



# **ICT FOR DEVELOPMENT (ICT4D)**

## **Understanding ICT4D Thematics in Malaysia: A Sourcebook**

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## **Introduction**

This sourcebook is a first attempt to meet the increasing need for materials and projects relating to Information and Communications Technology for Development (ICT4D) that are of particular concern to those who are working in this area in Malaysia.

We thought that in conjunction with the World Summit on the Information Society in Geneva this year, where the focus of the Summit would be on ICT4D, it would be a good opportunity to launch this sourcebook where we would like to share some of our own thoughts and interpretations of ICT4D as well as information on the collection of materials that we have access to or are familiar with at the UNDP Malaysia Resource Centre in Kuala Lumpur.

This on-going work is, we hope, the beginning of a useful database for UNDP, and our many partners in Malaysia. Its further development will, of course, require your assistance and cooperation and I hope you will join us in developing this sourcebook further.

I wish to especially thank Ms. Sharon Lim, who did the painstaking task of selecting, organising, reviewing and writing the materials in this sourcebook. Sharon has done this creatively, competently and as comprehensively as she could. We are certainly fortunate to have Sharon as an intern with us in the last 5 months at UNDP and we wish her every success in her pursuit to obtain her PhD.

I wish to emphasise again that it is very much an unfinished and on-going exercise so please forgive us for any errors and short-comings and support us by sending your suggestions, ideas and materials.

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## Background

Sharon Y.P. Lim <sup>1</sup>

*'A technological revolution is transforming society in a profound way. If harnessed and directed properly, Information Communications Technology (ICT) have the potential to improve all aspects of our social, economic and cultural life. ICTs can serve as an engine for development in the 21<sup>st</sup> century.'*

Kofi Anan, Secretary General of United Nations, 1999

The role of Information and Communications Technology (ICT) in human development has received growing attention among development practitioners, policy makers, government and civil society in recent years due to the growing proliferation of the Internet, convergence in IT and telecommunications technologies and increasing globalisation. While issues of access and the adoption of new ICTs have tended to revolve around utopian themes of empowerment and the development potential of ICT, it has also raised the accompanying issue of digital divide and the challenges for developing countries to participate in the global information society. The above excerpt alludes to the fact that while ICT has the potential to address development goals in areas such as education, gender empowerment and rural development, it is also accompanied by concerns that unless it is adopted effectively, existing socio-economic divides in terms of people's access to basic human needs may be further accentuated.

ICT for Development (ICT4D) is therefore characterised by a range of human, infrastructural, institutional and technological challenges which are determined by the socio-economic context in which ICTs are introduced. Although no two projects are alike, what is universal in influencing the extent to which ICT-enabled projects are successful is the human factor as people have the potential to be either conduits or obstructive agents of change. This is important because in the ICT tripartite which focuses on the synergistic relationship between 'Information', 'Communications' and 'Technology', the 'T' component which concerns infrastructure, connectivity, networks and equipment has largely overshadowed the 'I' and 'C' components which concern people. So while technology plays an integral role in ICT4D it should be understood as an *enabler* and not a panacea in itself as the human factor involving the participation of people and their motivation to adopt ICT-enabled development is still fundamental.

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<sup>1</sup> At the time of writing and researching this sourcebook, Sharon Y.P. Lim was an intern under the supervision of Anis Yusal Yusoff of the Human Development Division at the United Nations Development Programme, Kuala Lumpur, Malaysia from July to December 2003. The internship forms part of the author's preparation towards a PhD in Southeast Asian Studies at the Australian National University. The author expresses special thanks to Anis Yusal Yusoff for his dedicated supervision. Special thanks are also expressed to industry contacts and colleagues at UNDP Kuala Lumpur who contributed to this research on ICT4D.

In the increasing age of globalisation where ICT can be viewed paradoxically as both a protagonist for development and antagonist to bridging socio-economic divides, it is timely to focus on the Malaysian experience which has developed-nation 'aspirations' but developing-nation 'circumstances'. Malaysia represents a combination of both ICT as a means to address wider development goals and an opportunity to improve its economic positioning. This two-prong focus on ICT has been embodied in Government policy since 1991 with the introduction of *Vision 2020* in which ICT was prioritised as a key enabler for Malaysia to reach developed-nation status. ICT has been accorded a central role in government efforts to achieve its development goals where ICT policy not only exists as a vertical policy area per se, but is also incorporated and complementary to development areas addressed in its 5-year development plans. The current Eighth Malaysia Plan (2001-2005) positions ICT as a key enabler in the areas of education, health, rural development, gender empowerment and community development through such initiatives as the Malaysian Smart School Project and Telehealth Flagship Application. As *Vision 2020* envisions Malaysians as both contributors and beneficiaries of an increasingly global and knowledge-based economy, Government programmes with an emphasis on inclusion and access have been administered nationwide.

The themes of inclusion and access are embodied in this sourcebook through an overview of key ICT4D discourse in areas such as rural development, gender empowerment and governance in Part One. These writings illustrate the necessity to focus on people by reinforcing the need to adopt participatory approaches to achieve consensus, ownership and relevance among beneficiaries of ICT-enabled projects. This is complemented by an annotated bibliography of resources in Part Two which captures a range of theoretical frameworks and case studies in the area of ICT4D. To provide a specific frame of reference, the Malaysian context is presented in Part Three and Part Four through a compilation of ICT4D programmes and initiatives currently pursued under the Eighth Malaysia Plan (8MP). The juxtaposition of theoretical and country-specific perspectives throughout this sourcebook provides a complementary approach to understanding some of the fundamental concepts in the area of ICT-enabled development. It is hoped this sourcebook will provide a useful starting point for understanding the rationale behind ICT4D and the sets of challenges and opportunities that ICT-enabled development presents.

## **How to use this sourcebook**

This sourcebook aims to provide a theoretical perspective on ICT4D by presenting an introduction to key concepts and issues in Part One and Part Two, and a contextual focus through an examination of the Malaysian experience in Part Three and Part Four.

