalgamated Telecom Holdings Limited (ATH). ATH collectively makes up the bulk of the country’s telecommunications industry. However, after the deregulation in 2008, other telecommunication providers have come in – Digicel being the most prominent.

The main companies include:
- Telecom Fiji Ltd provides domestic transmission of voice and data services.
- Fiji International Telecommunications Ltd (FINTEL) is the supplier of international voice and data services into and out of Fiji and has launched a brand ‘Kidanet’ which is the supplier of Internet services.
- Vodafone Fiji Ltd is the provider of mobile telecommunication services.
• Digicel is already providing mobile telecommunications services and has become the second mobile telecommunications service provider in Fiji. Unwired has also become one of the main providers of Internet services apart from ‘Connect’ and ‘Kidanet’.

However, the formation of e-government to benefit in the education of communities to the grass root level people shall be looked at more seriously. The content of information on the site to help educate societies rather than just functions and structure of ministries is not helpful. The information provided online need be applicable to the communities and easily understood.

Excess to the e-government resources is better delivered through setup of e-community centers. In such way, the community people who do not have resources of computer and internet access will be able to have insight of government functions, communicate to the ministries on there needs and contribute to educated society in many fields such as education, health, agriculture, environment and infrastructure; to name a few. The e-community centers are part of e-government programme. It is an online site for citizens who need up-to-date, easily accessible and authoritative government information and resources.

E-community centers support local government functions in forming communities of interest to address key issues across government and the private sector. E-community centers need to have appropriate IT professionals and engage in training. The centers need to identify audience and benefits. Community interests mainly include:

- Community enhancement
- Economic development
- Social protection
- Personal security

To discuss one of the case of e-community center in India this gives insight into the functions and benefits of e-community centers.

**Akshaya e-centres in Kerala, India**
B S Anilkumar, TNN Jun 6, 2012, 07.12AM IST

**THIRUVANANTHAPURAM a district in the state of Kerala in India:**

Started in 2002 as an e-literacy movement in Malappuram, one of the most backward districts in the state, Akshaya had undergone a tremendous transition in the last 10 years. From basic IT education and training in internet, it turned out to be one of the most successful models for effective proactive citizen service centres in India. Interestingly so was that the programme provided computer education to at least one member in all families in the state especially the rural parts.

The Askhaya e-literacy similar to e-community centres assisted the public to access a multitude of government as well as private services under one roof “one stop shop”. For instance residents who wanted to apply for a certificate from a village office can obtain the services of a string of government departments without being physically present in these offices. In addition they can use it to make online payments for several utility services like telephone, water and power and even book railway tickets.
Tasks that range from e-filing of tax returns, computer training programme of international standards, UID registration and even recruiting of human resources for construction or maintenance, comprehensive health insurance scheme registrations and renewals were all undertaken at the Akshaya e-literacy centre. The centre has its own local database and is affiliated to the Indira Gandhi National Open University.

Like all projects and programmes it encountered some hiccups but there was support from the Kerala State IT Mission who could make effective interventions and helped the centres by making provisions to offer a good number of citizen centric government services which had salvaged the project and instilled confidence in thousands of Akshaya entrepreneurs. With its success, in 2007 they moved to Phase 2 of the project which rendered new Government to Citizen (G2C) and Business to Consumer (B2C) services. Credit for that goes to 2,000-odd Akshaya e-centres across Kerala.

The formation of e-community centers can follow steps as given in the below flow chart.
The e-community centers shall be equipped and assessable to all the citizens of the country. Therefore the location of e-community centers is very important. It should also be facilitated so that there are all provisions of information and communication. The sustainability of e-community centers is for-most important so that the link between government and learning continues.

In Fiji, the Education Ministry has been very fortunate to be selected as a pilot Ministry for the Fiji-China e-Government Project. This initiative has greatly enhanced the delivery of services at the Examinations and Assessment Unit.

As such, the following services are provided on-line:

1. Registrations- for all 5 external examinations and for Fiji Islands Literacy and Numeracy Assessment (FILNA).
2. Viewing of examination results.
3. Link to major scholarship donor agencies and
4. Link to tertiary institutions
5. Other relevant information on examinations.

