

Convergence of Communications and e-Governance; a strong combination for health consumer empowerment

Prajesh Chhanabhai

*Department of Information Science, University of Otago
PO Box 56, Dunedin, New Zealand
pchhanabhai@infoscience.otago.ac.nz*

Amith Koleth

*Department of Information Science, University of Otago
PO Box 56, Dunedin, New Zealand
akoleth@infoscience.otago.ac.nz*

Alec Holt

*Department of Information Science, University of Otago
PO Box 56, Dunedin, New Zealand
aholt@infoscience.otago.ac.nz*

Abstract

The aim of this paper is to highlight the importance of e-Governance in the field of healthcare. Coupled with the move towards converging communication technologies, this paper will examine how these two powerful drivers if need to be utilised effectively could make changes, especially in the developing world. Developing countries do not have easily accessible technologies, however, the role of technology can still be utilised in governing the e-health system while ensuring health information is disseminated effectively and efficiently to the populations that require it.

1. Introduction

Good governance is perhaps the single most important factor in eradicating poverty and promoting development."

- Kofi A. Annan, Secretary General of the United Nations

The theme "convergence of communications" is one that has become prevalent. The rapid development of technologies and the accessibility of these technologies has become an important factor in the running of businesses. The effects of this trend are felt in every sector, leaving a positive impact. In tune with this trend is another growing trend that is becoming significant in the day to day running of businesses and organisations this is the role of the consumer. The consumer is not seen as a separate entity anymore, rather they have become an integral part of the production, marketing and decision making process, the consumer is now becoming an empowered individual. This is true in nearly all sectors; however the one industry where the consumer empowerment is low is health care. However, as the use of information technologies increases in the health sector there is a push towards more patient involvement and interaction. This push has enabled the growth of consumer informatics.

Communication technologies are used to empower and educate patients/consumers while building a new relationship with their caregiver. Instead of being the traditional doctor-patient relationship, these technologies could change this into a partnership. By taking more responsibility in their own health, the patient/consumer will begin to understand their treatment plans and their health condition in a much better light. Self management is already happening for patients with conditions like diabetes, for example when they self administer their insulin doses. By utilising the proper communication technologies this empowerment will not have to be only for those who have various disease conditions, or for those who can afford it, but rather to all health consumers.

Despite the push towards consumer informatics, there has been reluctance, due to the failure in the governance of how this information dissemination is controlled. In recent times many developed nations have adopted e-governance to ensure good governance. The objective of Electronic governance (e-governance) is to ensure good governance. Good governance is generally characterised by participation, transparency and accountability. The recent advances in information technology and internet services provide new ways in which the government and citizens can interact and communicate. Information technology will involve a broad cross-section of citizens at various levels of governance and decision making. The government in turn, will benefit by providing better service in terms of time, making governance more efficient and more effective. In addition, the transaction costs can be lowered and government services become more accessible.

This paper is about using converging communication and e-Governance together for better healthcare. It is illustrated with a brief case study from New Zealand and concludes with a discussion in which examples from the developing world are used to highlight the importance of this merger.

2. Converging Communications and Empowerment

The use of technology is growing in many areas of health care, including communication, education, interaction, decision support, promotion, knowledge transfer and the delivery of services. This has led to the development of a number of new fields such as captology – the study of computers as persuasive tools, for example the integration of health care delivery and information delivery through computer based technologies. The development of such areas is an indication of the immense potential for health communication efforts on a global scale [2].

Despite this development, the adaptation and integration of information technology in the health sector is unfolding at a slower rate than their counterparts in the finance and commerce sectors. Currently most developments that include the health consumer are run by for-profit e-Health companies. These companies currently utilise the Internet and web related technologies to run their organisations. The most common focus of these organisations is to provide tools, solutions, products or services that aid some aspect of clinical care or e-Commerce. However, as most of these organisations are for-profit, their impact on areas and communities that are economically challenged is minimal or non-existent. As it currently stands these facilities can only be accessed by those that have access to the Internet and to those with the ability to pay for such services, and hence segregating the population in many countries. In a majority of the cases this is the population that needs the greatest need for e-Health services [3].