### **Part One**

This collection of seven writings provides an overview of key thematic areas in the study of ICT4D. The cover key ICT discourse in relation to development areas such as rural development, gender empowerment and governance. The purpose of these writings is to introduce interested readers to the potential of ICT-enabled projects, its critical success factors and key challenges. Part One can be treated as an initial entrée into key themes related to ICT4D through its collection of academic and informal writings.

### **Part Two**

For interested readers who wish to gain further insight into ICT4D, an annotated bibliography of resources in Part Two provides a compilation of theoretical frameworks and case studies. Categorised by resource materials which cover (i) Background Readings and (ii) Malaysian and Asian Readings, each reading is accompanied by brief descriptions on their foci, scope of research and content to provide an introductory guide to discourse in this growing area of work. Part Two is suitable for those with a further interest in current discourse on ICT4D.

### **Part Three**

In Part Three, the Malaysian experience is presented through a compilation of ICT4D programmes and initiatives currently undertaken by stakeholders at the Public, Private and Community levels under the period of the Eighth Malaysian Plan [8MP] (2001-2005). This compilation provides an overview of existing efforts with details on their objectives, description and target group to expose interested readers to the breadth and depth of ICT4D programmes in Malaysia and the multiple development areas they address.

### **Part Four**

Part Four provides a diagrammatic representation of initiatives captured in Part Three via a matrix where each programme is categorised by their level of stakeholder participation for measurement against their coverage of development areas identified under the 8MP. Interested readers can note Malaysia's people-centric approach to ICT4D through its emphasis on areas that address human resources, rural development and community outreach.

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## ICT for Development: An introduction

Sharon Y.P. Lim \*

*'In 1998, there were an estimated 143 million Internet users, with numbers to exceed 700 million by 2001. Some 88% of all users in 1998 lived in industrial countries, home to less than 15% of the world's people. A computer costs one month's salary for the average American, compared with eight years' income for the average Bangladeshi. In several African countries the average cost of Internet connection and use runs as high as US\$100, compared to US\$10 in the United States. A quarter of the world's countries still do not have one telephone per 100 people.'*

UNDP, 'Matters of Fact', *CHOICES*, June 2000

Views on the role of Information and Communications Technology (ICT) in human development are often two-fold. While ICT is seen as having a positive and important role in achieving development goals, it is also balanced by concerns that it will accentuate existing socio-economic inequalities. On the positive side, ICT, when adopted as one of many complementary strategies in development projects such as health, education and rural development, has the potential to empower communities with improved access to knowledge networks and services. On the other hand, as captured by the above quotation, any *meaningful* participation in this ICT 'revolution' is also challenged by very apparent discrepancies, imbalances and inequalities that currently characterise issues of ICT access and adoption.

With these two positions on the potential of ICT for human development in mind, this article will address some critical success factors which enable ICT to be used successfully as a tool for human development. Based on the *grassroots* notion to keep projects small, content relevant and to focus on *people* rather than technology as the drivers for project longevity, the introduction of ICT in development strategies can be beneficial. While examining these essential factors, a central theme that supports this analysis on ICT and development is the concept of **KISS** – *Keep it Simple for Sustainability*.

In examining the relationship between ICT and development it is important to understand what we actually mean by ICT. At the technical, and most oft-cited level, ICT has become a fashionable acronym borne largely out of the Internet and telecommunications 'revolution' to describe an electronic means of capturing, processing, storing and disseminating information. Little attention, however, is placed on the fact that ICT is not

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a recent phenomenon since its broader definition also includes print-media, radio, telephone and television. What has differentiated computer-mediated ICTs, or what I will label as ‘new’ technologies for the purpose of expediency from ‘traditional’ technologies such as radio and television, is the sheer pace, efficiency and innovative capture and dissemination of information. ICT therefore, is not a recent phenomenon, but a combination of complementary technologies to disseminate information.

This leads to the next step of understanding what each part of the ICT acronym can represent and its significance in the relationship between ICT and development. As the tripartite grouping suggests, ICT refers to ‘Information’, ‘Communications’ and ‘Technology’. While most ICT-related studies have been obsessed with the ‘Technology’ component such as infrastructure, networks and connectivity, the ‘Information’ and ‘Communications’ components have been overshadowed despite their primary importance in this grouping. For it is the ‘IC’ component which describes, first and foremost, the initiative of people to seek *information*, and in the process of doing so, *communicate* that information which has now reached a stage of *knowledge* because of its value to human development, to others who may also see its value. The *technology* component only comes to play because it has the potential to support and enable the preceding conditions of *information* and *communications* through a combination of technologies to disseminate knowledge. Underpinning these dynamics is the integral role of people as agents for ICT development, since technology is borne out of specific cultural contexts, time and place. This synergistic ICT relationship is illustrated in diagram 1.

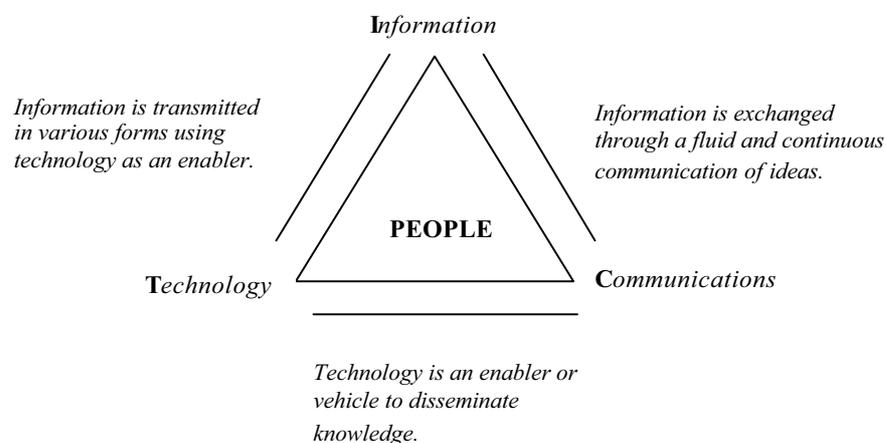


Diagram 1: The dynamics of ICT as a continuous flow of information, communications and technology.