This valuable and efficient service was put on-line, early in 2009. This was a milestone development for the Ministry, as communication with all education districts and with its numerous stakeholders was difficult at times. The cost benefits looks excellent, as students and stakeholders do not have to travel to Suva for services that are available on-line. Much will be saved in transport costs and in time.

In 2005, the Ministry established e-Community Learning Centers (‘e’CLC) in a number of isolated rural schools. In 2006, twelve additional schools were selected to be e-Community Learning Centers. These centers have been equipped with personal computers, duplex printers, satellite dishes and IV satellite Routers, which are connected to ITC Suva.

The services available in the school based e-Community Learning Centres are; internet browsing on the world wide web, GOVNET (internet) browsing and service and e-mail services. Each of the centres has a GOVNET e-mail address.

The Fiji-China e-Government Project would, no doubt, enhanced and further developed the existing e-Community Learning Centers.

Now, the question remains on how these e-community centers are today which is reflected in the below. What are the benefits and how it can continue to functions?

Plans for consulting services to help the Fijian government to develop a blue print, governance plan and ICT competency development plan for e-government are being provided by the selected vendors. Additionally the design and implementation of several e-service application projects and consulting service in the design of the government data centre will be accounted for by the private sphere.

To ensure the sustainability of the e-government project, this public-private partnership will ensure adequate on-going training and knowledge-transfer to the Fiji government and local ICT vendors.
“The Fiji government needs cost-effective ways to reach our citizen constituencies. We demand the vision of making life easier for Fiji citizens. By working closely with the vendors, we will be able to leverage from the IT and management strengths of the private sphere to deliver innovative effective e-government e-services that will bring benefits to the citizens, and further contribute towards Fiji’s social and economic development and growth.

Research on ICT and e-community in Fiji

E-Government in Fiji

Information technology has brought the world economy on such level where trading is becomes freely and the demand can be stimulated from any corner of the globe. ITC is everybody’s business and no matter what the culture is, we believe that information technology has a positive impact on everybody. Note that China is second in this listing, which complements its fastest growing GDP in the world today. This shows that economic prosperity is directly proportional to the ICT industry.

ICT applications, such as e-Government, e-Commerce, e-Education, e-Health and e-Environment, e-Agriculture, e-community are seen as enablers for development, as they provide an efficient channel to deliver a wide range of basic services in remote and rural areas. ICT is facilitating for improving health and environmental conditions, increase the productivity level of the government and private sector employees and the quality of the product and service. In turn, e-applications may liberate technical and human capacity and enable greater access to basic services.

The ICT and the internet becomes a critical part of modern society today for everyone. Apart from the age, race, and language barriers, the core function and aim of information and communication technology is constant. ICT access the educational skills and use it effectively to Connect to the communities, improve the levels of health and environment and create the employment opportunity. ICT has proven that it can promote economic growth as they tend to encourage capital growth, improve organisational productivity, and facilitate larger and better functioning markets. Moreover, ICT development enables rural and social development. ICT’s can become potential to reduce poverty by improving more access to the education, health, government and financial services. Variance between infrastructure available to support ICT in the rural and urban areas is most often examined from the perspective of developing an effective strategy to catch up the rural areas to the more urban areas rather than comparing and contrasting the two or finding policy initiatives that work in tandem with one another.

The Fiji Government has taken one step ahead by offering new opportunities by ICT and has taken a lead role by launching the Information Technology and Development policy directions to encourage, facilitate and support the development and growth of this industry and its people. The Government’s proactive vision is to become a competent in the e-Globe. The ICT contribution has helped the Fiji’s economy through revenue generation, job creation, social inclusion, conservation of culture and administrative and operational efficiencies. Tourism industry had the highest employment numbers of approximately 32%. Due to such positive approach by government has started shown the results in tourism industry and the number of visitors and tourists has increased. The availability of the relevant information of Fiji and related supporting sectors through the internet made the tourist in easy way. However ICT is not only creating an employment in the communications industry but also in manufacturing and education sectors with the help of information system by greater use of e-learning in the education sector.