According to [4] many of the people who are at most risk from serious health conditions come from underserved populations, populations that are generally made up of individuals who are of low socioeconomic status, possess low level of health literacy and are members of marginalised ethnic and minority groups. These underserved and vulnerable populations often have limited access to relevant health information especially information that is otherwise easily available over the Internet. This is one of the symptoms of the Digital Divide, however within the health sector the Digital Divide has a more specialised problem, many of the characteristics that identify those on the “have not” side of the Digital Divide also apply to those who suffer from the negative effects of health disparities. While information and knowledge are not guarantors of good health care decisions and adherence to recommended health behaviour, their ease of availability has shown to contribute to them [5][6]. This has been recognised by the White House, who in their *Healthy People 2010* report indicated that health communication through the use of computer technologies is a means of bridging the digital health divide [7]

It is thus imperative that when examining technology based health communication to understand who and what the communication is designed. The goals of health promotion and disease prevention communication efforts are to help health consumers and information seekers gain knowledge about health issues and improve health. The goals of communication of health care delivery are to treat illness, maintain or improve health among patients, improve cost and delivery efficiencies. Health communication efforts are designed to improve lifestyle behaviours, reduce risk factors for disease, increase compliance with a medication or treatment plan, better self manage a condition, provide social support or provide help with decision making procedures.

Through new technologies, health promotion and disease prevention interventions are being delivered successfully on-line, on CD-Rom, over the telephone, through handheld computers, and via other technologies for a variety of topics including weight control, injury prevention, smoking cessation, nutrition promotion, and medication compliance [8][9][10]. New technologies also allow health care delivery to transfer its model of care into a model of telemedicine,

consisting of, but not limited to, telephone, video, and e-mail consultations, e-prescribing, claims processing, physician Web portals, and Electronic Health Records [2][11]

Potential examples of such converging applications include wireless, sub-cellular biosensors that monitor individual health parameters in real-time; techniques for meta-analyses of genetic, biophysical, and behavioural information to inform development of personalised health interventions including therapies; and tailored, broadband, interactive multimedia health communications that occur, irrespective of economic background.

The merging of consumer informatics and health communication have a combined effect of focusing on how communication methods will have an impact on consumer decisions. Consumer informatics aims to shift public knowledge, motivations, and attitudes towards clinical behaviours and with the adoption of health communication strategies this will yield more interactive, flexible and multidimensional healthcare tools. However, this can only be as effective as the tools that are used to govern each of the technological and communication methodologies.

3. e- Health Governance

e-Governance is the public sector's use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective [12].

Access to information is power. The traditional power-bearers in the society have always realized the role of information to gain control and set up governance mechanisms in their constituencies. 'Good Governance' rests on the pillars of knowledge and recognition of this set of knowledge by the decision makers and people alike. Digitisation of this entire set of knowledge within a network which is open to all individuals opens up possibilities for all to access and use this knowledge *paving the way for Digital Health Governance or e-health governance as it is more popularly known* [13]. e-health government is about making the full range of government activities – internal processes, the development of policy and services to citizens – available electronically [14].

e- health governance can be divided into two complimentary fields

- e- health administration- refers to making public administration more effective and customer oriented by implementing electronic services
- e- health democracy- refers to increasing role of the citizens in the decision making processes using electronic channels [15].

e- health governance can influence governance processes possibly in 3 ways:

- Technical** role: Automation of repetitive governance tasks and thereby improving efficiency of governance processes, for instance, electronic patient records, periodic information reporting.
- Supportive** role: Use of ICT to complement existing efforts and processes to improve governance, for instance, use of Internet to catalyze existing efforts towards transparency in government information and functioning, or set in the use of emails in connecting consultants with health workers in remote areas.
- Innovative** role: Use of ICT to initiate new governance services or new mechanisms for improved service delivery which would be impossible through non-ICT modes, for instance, booking online appointment with consultants and reduce long queue (from remote and beyond office hours); providing instant access to the same information to all individuals through emails and website; services to alert and educate citizens of possible disease outbreaks and their prevention.

e- Health governance in developing countries does not imply linking every citizen to a digital node or giving them access to the Internet/computers. Digital health governance in developing countries implies ensuring every community or a village has easy access to information available on the digital network and no one is excluded from accessing information on this network [13].