In establishing the broader definitions of ICT and a people-centric approach to understanding what ICT can represent, attention can now be given to some critical factors for ICT and development initiatives to co-exist. The following KISS factors will be examined briefly to demonstrate their development potential in terms of local accessibility, human networks and project champions, best practise models, continued partnerships and *positive* rhetoric, and ICT as a malleable tool. While acknowledging the

necessity of large-scale, nation-wide ICT projects and strategic frameworks to provide the basic physical and policy infrastructure for ICT development, there is also recognition of the advantages and effectiveness of a bottom-up approach that represents a micro, somewhat ethnographic and grassroots perspective to ICT and development.

To begin with, development projects which adopt ICT have a greater likelihood of success if local accessibility is taken into consideration. Accessibility can represent not only the obvious physical access to ICT infrastructure, but also context-sensitive access in terms of local language and relevant content. The context-driven approach to understanding issues of language accessibility is in response to the fact that over 80 per cent of available web-content is in English. An illustration of context-driven access is seen with Technology Access Community Centres (TACCs) in Egypt which incorporate as much Arabic content as possible with a relevant focus on agriculture, health and education.<sup>1</sup> Building context-driven accessibility where projects are relevant and hence, of any real *value* and *meaning* to its beneficiaries ultimately leads to furthering ICT adoption in the long-term. This non-physical, somewhat resonant approach to understanding issues of accessibility as opposed to mere physical considerations such as ICT infrastructure, important as they might be, is significant because technology must ultimately be able to meet people's needs since it is people who form the core of the ICT tripartite.

While much importance has been placed on the realities of unequal access and adoption, it is also essential to focus on what can be termed *human infrastructure*. In the absence of reliable, accessible and affordable ICTs, human infrastructure in the form of human networks and project champions are vital to disseminate knowledge and jumpstart development projects. Cameroon's Association for the Development of Women and Health (FESADE) is an excellent example of the strength of human networks as intermediaries and multipliers of knowledge.<sup>2</sup> Human networks embody the Information and Communications or 'IC' component of ICT through its reliance on grassroots and somewhat taken-for-granted communication givens such as 'word-of-mouth' and human socialisation. The inherent social behaviour of humans to interact has often been ignored on discussions on ICT development despite their potency to champion development projects.

The other side of human infrastructure involves the resilience and tenacity of project champions to initiate, drive and seek support for development projects from the grassroots level. There are thousands of projects worldwide which demonstrate how individuals have championed small-scale projects with powerful results,<sup>3</sup> with one of the

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<sup>1</sup> UNDP, 'Egypt's Cyber Cafes for the Poor', *CHOICES*, June 2000.

<sup>2</sup> UNDP, 'Cameroon: Information Empowers Women', *CHOICES*, June 2000.

In Cameroon, FESADE have relied on their network of 300 members to identify areas of ICT which can be applied to people's daily lives. There are individual members who regularly travel for Internet seminars and training workshops which is later shared by face-to-face contact with more than 36 women's groups across several localities.

<sup>3</sup> See Development Gateway's *ICT for Development* portal and UNDP's 'Stories from the Field' portal for an overview of development projects at the small-scale level which feature grassroots participation.

most popular being the Grameen Bank.<sup>4</sup> These ‘Philanthropic Entrepreneurs’ are important conduits in identifying and acting on social programmes at the grassroots level, where firsthand exposure can address development needs which the government at the macro level may find difficult to meet. While ‘visionaries’ at the government level such as former Prime Minister Mahathir in Malaysia have evangelised and spearheaded nationwide initiatives to raise the importance of ICT to the country’s socio-economic development, the bottom-up approach is equally important to balance the two-way flow between government and people as agencies of change. Once more, it is *people* who have the potential to drive human development and not technology per se.

A third factor to consider for ICT development projects is to view ICT as an essentially general-purpose technology which, when drawing on past experience and best practise models, can be adapted to avoid a total ‘reinvention of the wheel’. Previous models that provide useful learnings are conducive to driving a multiplier effect in the long-term. The general-purpose side of ICT also enables development projects to adapt and make optimum usage of available technologies. Malaysia’s Mobile Internet Unit (MIU) pilot programme which was based on the Mobile Video Units (MVU) concept in Mali, Africa, is a case in point.<sup>5</sup> At a more significant level, developing best practise models also embodies the ‘IC’ component of ICT in that knowledge is readily shared and can be improved over time. The *culture* of knowledge-sharing is therefore a practise which needs to be developed over time to leverage on past experiences and to nurture a willingness of people to share and receive knowledge on an open and mutually beneficial basis.

Next, and along similar lines as best practise models which promote knowledge-sharing, partnerships at the Public, Private and People level creates a means to leverage expertise and gain wider endorsement to promote the importance of ICT for development. Partnerships are vital to facilitate what I have labelled as *positive rhetoric*, in which ICT is highly positioned and reinforced in daily public discourse by the Public, Private and People levels to increase a community’s awareness and interest in ICT development projects. In simpler terms, the more one hears and reads about a particular topic, the more important it must be!. This positive rhetoric can be also reinforced through demonstrated partnerships in ICT development projects.

Turning once more to the Malaysian experience, there have been several pilot projects which embody a working partnership between the Public, Private and People sector. Beginning in May 1999, the *E-Bario* project to establish a telecentre was conceived and initiated by Dr Roger Harris and implemented with the support of Universiti Malaysia Sarawak (UNIMAS) and funded by the IDRC and the Malaysian Government through its Demonstrator Application Grant Scheme (DAGS). More recently in March 2002, Coca Cola, UNDP and the Malaysian Government launched the *e-Learning for Life* project which has established ICT hubs at six selected secondary schools. Both examples

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<<http://www.developmentgateway.org/node/133831/?>> & <<http://sdnhq.undp.org/it4dev/docs/stories.html>>  
7 August 2003.

<sup>4</sup> See <<http://www.grameen-info.org/index.html>> 7 August 2003.

<sup>5</sup> UNDP, ‘Malaysia: Internet on Wheels’, *CHOICES*, June 2000.

reinforce the importance of multi-level support and working partnerships to sustain development projects, which in turn, promotes people's awareness of ICT through positive rhetoric *in action*.