If we compare Fiji with other developed countries we are still lacking behind in terms of education and technology. Since the government has taken the information and communication technology as the base for progressing the country and keep the nation going. Still in our country Radio and Television are the biggest development media and also more contributing in terms of information technology. In last 5 years mobile industry has made the big impact and reached to the heart of the Fiji’s people. It is available in cities, towns, rural as well as mostly on all islands including remote islands. Mobile industry is connecting
the people, community together and shares the information. Few years ago to make a call was so expensive and it use to take time, since the technological inventions the world has become closer and closer and at the same time the technologies is also becoming comparatively cheaper so that anyone can afford it.

In a Parliamentary speech, the Finance Minister of Fiji, Ratu Jone Kubuabola argued that the: “Fiji/Chinese E-Government project at the broadest level is to help improve Government functionality, thereby enabling better policy outcomes, improved and more efficient delivery of services and greater interaction with citizens.” (Hansad report, December 1 2005). He further mentioned that: “The E-Government project will put Government business on-line, (E-Government) and also make some strategic linkages with the community (E-Community), hopefully empowering communities to access Government services provided on-line. It will also assist business to directly access Government services available on-line” (Hansad report, December 1 2005).

Fiji Government is following the foot step of developed countries and implemented the best E – government program to improvise government communications infrastructure and to give high-priority to government service online. The current application of ICT is to provide the information communications technology by government to develop and improve the level of communication and an image of Fiji.

**E-Gov Objectives**

The following critical success factors or e-Government strategic thrusts are needed to achieve the national objectives:

1. Implement financially sustainable service delivery models
2. Reinvent services delivery model to provide citizen-centric outcomes
3. Enhance operational efficiencies within and across government agencies
4. Enhance ICT skills competency of government employees at all levels.

**E-Gov Vision**

To achieve the above target objectives which are in line with the strategies have been developed through the vision

- To develop financially sustainable service models,
- To provide Citizen centric services,
- To achieve operational effectiveness & efficiency and ICT Competency
- To sustainably achieve the same
The main E-Government project is basically focusing on AAAE for government services.

Availability,
Accountability,
Accessibility and
Efficiency

E-government initiatives have segmentations of 3 core services

G2B (government to business),
G2C (government to communities) and
G2G (government to Governments)

Fiji’s e-Government service is currently performing well and the target of connecting all ministries and departments through internet with their individual web sites and online presence are still in progress. Lately Ministry of Trade website has updated still the connectivity with other Ministries is left. All of the websites inform the user about the core functions of the ministry or department, its organisation structure, staff listing, office locations and phone contacts. Almost all of them allow its clients and customers to download electronic versions of application forms in PDF format, however, completed application forms with the relevant documents and accompanying fees still need to be physically submitted to the relevant ministry or department for manual processing. The information provided by many of the websites is quite dynamic in the sense that almost all the information at all levels is provided on the site. A user would not have to physically visit or make a phone call to get any further information.

E-Government Online Services

E-Services online provides Government Services over the internet. There are 3 Clusters in which the Government will provide services. These are:

1. Government to Government Cluster: focuses on the exchanging of data between Government Ministries and Departments where necessary which is only available to government officers. E.g. Case management for business, Citizen, people hub, data bank, Executive outcome monitoring system etc.
2. **Government to Businesses Cluster**: focus on providing Online Services to Investors and business that need approval from the concerned Government authorities. *These services require free business user registrations and login.*

   1. Foreign Investment Approval and Tracking [IATS] Facilitates foreign investors to apply online to start up a business in Fiji
   2. Company and Business Registration [RCBS] Facilitates business registrations for local and foreigners
   3. Person Search [eBDM] A prepay search for persons data as per the births, deaths and marriage registry records. This service is available to selected agencies only
   4. Forestry Licences[eForestry] Allows agents to apply for Forestry Licence

3. **Government to Citizen Cluster**: focus on providing Government Services (information from government departments) online to the Fiji Citizen. Also citizen will be able to submit applications online to relevant authorities should the services is available online. *These services require free citizen user registrations and login*