3.1. Case Study

In 2004 New Zealand residents had online access to over 300 agencies and 1500 services through government's 'e-government project' [16]. This website provide an excellent interface for citizens to access information about the government. The government in return by publishing its annual reports and other important literature through an easily accessible website increases its accountability, which is the corner stone in building faith and confidence in its citizens. A positive influence of responsibility is also generated in the minds of the people, because they are aware of the happenings of their government.

The annual report published by the Ministry of Health (MOH) in 1998 mentioned a significant progress made in integrated care, consumer safety, occupational regulation and information technology, which were the key policies for bringing about better quality and safer health services for New Zealanders. In 2004 the MOH initiated activities to develop a 'national model for electronic decision support for diabetes management. In the same year the MOH developed a data warehouse for the 'National Booking Reporting System', which includes the creation of data sets that provided information on the management of patients of District Health Boards. The key data was the information on the 'Elective Services Performance Indicators', which were used to monitor and report progress in implementing, the elective services policy [17].

Governance includes the ability to share information, the Ministry of Health enables this through their website. Their website offers a varied array of information and services to the citizens and also provides a forum for citizens to make comments or submissions on topics related to health in New Zealand. The website is an archive of information not only for citizens but to all interested to know about health in New Zealand. Another interesting feature is the education of citizens about their District Health Board elections, which takes the individual through the whole process of elections to how a council member is elected.

These clearly are steps taken by the Ministry towards successful 'e-health governance' in New Zealand. The Director-General's Overview of the 2006 Annual Report shows that the health of New Zealand residents is continuing to improve. Some examples that are used include the longevity gain for females by 2 years and over 3 years for males. Infant mortality reduction from 5.5/1000 births to 4.8/1000 births, as well as a 40% reduction in avoidable mortality. These figures of success are not solely because of good e- health governance, but the influence of e-health governance cannot be ignored in this achieving effective change.

4. Discussion

Converging communication and e-governance are two areas that are increasingly becoming more intertwined in the field of e-Health. Without a good e-governance policy that documents the use and the content of information being disseminated, communication technologies will fail. Apart from ensuring the information that is going out is of high quality and is safe, e-Governance will allow an auditable system to be put in place that can be used to report on the effectiveness of the information that is being disseminated.

In the developing world, the communication technologies may not involve hi-tech technologies, but some traditional methodologies may be more effective. However only by good governance of the health care environment can the effectiveness of these methodologies be truly tested. e-Governance does not have to mean hundred of computers linked to the Internet to obtain data, it may simply mean, a single computer being used to tally up the number of people that have attended various health education classes and passing on that information to a central repository. At this central repository there maybe information from another stand alone computer that has got information from a clinic about various health scenarios. These two bits of information can then be collated at the central repository to produce some meaningful information that can be used to administer change or monitor success of the various items.

Missen [18] showed an example where the use of technology has hindered progress in the developing world. He stated that a Ghana university pays \$22,000 a month for a 5Mbit Internet connection. This same connection costs about \$NZ30. This connection is then slowed down by 10am each day, when all the computers on campus are in use and sharing the single connection. The negative impact of this is that the NZ\$22,000 a month works out to be about 30 full-time professors a year. Thus, the university has sacrificed academic experts for a 5Mb connection[18]. This is a clear case where by with proper governance, the authorities will realise that the cost-benefit of having the 5mb connection is detrimental to the University. If this happened in the health sector, it would create a dilemma, whereby health consumers care may be compromised by the lack of having enough healthcare workers, as the cost of hiring them would

be diverted to run an Internet connection. Thus it is imperative to ensure that communication methodologies can be governed and by proper governance the most effective and efficient dissemination pathways can be used.