Lastly, ICT realities have often discussed the technological barriers and cost constraints preventing an even distribution of ICT without focussing on the potential to adopt ICT in innovative applications given that ICT is essentially a malleable and general-purpose (but multiple application) tool. Kothmale Community Radio illustrates the malleability and complementary usage of ICT in light of ICT infrastructure realities where information is retrieved daily from the Internet and broadcast to its 350,000 listeners in Sri Lanka.<sup>6</sup> The obsession with the 'Technology', or 'T' component of ICT often overshadows how innovative, malleable and complementary technology mediums can be. This is an important point as ICT is often viewed from a somewhat Western and developed-nation perspective, with those who lack access to be positioned at the periphery. The presence of general-purpose and complementary ICT technologies serves to dispel any notions of 'technological supremacy' since ICT can take on many guises.

An underlying theme of these critical success factors is the degree of human participation and involvement while technology becomes a secondary enabler to facilitate development projects. In the wider analysis on ICT and development these factors are important as most studies on ICT are skewed towards the 'T', or technology part of the coin instead of the 'IC', or information and communications spectrum. While greater ICT challenges remain both at the human and technological level, it is still encouraging to note that thousands of projects like those presented are having an impact on those it serves to benefit. With the emphasis on *human* infrastructure and by aiming to 'Keep It Simple for Sustainability', ICT for development projects can co-exist if they remain meaningful to its beneficiaries.

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<sup>6</sup> See Kothmale Community Radio's portal <<http://www.kothmale.net/>> 7 August 2003.

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## Technology and Culture: A quintessential human activity

Sharon Y.P. Lim \*

An important theme which permeates these collection of writings on ICT and development is the need to treat ICT as a synergistic relationship between *people* and *technology* so that technology is not isolated from the social context in which it is used, nor is it prioritised over the fundamental process of human interaction (*information* and *communications*) which continues to drive and complement technological advancements. This is because technology, to borrow one interpretation from Melvin Kranzberg, is a 'quintessential human activity',<sup>1</sup> requiring human innovation to develop its application (culture of technology) and human agency to put it to use (technology culture), so that one is not exclusive over the other.

In understanding the relationship between technology and culture, rather than prescribe deterministic assumptions that technological (*r*)evolutions will directly change a culture or a way of doing things, this paper calls for a less prescriptive and more situational understanding of technology development as a symbiotic relationship and co-existence between the two processes. To examine this symbiotic interaction, the paper will briefly discuss notions of technology, culture, *technology culture* and the *culture of technology* in relation to modern ICTs<sup>2</sup> such as the Internet and what affect this has on everyday life, concluding that ICTs complement rather than override existing patterns of social behaviour by providing a wider choice<sup>3</sup> of communication channels to enhance existing social networks or expand new ones.

Technology is a ubiquitous term that is difficult to define, but in its most simplistic sense, the word technology is derived from the Greek word *tekne*, meaning art or craft, and *logos*, meaning a systematic study of a subject. The standard textbook definition sees technology as the study and knowledge of the practical, especially industrial, use of scientific discoveries.<sup>4</sup> While its meanings have changed from describing a systematic

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<sup>1</sup> Melvin Kranzberg, 'The Information Age: Evolution of Revolution?' in Bruce R. Guile, ed., *Information Technologies and Social Transformation*, Washington, DC: National Academy of Engineering, 1985, pp. 35-54.

<sup>2</sup> For the purpose of this paper, technology will be discussed in the context of ICT and not as technology per se which has also been applied in the area of agricultural, engineering, automobile and manufacturing technology to name a few.

<sup>3</sup> It is acknowledged that technology access and adoption affects the extent to which alternative communication choices are available both between and within developed and developing countries. The point here is that where access and adoption to recent ICTs is available, users have more choice on whether or not to use it to enhance their communication needs.

<sup>4</sup> Cambridge Dictionaries Online <<http://dictionary.cambridge.org/>> 14 October 2003.

study of any art such as shoemaking in the 17<sup>th</sup> century, the term familiar with us today assumed its ‘modern’ but limited meaning to refer to tools, machines, factories and industry in the 18<sup>th</sup> and 19<sup>th</sup> centuries,<sup>5</sup> and images of high technology devices such as mobile phones, computers and anything state-of-the-art in the 21<sup>st</sup> century. Technology of course, is not just concerned with ‘hard’ factors such as physical hardware but is also characterised by ‘soft’ factors such as the motivation and role of shared knowledge to create these tools in the first place, seen most clearly with John Groyder who has described technology as ‘the application of knowledge to the achievement of particular goals to the solution of particular problems’.<sup>6</sup> Added to Groyder’s anthropological definition of technology is that of Jacques Ellul for whom technology is defined as ‘the ability of people to manipulate the tools available to them’.<sup>7</sup> Non-technical interpretations of technology such as those provided by Groyder and Ellul are important because they provide a socio-cultural perspective to understanding technology through their interpretation of human agency in the development and use of technology which balances the commonly accepted notion of technology as only pertaining to inanimate objects, tools and devices.

The socio-cultural perspective on technology is also evident in the work of Melvin Kranzberg who reinforces the human element in technological advancement. In his work on the Industrial Revolution and what he refers to as the ‘Information Age’ in 1985,<sup>8</sup> Kranzberg posits the view that technological evolutions do not take place in isolation, but rather as a synergistic reflection of the social dynamics of the day, so that ‘technology does not occur in a vacuum’, but ‘instead, takes place in a social matrix and interacts with society’.<sup>9</sup> A case in point in understanding the relationship between technology and culture draws us back to the development of gunpowder. While its invention in China was driven by its usage in religious ceremonies and fireworks, once this technology was introduced to western civilisation it drove the invention of guns and ammunition to produce a new form of advanced warfare. So while the religious need drove the invention of gunpowder in China, the western need for advanced warfare saw gunpowder serving another purpose. Understanding technology as a product of the society in which it is created places less emphasis on technology and more importance on social factors to provide a balanced view of the symbiotic relationship between technology and culture.