   1. Exam Registration & Results Publishing [EXMS] Allows the schools or students to register for external examinations administered by Ministry of Education (MOE) as well and view their results
   2. Online Scholarships [SCHS]
   3. Electronic Geographical Information [eGIS]
   4. Births, Deaths & Marriages [eBDM]
   5. Statistics Online [eBOS] Citizens access to sale of Statistical Information, reports and releases from the Fiji Islands Bureau Of Statistics
   6. Forestry Licences [eForestry]
   7. Property Development [eProperty] Allows public to apply for Property development licence

**ITCS**

ITCS (Information Technology and Communication Services) is the ICT arm of the Fiji Government and it is a department under the Ministry of Finance. It has established on August 22 1966 as EDP (Electronic Data Processing) with its Vision and mission. Back in those days programming was done via punched cards and ran on mainframes with clients using dumb terminals.

The ITC Vision statement stats that

“Service Excellence through ICT” and

The Mission statement is

“To promote and support Government in the provision of ICT capabilities on a secure platform that will showcase opportunities and enhance efficiency, professionalism of the Government and its employees.”

The data entry and processing for all computerized Fijian Government systems was carried out at that time by the EDPC staff. The role and responsibilities of EDPC back then was;
In the year 2000, EDP Centre's roles expanded, with EDPC becoming Information Technology & Computing Services (ITCS). By this time the roles of ITCS had changed to something like the following:

- Provision of Policy Advice on Information Technology Services
- Provision of an IT Bureau Service.

It was also during this year that majority of Fiji Government users were connected to the internet services (Govnet). The dynamic field of information technology has seen ITC Services roles and responsibilities continue to expand over the years which include the implementation of the e-Government Program in 2006.

Today, ITC Services has just over 100 staff with offices located in Lautoka and Labasa. In April 2011, the first Government Data Centre was commissioned by Prime Minister, Voreqe Bainimarama of which ITCS played the leading role in overseeing construction and the successful commissioning of the facility. ITCS is also responsible for the development of various online e-applications under the e-Government program, implementing cost effective business solutions for the Fijian government and other stakeholders, developed websites for various government agencies, and with more developments to come in the near future. ITC Services in line with the Roadmap for Democracy & Sustainable Socio-Economic Development (RDSSED) 2009-2014, is committed to using ICT as a tool making government services more easily accessible to communities.
<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Country code</td>
<td>.fj</td>
</tr>
<tr>
<td>Hosts</td>
<td>12,592 [103rd of 228]</td>
</tr>
<tr>
<td>International Internet bandwidth &gt; Mbps</td>
<td>12 Mbps [105th of 167]</td>
</tr>
<tr>
<td>International Internet bandwidth &gt; Mbps (per $ GDP)</td>
<td>5.502 Mbps per $1 trillion of [111st of 184]</td>
</tr>
<tr>
<td>Internet Service Providers</td>
<td>2 [161st of 229]</td>
</tr>
<tr>
<td>ISP</td>
<td>2 [121st of 162]</td>
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<td>Linux web servers</td>
<td>1 [97th of 107]</td>
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<tr>
<td>Livejournal users</td>
<td>315 [61st of 226]</td>
</tr>
<tr>
<td>Price basket for Internet &gt; US$ per month</td>
<td>22.76 $/month [87th of 180]</td>
</tr>
<tr>
<td>Secure Internet servers</td>
<td>11 [114th of 183]</td>
</tr>
<tr>
<td>TLD</td>
<td>.fj</td>
</tr>
<tr>
<td>Users</td>
<td>80,000 [121st of 190]</td>
</tr>
</tbody>
</table>
e-Health

The World Health Organization defines e-Health as "...the cost-effective and secure use of information and communications technologies in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge and research..." (Resolution 58/28, World Health Assembly, Geneva, 2005).

Today e-Health is changing health services approach and the core of responsive health systems. In every country and at every level the business of health relies on information and communication technologies (ICT). The advanced technology, economic investment, and social and cultural changes are also contributing to the expectation that the health sector. The ICT provides backing by advising on e-Health strategies and policies, generating guidelines and training materials on e-Health applications and assisting in implementing technical cooperation projects. In that way we can improve the health services through better use of information and communications technologies (ICTs).