The gaps between the technology, the governance and the e-Health consumer have been realised by many in the field of public health. Health Information for All 2015 (HIFA 2015) [19] and the Peoples Open Access Initiative [20] are two examples whereby the role of converging communication technologies to empower the health consumer has been highlighted. In both cases they have shown that with good governance, this can be achieved. By ensuring that at least one health worker in a community is well informed and educated, they can ensure the well being of a community would indicate a success. Thus the merging of communication technologies and the e-Governance will provide many benefits to consumer empowerment. In the health sector, small bits of the right information can make a world of difference in the well being of an individual. Every individual is an information user for medical decision making (as well as a health system user) either as a health consumer or care giver and these roles are interchangeable thus good governance can ensure vital well being.

5. References

- [1] Annan K. New Partnership for Africa's Development. 2001 Retrieved 10 May 2007 from <http://www.unu.edu/p&g/wgs>
- [2] Suggs SL A 10-year retrospective of research in new technologies for health communication Journal of Health Communication. 2006 11. pp61-77.
- [3] Eng TR The ehealth landscape: a terrain map of emerging information and communication technologies in health and health care. The Informatics Review. 2001 Retrieved 8 May 2007 from <http://www.informatics-review.com/thoughts/rwjf.html>
- [4] Kreps GL Disseminating relevant health information to underserved audiences: implications of the Digital Divide pilot projects Journal of the Medical Library Association.2001 93. pp68-73.
- [5] Tang PC and Lansky D The missing link: bridging the patient-provider health information gap. Health Tracking.2005 24. pp1290-1295
- [6] Harris L, Dresser C and Kreps GL. E-Health as dialogue: communication and quality of cancer care. Dialogue Systems for Health Communication.2006 Retrieved 7th May 2007 from <http://www.ccs.neu.edu/home/bickmore/dshc/kreps.pdf>
- [7] Department of Health and Human Services. Healthy People 2010. 2000. Retrieved 7th May 2007 from <http://www.cdc.gov/nchs/about/otheract/hpdata2010/abouthp.htm>
- [8] Anderson DG and Stenzel C Internet patient care applications in ambulatory care Journal of Ambulatory Care Management 2001. 24. pp1–38.
- [9] Dijkstra A, De Vries H, and Roijackers J Computerized tailored feedback to change cognitive determinants of smoking: A Dutch field experiment Health Education Research.1998 13. pp197–206.
- [10] Friedman R H, Kazis L E, Jette A, Smith M B, Stollerman J, Torgerson J, and Carey K. A telecommunications system for monitoring and counselling patients with hypertension. Impact on medication adherence and blood pressure control. American Journal of Hypertension.1996 9. pp285–292.
- [11] Chhanabhai P EHRs: Fear of breach? The New Zealand public's opinion. Unpublished Masters thesis. University of Otago. 2006.
- [12] UNESCO. Communication and Information Activities. Retrieved 13 June 2007 from http://portal.unesco.org/ci/en/ev.php-URL_ID=3038&URL_DO=DO_TOPIC&URL_SECTION=201.htm
- [13] V
- [14] Bourn J. Better public services through e-Government. National Audit Office. House of Commons. 2002
- [15] Rannu R. M-Governance: From Vision to Reality. International Journal Baltic IT&T Review 2004 p 35
- [16] Government of New Zealand website. Retrieved 23 June 2007 from <http://newzealand.govt.nz/>
- [17] Ministry of Health. Annual Report 2004. Government Printers 2004 pg1
- [18] Missen C. Personal Communication, July 2007
- [19] Health Information for All 2015. Retrieved 9 July 2007 from <http://www.ghi-net.org/campaign/index.asp>

[20] Peoples Open Access Initiative.. Retrieved 9 July 2007 from <http://peoples-uni.org/>