A second and equally important argument of Kranzberg’s is his recognition of the *information* and *communications* aspect of the ICT tripartite, reminding us once more, that technological developments, however technical or advanced they may be, did not appear from nowhere as it is people who invent technology and not technology alone. Technological advances involve information and knowledge-exchange, not to mention the fundamental human behaviour of social interaction to facilitate its dissemination,

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<sup>5</sup> <<http://www.wlu.ca/~wwwblack/cs400/fall02/September12.htm>> 14 October 2003.

<sup>6</sup> John Groyder, cited in <<http://www.wlu.ca/~wwwblack/cs400/fall02/September12.htm>> 14 October 2003.

<sup>7</sup> Jacques Ellul, cited in <<http://www.ucs.mun.ca/~brianl/academic/ma/basis%20of%20IS.doc>> 14 October 2003.

<sup>8</sup> Kranzberg adopted the term ‘Information Age’ before the ubiquity of personal computers and the Internet became a household name.

<sup>9</sup> Kranzberg, ‘The Information Age: Evolution of Revolution?’, p. 37.

pointing once more to Kranzberg's idea of technology as a 'quintessential human activity'. As it is people who drive technological development, the technology and its application is only as effective as the goodwill of those who created it, pointing to Kranzberg's First Law which states that technology is neither good nor bad, nor is it neutral, in that although technology is designed for human use, it is also subject to human abuse or on a less sinister level, its impact or intended use is often far removed from its intended goals.<sup>10</sup> In short, technology is never neutral, nor does it operate independently from any given social, cultural, economic or political context.

In contrast to human agency factors, the concept of *technological determinism* must be raised at this juncture to caution against any association of technology as relating only to itself, that is, occurring in isolation and not within the society in which it was borne. Technological determinism as an approach to understanding technology development assumed a bigger emphasis in the social sciences following World War II, where technology was positioned as the single most powerful force shaping society.<sup>11</sup> Technology was attached with binary and exclusive conclusions in that it was either praised in a somewhat utopian fashion or blamed for the wave of modernisation. There was the assumption that as the most powerful force in modern life it moved to its own beat and beyond the control of humans. Despite its flaws and sweeping assumptions, it is important to recognise the existence of technological determinism in interpretations of technology because in varying degrees, it is still a pervasive force in society today whenever a new technology is purported to 'revolutionise' humankind.

The growing ubiquity of recent ICTs such as the Internet and computer-mediated technologies have attracted much attention, if not hype, based on the powerfully prescriptive idea of technological determinism where these technologies, whether we like it or not, are going to change our lives and way of doing things. Manuel Castells points to Information Technology as the equivalent of what energy was to the industrial revolution, an interpretation which displays hints of soft determinism as I(C)T is positioned as an indispensable part of our modern networked world.<sup>12</sup> During the first generation of the Internet's development, this euphoria was infectious as the realms of infinite possibilities permeated the popular imagination in early adopter countries of the developed world and practitioners who saw the development potential of the Internet to address poverty in developing countries. As with every position concerning human society, this technological determinism became counter-balanced by a rejection of the deterministic prescription of technology in that social forces were seen to shape technological development and not the other way around. No doubt, new technologies like the Internet allow for greater communication channels which are independent of geographical or physical locales, but the reality is that it provides an *alternative* pattern of communication to supplement or complement existing social frameworks and not to replace it entirely.

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<sup>10</sup> Kranzberg cites Henry Ford and the assembly production line where the original intention was to make personal transportation more economical and available to the masses but the aggregated effects transformed the building of roads, gas stations, drive-thru restaurants and other changes in transportation behaviour.

<sup>11</sup> Andrew Feenberg, 'From Essentialism to Constructivism: Philosophy of Technology at the Crossroads' <<http://www-rohan.sdsu.edu/faculty/feenberg/talk4.html>> 14 October 2003.

<sup>12</sup> Manuel Castells, *The Rise of the Network Society*, 2<sup>nd</sup> edition, Oxford: Blackwell, 2000, p. 30.

Furthermore, the presence of human agency with the desire to overcome tyrannies of distance, time and place would have driven Internet development in the first place.

Just as technology is difficult to define, so too is the notion of culture. After all, how does one define dynamic groupings of people which are continuously undergoing change, transformation, reconciliation and re-interpretation without prescribing hegemonic labels on their identity, behaviour and way of life? In its most simplistic definition, culture can be understood as a way of life, especially the general customs and beliefs, of a particular group of people at a particular time.<sup>13</sup> Culture is a central area of study in the interdisciplinary world of the social sciences and one filled with endless scholarly work. This brief paper will not do justice to studies of culture due to its expediency, however, as a starting point culture has been defined and interpreted in many ways from the early works of Giambattista Vico to Johann Gotfried Herder in the 18<sup>th</sup> century through to Edward B. Tylor, Raymond Williams and more recently Stuart Hall and Homi Bhabba.<sup>14</sup> For Vico, cultures were based on the expressions and interpretations of experience which ‘characterises all the activities of any given society’ and embody themselves in social institutions, language, ways of living, artistic creation, ritual and worship.<sup>15</sup> Interpretations of culture such as these presented culture as structured, patterned, systematic, uniform and regular, exaggerating the uniformity and static view of groupings of people.

Less prescriptive understandings of culture as a fluid process rather than fixed given can be found in the area of Cultural Studies with Raymond Williams’ reformulation of culture as comprising an interrelated positioning of archaic, residual and emergent cultures.<sup>16</sup> Archaic culture refers to traditional patterns which are merely symbolic rather than effective in the present, residual culture the lived patterns of behaviour effective in the present while emergent culture the negotiation of culture as processes, lived meanings and relationships of culture as practised, evolving and interwoven with aspects of social reality. Williams’ view of culture as a process dependent on social interaction is useful for contextualising past, present and future notions of culture to provide a wider scope for change, which in the context of understanding technology and culture is significant because culture as a *process* rather than fixed entity is able to negotiate technological change rather than be overwhelmed or threatened by it. Under this premise, culture is progressive and accumulative, responsive to technological change and selective of the extent to which it is incorporated into daily life, yet able to maintain links with existing social networks and normal daily life. The emergent aspect of culture as negotiating current realities enables people to accommodate technological changes and decide on whether they complement or ‘disrupt’ their lives. This also suggests that technology has different meanings and relevance to different people depending on the time and place, rather than a uniform experience as is often suggested.