In Practical life the local community prefers as an effective and efficient through following e-Health legal and policy frameworks in both the telecommunications and the health sectors. The success of e-health can be achieved through the proper use of project management and a coordinated approach through a clear vision, the building up and maintenance of sufficient technological infrastructure, the commitment of trained end-users and ICT literate citizens, and the government’s vision to achieve challenging e-health goals. The important aspect is in e-health are data security and privacy. Wherever possible, e-health networks and applications should share expensive communication infrastructures with other ICT applications requiring secure and interoperable systems, such as e-government and e-commerce.

Generally, the potential benefits of e-Health include:

- Faster and easier storage, transmission and access to medical data and health-related information for healthcare providers and professionals, citizens/patients, academics, researchers, policy makers and others.
- Capacity building and improved delivery of healthcare services, particularly in rural and remote areas.
- Reduction of operational and administrative costs in implementing healthcare services.

Integrated health and e-Health strategies can improve productivity, reduce costs and improve service quality of the health sector in the long-run. Even the best technology and most advanced e-Health application can become futile if it is not part of a comprehensive national health strategy that is based on current and future health and healthcare issues.
Toolkit for developing a National e-Health Strategy

**Part 1** National eHealth vision
- Work with stakeholders
- Manage the development of the national eHealth vision
- Establish the strategic context
- Identify relevant eHealth trends and best practice
- Construct an initial vision
- Identify the required components
- Gather information about the current eHealth environment
- Assess opportunities, gaps, risks and barriers
- Refine vision and develop strategic recommendations

**Part 2** National eHealth action plan
- Work with stakeholders
- Manage the development of the integrated action plan for eHealth
- Develop eHealth action lines
- Develop an integrated action plan
- Determine high-level resource requirements
- Apply funding constraints to refine plan
- Define implementation phases

**Part 3** National eHealth monitoring and evaluation
- Define indicators to monitor and outcomes to evaluate
- Define baseline and target measures
- Define supporting governance and processes

**Fiji’s Health Level**
Framework of Health Information System

Ministry of Health has following information system is in use

1. Patient Information System (PATIS)
2. Logistic Management Information System (LMIS)
3. Asset Management System (AMS)
4. Human Resource Information System (HRMS)
5. Financial Management Information System (FMIS)
6. Public Health Information System (PHIS)

Oceania > Fiji > Health

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to sanitation</td>
<td>99%</td>
<td>[27th of 129]</td>
</tr>
<tr>
<td>Birth rate, crude &gt; per 1,000 people</td>
<td>22.45 per 1,000 people</td>
<td>[79th of 195]</td>
</tr>
<tr>
<td>Children Underweight Rate</td>
<td>1%</td>
<td>[76th of 95]</td>
</tr>
<tr>
<td>Dependency ratio per 100</td>
<td>56</td>
<td>[103rd of 166]</td>
</tr>
<tr>
<td>Drug access</td>
<td>95%</td>
<td>[31st of 163]</td>
</tr>
<tr>
<td>expenditure per capita &gt; current US$</td>
<td>147.6 $</td>
<td>[96th of 186]</td>
</tr>
<tr>
<td>Indicator</td>
<td>Value</td>
<td>Rank</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Fertility rate, total &gt; births per woman</td>
<td>2.79 births per woman</td>
<td>76th of 194</td>
</tr>
<tr>
<td>Hospital beds &gt; per 1,000 people</td>
<td>2.6 per 1,000 people</td>
<td>50th of 149</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>12.99</td>
<td>115th of 179</td>
</tr>
<tr>
<td>Life expectancy at birth, total &gt; years</td>
<td>68.33 years</td>
<td>109th of 194</td>
</tr>
<tr>
<td>Maternal mortality</td>
<td>38 per 100,000</td>
<td>92nd of 136</td>
</tr>
<tr>
<td>Physicians &gt; per 1,000 people</td>
<td>0.34 per 1,000 people</td>
<td>77th of 148</td>
</tr>
<tr>
<td>Probability of not reaching 40</td>
<td>6.3%</td>
<td>92nd of 111</td>
</tr>
<tr>
<td>Probability of reaching 65 &gt; Male</td>
<td>63.7%</td>
<td>85th of 159</td>
</tr>
<tr>
<td>Smoking prevalence, males &gt; % of adults</td>
<td>26 %</td>
<td>15th of 42</td>
</tr>
<tr>
<td>Spending &gt; Per person</td>
<td>86</td>
<td>73rd of 133</td>
</tr>
<tr>
<td>Tobacco &gt; Cigarette consumption</td>
<td>976</td>
<td>61st of 106</td>
</tr>
<tr>
<td>Tobacco &gt; Total adult smokers</td>
<td>20.5</td>
<td>91st of 121</td>
</tr>
<tr>
<td>Total expenditure on health as % of GDP</td>
<td>4.2%</td>
<td>154th of 185</td>
</tr>
<tr>
<td>Water availability</td>
<td>35,074 cubic meters</td>
<td>31st of 169</td>
</tr>
</tbody>
</table>

**DEFINITION:** Water resources: total renewable per capita (m3/capita year)

### ICTs and e-Environment

In today’s global market the impact of human activities on the environment – and on climate change in particular – are issues of growing concern confronting life on Earth. Concurrently, information and communication technologies (ICTs) are being rapidly deployed around the world. Although ICTs require energy resources, they also offer opportunities to monitor, learn about and protect the environment, reduce carbon emissions, and mitigate climate change.

Some of this information is provided on the Ministry of Health and Ministry of Environment website which is accessible to general public.

### E- Money / M-Paisa

In Global environment the most research and new product launching is done in telecommunications and mobile sector. Every day the new technology is introduced in the market to the user. It becomes so easy with the current technology that anyone can afford. In such scenario mobile companies like Digicel & Vodafone in association with various financial institutions have implemented the e-money project within Fiji. This service access is not only limited to urban level but it has reached into the remote islands and rural areas. The project is for the betterment of every citizen of the country. They have also worked very closely with the Reserve Bank in the region to guide the development of the product and the service and make sure that it will be accessible to all.

Vodafone ‘M- Paisa’ has made the life so easy for the people. The local mobile money transfer, e-billing of Fiji Electricity Authority (FEA), Water Authority, Land Transport Association (LTA), Fiji National...
Provident Fund (FNPF) account information is readily available through M-Paisa. It is beyond our thinking where we located it makes our life so smooth and save a lot of time and money also.

According to former governor Sada Reddy, RBF Fiji the community on the launching of the e-money project advised that in some of these developing countries, availability and usage of mobile phone, ranges from 45–60% across the population, which is inclusive of the unbanked users”. In Kenya itself as at January 2010, there were approximately 9 million mobile money users within the country, from which 23% of Kenya’s population utilised the M-Pesa services, from with approximately US$3.6 billion transfers were conducted. In the Philippines, around the same time, there were approximately 9.2 million mobile money users with transaction volumes approximating US$3.3 billion. Taking into consideration this transfer rate and volume of transfers, mobile-money services can be said to have huge possibilities and positive impacts within any countries economy.

**E-community Center**

A CeC is a facility that provides public access to ICT-based services and applications for education, personal, social and economic development. The concept originated in Sweden around 1985. They provide opportunities for development through ICT; extend the reach of public services such as education, health and social services; provide information of interest to the local community including farmers, local businesses and NGOs; and create new enterprises and jobs opportunities.

E-community centers are connected and linked with the main head office of Information and Technology Communication Center in Suva. Fiji’s E-Government project is in line with e-community Center. The initial planning process of government was to establish 17 centers. Currently the Government has the selected 12 sites as E-community centers. These sites are schools and post offices where the facility provided of computers, printers, and telephone and fax lines with internet service. E-community provides the access of the above stated technologies to their students, teachers and community people.