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<sup>13</sup> Cambridge Dictionaries Online <<http://dictionary.cambridge.org/>> 14 October 2003.

<sup>14</sup> Sharon Y.P. Lim, *Narratives of Malaysian-Chinese Identities in Multicultural Australia*, The University of Western Australia, Honours Dissertation, 1997, p. 2.

<sup>15</sup> Isaiah Berlin, *Vico and Herder: Two Studies in the History of Ideas*, London: The Hogarth Press, 1976, p. xvii.

<sup>16</sup> Raymond Williams, *Marxism and Literature*, Oxford: Oxford University Press, 1977, pp. 122-23.

So what does this mean for *technology culture* which is a growing part of our daily lives if we were to merge these two ambiguous and indefinable concepts? If technology is the application of knowledge to achieve goals and solve problems, and culture is a fluid interaction of archaic, residual and emergent patterns, then technology culture can be understood as an *interaction* of these two processes which involves varying degrees of technology usage and consumption as a complementary, even unconscious part of everyday life. It is important to view technology and culture as *processes* because technology adoption is never fixed and is dependent on access and adoption variables which are also dependent on development levels.<sup>17</sup> In turn, culture is never homogeneous or static and is made up of a dynamic weave of different groupings, associations and identities so that it would be hegemonic to assume that technology will have the same affect for all. Needless to say, while acknowledging that different people have different relationships with technology and the extent to which it complements (positive) or disrupts (negative) their lives, several characteristics of technology culture can be understood as follows:

- Regular usage of technology to function effectively in everyday life, however conscious or unconscious  
(Reliance Factor) – *we rely on technology*
- Innate expectation of technology to create efficiency, save time and promote convenience  
(Benefit Factor) – *we can see the benefits of technology*
- Positive regard for innovation and technology  
(Acceptance Factor) – *we acknowledge its potential to improve our lives*

Using modern ICTs such as the Internet, wireless devices and satellite as a frame of reference, I am awoken each morning by my mobile phone through its alarm clock functionality and from the time I start and finish a day's work I am reliant on the computer to do write my articles, browse the Internet for research materials, pay bills online and send and receive correspondence via email. When I need immediate contact I will use either a fixed line telephone or mobile phone. When I need to work from home in the evenings and my diskette runs out of space I will email my documents to my home account and do the reverse so that I can print out my finished work in the office. So that I do not disrupt my husband's busy working schedule I will send him a SMS enquiring about what to have for dinner and what time he will return. In the evenings if I do not feel like working I will watch satellite television with images of events which are happening a world away in the convenience of my own home or chat online to my diasporic network of family and friends overseas and check my emails once again. And sometimes when the mood takes my fancy, I'll learn French on my interactive multimedia CD.

Technology culture is an obvious part of my daily life, yet if I was not self-reflective in recounting my technology experience in relation to modern ICTs, I would not have realised how my choice to adopt these tools is so second-nature, complementary and

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<sup>17</sup> It is widely acknowledged that the adoption and access of ICTs within and between developed and developing countries varies considerably, making an individual's experience with ICTs in daily life dependent on what is available them.

unconscious. The fact that I adopt ICTs in my daily life suggests a strong *reliance factor* and my regular usage demonstrates these ICTs are relevant to my needs otherwise it would not be so unconscious to begin with. Secondly, my reliance on ICTs such as my mobile phone and computer are only such because they provide convenience, create efficiency and save me time – a real *benefit factor* in this modern world where everyone is always ‘busy’. Despite acknowledging the pros and cons held by technological determinists on ICTs and their impact on society, I have a positive *acceptance factor* towards ICTs and look forward to new technologies which might be relevant in my daily life. Technology has provided more *choices* to my way of doing things by enhancing and complementing my existing communication avenues and broadening my access to people and information. However, it does not threaten my identity or have control over my life because culture is about negotiating an appropriate balance between archaic (past), residual (present) and emergent (future) cultural patterns which is reflected in my unconscious accommodation of modern ICTs.

So while technology culture is about an appropriate adoption and usage of technologies, the *culture of technology* is about its production, invention and distribution, creating a synergistic and symbiotic relationship between those who produce technology and those who use it. Under the culture of technology umbrella is a ‘culture’ of innovation made up of technology experts who are driven to improve aspects of human activity and excited by the possibilities. Although the culture of technology is just as much influenced by political, economic, cultural and social landscapes (as is technology culture), in its most simplistic terms, the culture of technology can be understood by:

- Technology having its own internal culture made up of its experts and its makers (Human Capital Factor) – *it is made up of specific groups of people*
- Regular production of technology (Innovation Factor) – *technology is being continuously improved*
- Think big, Think ahead (Big Factor) – *technology is created with an emphasis on the future and the possibilities of technology applications in other areas which are beyond their original design or purpose*

In the context of ICT, research and development laboratories, technology parks (technopoles) and designated centres of excellence characterise the culture of technology that is widely covered by sociologists Manuel Castells and Peter Hall.<sup>18</sup> Through network externalities and positive feedback loops, technology experts are able to aggregate skills in the form of *human capital* and refine technological developments and breakthroughs in the pursuit of *innovation*. Network externalities and positive feedback loops are an important part of ICT and technology development because it represents the synergistic relationship between producers and consumers of technology through people’s usage of technologies and the increased value this technology brings through greater adoption. The culture of innovation brought about through constant interaction between the producers and consumers of technology also necessitates a *think big* culture to improve product

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<sup>18</sup> See Manuel Castells and Peter Hall, *Technopoles of the World: The Making of 21<sup>st</sup>-century Industrial Complexes*, Routledge, 1994.

design, functionality and more efficient applications which serve as milestones to gauge innovation and progress. In the world of ICT, today's mobile phone devices and computer specifications become outdated just as they are released or adopted by the mass of consumers. Yet despite the fast pace of technological accomplishments, it is the fundamental motivations and aspirations of people involved in the culture of technology who design technology to enable better human activity, just as it is people who are able to control how technology is used.