The current issues in Fiji are political insecurity, stagnant economy, a lack of political commitment and co-ordination, lack of monitoring and measurement by government and community. Any country’s growth is depends on the Sustainable economic growth. Unless the efforts come from the people and government support or advanced technology it is very hard to say that the growth is happening. The wise use of ICT can able to assist in reduction of the gap between the communities. Through the realistic use of e-community centers and modernize services will create an impact on the community as well as the poverty.

Below is the map indicating e-community learning Centers in Fiji.
TWELVE rural schools will receive internet services thanks to the assistance of the Chinese Government. The Ministry of Education has installed V-satellite dishes to help install electronic mail to the schools, which are referred to as e-community learning centres. The schools include Ra High School, Vunidawa, Namosi and Vunisea secondary schools, Nadarivatu High School, Magodro District School, Bua College, Saqani Junior Secondary School, Nadogo Secondary School, Nabala High School and Rotuma High School.

"The Ministry of Education acknowledges with great appreciation the commitment of the Chinese Government to the education of Fiji's students through the E-government project," a statement from the ministry read.

"The project, which is coordinated by ITCS is implemented in selected government departments. The first phase of the implementation has been completed resulting in the Fiji E-Government Master Plan.

"It is expected that the major application areas will be income-generating to sustain the project.

"Within the Ministry of Education, the E-government project has resulted in the setting up of satellite dishes to facilitate the installation of internet and e-mail to 12 e-community learning centres."

The ministry said the services included internet browsing, GOVNET (Internet) browsing and services, email services and a GOVNET email address for each e' community learning centre.

The ministry said students and members of the community in these rural areas would now be able to access information just like their counterparts in the urban areas.

This year, schools in the maritime zone will also benefit from this assistance.
Importantly the project will see the examination section of the ministry equipped with appropriate connectivity with built-in safeguard, to enable the accessing of examination results by candidates.

An added bonus is the relocation of ITCS to a suitable location

(Source: Fiji Times, Thursday, January 17, 2008)

These community centers service total population of Fiji. Total population per year is given in the table below:

<table>
<thead>
<tr>
<th>People Statistics &gt; Population &gt; Fiji (historical data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIEW DATA: Values</td>
</tr>
<tr>
<td>Date</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>2010</td>
</tr>
<tr>
<td>2008</td>
</tr>
<tr>
<td>2007</td>
</tr>
<tr>
<td>2006</td>
</tr>
<tr>
<td>2005</td>
</tr>
</tbody>
</table>

SOURCE: CIA World Factbooks 18 December 2003 to 28 March 2011

Discussion on Findings

Most Ministries in Fiji as well as the South pacifi c have e-government services like that of many developed countries. The on-line data has many applications and knowledge available for the community people. These on-line services are transferred to the people of Fiji through setup of e-community centers. These e-community centers were set up 12 schools namely Ra High School, Vunidawa, Namosi and Vunisea secondary schools, Nadarivatu High School, Magodro District School, Bua College, Saqani Junior Secondary School, Nadogo Secondary School, Nabala High School and Rotuma High School.

The purpose of these e-community centers was to provide government information accessible to the community people and other ICT’s for better information and communication. During the establishment of these centers in link with the Chinese and other government, Fiji government provided computers with internet connections and other ICT’s to be allocated in above schools which is accessible to the teachers, students and the general public.

The government on-line sites have lots of information on the government functions and publications. E-community centers in Fiji with internet access can provide lots of knowledge and information on areas of educational subjects, fields of agriculture, health issues and care, environment protection and issues,
infrastructure etc. All these information can become reading and research for learning communities. These knowledge can be applied in everyday life in many different areas.

With the available of computers and internet connections, community people can have update information on current affairs and happenings around the world. This will enhance their general knowledge and be up-to-date with the world. Much information is available in the fields of sports and entertainment to have an update on the game results, literature on different sporting, literature on entertainment and events/movies etc.

Since all the e-community centers are mostly located at schools. The basic purpose was to promote the education and to generate literate community which is directly beneficial to the students, teachers and the surrounding community people. The major objective of getting the people together, bring them as unity and move forward as a nation through delivering the knowledge of the latest technology with modernized world and to make aware to the students who are going to be future leaders of the country. However the teachers are the major contributors for building the future national leaders and contributing towards strengthening the culture and enforcing for the values of the country. The community people help to increase the level of understanding of the culture with education and linking with their religion values.

At current scenario of ICT in Fiji is far away in comparison with the developed countries and developing countries. E-community centers are not working or most of it has closed due to the lack of support and lack of technological advance.

Following things are needed for the realistic implementation of the e-community.

1. Clear information about the purpose of e-community center with its plan, vision and objectives.
2. Technical support from ITC or any professional private sector
3. Realistic benefits evaluation
4. Funding for the project
5. Awareness and training programme for the students, teacher and the community people.
6. Better support from mobile industry for the implementation of the communication sectors.

Limitations

The current e-community center’s locations are based in schools which itself is the biggest limitation in terms of knowledge sharing and use of the appropriate technology. The current numbers of students are at Ra High School, Rakiraki and Bua College, Labasa maximum 200 to 400 students per school. Simultaneously the nearest community population at school area is also less populated in comparison to urban area. The current infrastructure service is also inappropriate and limited. The accesses to the schools are not as good as what basically needed. Most of the places community people are unaware with the facility available and still there are illiteracy level is high specifically in rural areas. The benefits of internet facility are not taken by the people. As per our research Ra High School, Rakiraki and Bua College, Labasa the current e-community center facility is closed due to the various reasons. During the implementation process of e-community center was in force and the excellent service was given by government authorities. During that period every community centers are provided with computers (3 – 5 nos), printer (1) and internet facility depending on the population of schools. The students, teachers and to some extent limited community people has taken the advantage of the internet and computer service. Most of the usage of the service was done by the students and teachers and the community people were used the service at intermediately. As the year passed the service became weaker and weaker due to various issues and problems. At both locations internet service has stopped working from last 2 years due
to the technical problems of linkage to the head office in Suva. Bua College Principal Mr. Anish Dayal has quoted that due to continuous issue of internet problem finally the decision has taken of closing the service.

Since in last 2 years the technology has changed a lot, the best example of mobile industry has surpassed the expectation of the people and the extent has reached to such level which is very hard to compare with any sector or professions. The advanced technology in mobiles, internet facility, coverage, availability instant information and communications facility at any corner of the country becomes life easier.

The movement to e-community was a good way for government to reach the communities and educate them. However, the sustainability and up-gradation of e-community centers in also very important. ICT technologies change fast and government need be moving with the technological developments.

E-community centers as found from research have not been targeted seriously in Fiji. There was no force to man the outcome effectively. There has not been target on the illiterate society to teach on the use of computers, internet applications, how to excess government sites and make the best use of the government services provided on-line.

The advent of ICT’s and setup of e-community centers can have lot of benefits to the communities in Fiji if manned properly. People can have easy link with government services, communicate online, have technological literacy and gain information in many areas.

**Conclusion**

E-government is important. It allows government functions reach the citizens of the country. Easy excess to information online allow community people to work with government ministries from remotest areas without physically visiting the government offices.

E-community center can be used to give access to ICT’s thus giving excess to online information to enhance education. The technological options depend on the services that a center wishes to provide. There may be no need to spend money on end hardware. Therefore center must:

- Have minimum standard hardware and software; however deliver in the desired manner
- Connected to internet to get benefit to internet
- Upgraded technology which can be operated even by grass-root people

The provision of community e-centres in Fiji should be key policy for the development of rural and outer islands, and ICT services stated in the Strategic Development Plan. The corporate and private enterprises must play an important role to overcome the constraint of overcoming finance issues, especially in a developing country like Fiji. The e-community centre shall firstly involve in training ICT’s to enable communities to be able to use the technology. Although training is being provided, the lack of knowledge in the operation of computers and use of internet has affected the operation of the centres.

The advent of e-community centers will have vast benefits in education of communities. The future generations of this country will be well versed with working with technology and able get educational information on-line. The knowledge of experts in different areas is able to reach the minds of people in urban as well as remote areas for reference. The literacy levels of citizens will increase bringing majority benefits of skills and knowledge into the country.
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