This paper has attempted to illustrate that *technology culture* and the *culture of technology* are two synergistic processes which essentially share the common denominator of *people* as central drivers and adopters of technology. Both technology and culture involve continuous processes of change, adaptation and accommodation and are both symbiotic and reliant on each other for the simple fact that the human factor lies behind the production and consumption of technology, through a combination of people's motivations, skills and communication networks. This focus on people, rather than technology is something to be mindful of as discussions about technology especially in relation to ICTs have become technologically deterministic in terms of people's assumption that technology will cause major social, cultural, political and economic changes in society. So while new technologies will be absorbed in the everyday, they will not necessarily change or revolutionise our lives, but provide enhancements and alternatives on how we undertake our routine activities. This complementary rather than exclusive interpretation of technology's impact on culture therefore allows more flexibility in how technology and culture are understood, and more recognition of the diversity and fluidity of human behaviours which co-exist alongside technological change.

## The Internet and Development: A back to basics approach

Sharon Y.P. Lim

Charles Kenny's article entitled 'Development's False Divide' (2002), is a refreshing and somewhat brash commentary on the extent to which the Internet is a suitable tool for poverty alleviation. Kenny's opening line, 'Giving Internet access to the world's poor will cost a lot and accomplish little', cites realities such as high infrastructure costs, widespread illiteracy, unequal education levels and the domination of English content as determinants of the extent to which the Internet can be viewed as a productive tool to benefit and create meaning to a majority of the world's developing countries.

In terms of poverty alleviation which is strongly correlated to rural development, the question is whether the Internet can be *indigenised* to meet local needs with content that is demand-driven and language which is intelligible to its users. An estimated 70 per cent of Internet content is in English and the overwhelming enormity of information requires a sophisticated degree of Internet and research mastery that is dependent on high education and literacy levels. The costs associated with Internet set-up and maintenance are also high, making questions of sustainability an issue given that those living on \$1 a day have a potential communications expenditure of only \$10 per year, provided they have access to ICTs in the first place.

Given realities such as these, the hype and utopianism attached to the Internet as *the* panacea to address society's development goals has taken a downshift in recent years, as questions of sustainability, cost and reach have witnessed more emphasis on the Internet as an indirect and intermediary tool for development rather than the

**'Giving Internet access to the world's poor will cost a lot and accomplish little.'**

- Charles Kenny -

direct and all encompassing tool it was once thought to be. Prior to this shift, the Internet's meteoric rise was accompanied by the powerful sense of technological determinism which made sweeping assumptions that technology could be universally and uniformly applied to bring about social change.

Critical of the technological determinism debate, development practitioners such as Kenny acknowledge that while the Internet might be the most appropriate tool in some development contexts, in a majority of the developing world it might not be, and therefore a reliance on readily available technologies such as the radio might be more appropriate and effective in terms of cost, content and relevance.

Based on viewing the Internet as an indirect and intermediary tool points to the malleability and complementary nature of ICTs. The attention placed on 'new' ICTs such as the Internet has overshadowed existing and hitherto effective 'traditional' ICTs such as radio, television and newspaper mediums. Since ICTs are general-purpose tools, that is, they can be adapted and cleverly manipulated to suit a certain purpose, why not make the most of what is available in the interim to improve people's lives?

There are many ICT4D projects worldwide which adopt a combination of ICTs in light of infrastructure and human capacity realities such as education and skill levels. Kothmale Community Radio in Sri Lanka retrieves information daily from the Internet to broadcast to its 350,000 listeners. In Pondicherry, India, weather forecasts downloaded from the US Navy's public website are broadcast by volunteers over loudspeakers to fishing villages on the Bay of Bengal for the benefit of fishermen who cannot read. In El Salvador, the community group ACISAM (Association for Training and Research for Mental Health) uses loud speakers and video recordings to raise community awareness on mental health issues to address the trauma of war and to rebuild communities.

What these examples point to is the grassroots notion of Community Informatics where the social contexts in which ICTs are introduced are seriously considered to maximise the opportunities for local beneficiaries to make use of technology to achieve their own socio-economic or political goals. The fact that the Internet assumes a supportive rather

than direct role suggests that not all ICT4D projects need to adopt the Internet as a primary enabler. These examples also dispel myths of technological determinism which continue to prevail in the utopian Internet imaginary despite the growing importance of Community Informatics.

The earlier mention of making the most of available ICTs in the *interim* underlies the introduction of new technologies such as the Internet as a *process* rather than a fixed given. This by no means suggests that we should totally distance ourselves from adopting the Internet directly or indirectly for development projects per se. What it does suggest however, is that while there is the need to return to ICT basics there is also the need to introduce, albeit slowly and non-intrusively, new ICTs in stages rather than through a 'leapfrog' approach so that a process of technological acculturation which complements existing social contexts can begin.

**The fact that the Internet assumes a supportive rather than direct role suggests that not all ICT4D projects need to adopt the Internet as a primary enabler.**

While the reach and impact of new technologies will not transform a community overnight, its initial introduction at least can start the ball rolling to benefit current and future generations. So while the Internet has all the qualities of being a development enabler, in most cases at this point in time, it is not necessarily the best medium for universal adoption for a majority of the developing world. The important role it can play however is that of intermediary while developing

countries begin the process of investing in infrastructure and human capacity development.

The question of balance and patience, using existing ICTs while being acculturated to new technologies in stages, should be on everyone's radar when it comes to the Internet and development. So while we acknowledge the potential of the Internet for development it is equally important we become more grounded and acknowledge the need to get back to basics (please?) when it comes to ICT and how it can benefit developing countries.

**The important role it can play however is that of intermediary while developing countries begin the process of investing in infrastructure and human capacity development.**

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## ICT and Rural Development

Sharon Y.P. Lim \*

The concept of rural development implies the desire to improve the circumstances and position of rural communities through the recognition that a dichotomous urban-rural relationship exists. Given that two-thirds of the world's poor live in rural areas, it is important to examine the potential of ICT to improve access to basic human development needs such as food, education and healthcare. In fact, the parallels between rural development and human development concerns as a whole are so identical that studies on the latter are synonymous with the former. As with other social variables such as gender which is covered in the subsequent writing, rural development vis-à-vis urban development is characterised by its own set of intrinsic disparities, challenges and opportunities. And along similar lines to ICT and gender, rural development is also pressed by the need to reinforce and mainstream rural objectives to ensure that current rural disparities do not predicate digital inequalities.

In examining the potential of ICT for rural development, it is essential to recognise that *information dissemination* is a fundamental element of any rural development programme as rural areas are often characterised as information-poor.<sup>1</sup> The question is how ICT can be integrated into local knowledge and information networks to address locally identified knowledge gaps. With the emphasis on 'Information and Communications', the importance of context-driven and *indigenous* approaches such as projects that meet local needs, demand-driven content and local language mediums become obvious. In turn, issues of sustainability which involve factors of human capacity, social capital and best practise models also highlight the importance of leveraging the collectivist nature of rural communities to optimise the benefits of ICT for rural development.

In understanding the relationship between ICT and rural development, indigenous sensitivities and the question of sustainability is at the core of what Michael Gurstein refers to as *Community Informatics*, which, in the context of rural development, posits that:

'...access to ICT can provide a **set of resources and tools** that communities, and individuals living in communities can use **to pursue their goals**...It includes in the Developing Country context, how to **ensure** that individuals or communities may **make use** of the opportunities provided by ICTs'<sup>2</sup>

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\* The views expressed in this paper are those of the author. They do not necessarily represent the views of UNDP, the United Nations or any of its affiliated organisations, or the Government of Malaysia.

<sup>1</sup> Robert Chapman and Tom Slaymaker, *ICTs and Rural Development: Review of the Literature, Current Interventions and Opportunities for Action*, Overseas Development Institute, Working Paper No. 192, 2002. This is not to say that information and knowledge dissemination has been lacking in the past among rural communities as information sharing is central to daily life and often done on an informal and verbal basis in the absence of ICTs. What ICT has the potential to offer however, is the means to provide further value-add to existing tacit knowledge and a more efficient means of distributing non-tacit information.

<sup>2</sup> Michael Gurstein, 'Rural Development and Food Security: A 'Community Informatics' based conceptual framework for FAO' <<http://www.fao.org/sd/CDdirect?CDre0055c.htm>> 28 August 2003.

Community Informatics views ICT as a means to empower individuals and communities in rural communities through better access to information and knowledge. This information-based approach to rural development can provide benefits not only in terms of accessing information on agricultural practices, crop prices, weather conditions and animal husbandry, but also improve access to educational and health resources, promote gender awareness, improve governance and enhance inter-community networking.

With the concept of Community Informatics for rural development in mind, the paper will highlight the importance of people over technology (IC over T) through a discussion of enabling factors including participation, creative adoption of ICT and sustainability. In terms of maximising the development potential of rural projects, the paper calls for increased participation by rural communities and an indigenous approach to respond to community needs. In turn, at the post-implementation stage, the importance of knowledge-sharing and best practise models, and the necessity to build human capacity and strengthen social capital are essential follow-up mechanisms to ensure sustainability. This two-pronged approach to understand success factors at the project development and post-implementation stage will reinforce a better understanding of rural development where individuals and communities are presented with a *choice* to adopt ICT to enhance their economic and social well-being. While the importance of mainstreaming rural development issues in all areas of national development policies and the necessity for cooperation between stakeholders in the public, private and people levels is also acknowledged as critical success factors, the paper will focus on the role of people, or *community*, as drivers of rural development due to its centrality in Community Informatics.

To begin with, an important part of attaining economic and social betterment involves an active participation by beneficiaries in the project development process. In examining the concept of Community Informatics, the ideal of empowerment permeates ways in which ICT can be used by rural communities ‘to pursue *their* goals’. In pursuing development goals it is essential to ask who determines project parameters such as content and whether beneficiaries are consulted on their needs from the very beginning. This points to the very need to engage project partners and rural communities in dialogue to reach consensus on objectives which can increase the centrality of ICT in daily life because specific needs are accommodated.

The positive side of participatory approaches to empower communities to pursue self-determined goals can be seen with the Information Village Research Project managed by the MS Swaminathan Foundation (MSSRF). Begun in 1998 in Pondicherry, Southern India, the project connects 10 villages and attempts to empower rural communities beyond being a user of ICT to a becoming a manager of ICT programmes.<sup>3</sup> Communities are actively responsible for the development and dissemination of relevant content and databases in Tamil, management of the information and network, and the regulation and control of data. A second case study that involves the participation of rural communities

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<sup>3</sup> In each village, volunteers selected by the community run the knowledge centres. Training has been a major focus of the project enabling the volunteers to collect, create and disseminate locally relevant information in Tamil, and allowing the villagers to access useful information. For an assessment of MSSRF’s project in Pondicherry, see <[http://thinkcycle.media.mit.edu/thinkcycle/main/development\\_by\\_design\\_2001/reaching\\_the\\_unreached\\_the\\_use\\_of\\_information\\_communication\\_technologies/ReachingtheUnreached.pdf](http://thinkcycle.media.mit.edu/thinkcycle/main/development_by_design_2001/reaching_the_unreached_the_use_of_information_communication_technologies/ReachingtheUnreached.pdf)> 5 September 2003.

in designing specific objectives is seen in the Dhar District of Madhya Pradesh, India, through the *Gyandoot* project where a network of kiosks in the district are linked to district headquarters of the local government to provide information and services which are determined by villagers themselves.<sup>4</sup> Both case studies illustrate a consistent usage of ICTs in daily life because of the communities' involvement to create services which are relevant.

While rural development presents realistic limitations on the accessibility of new technologies like the Internet, this does not mean an end for the benefits of ICT to reach a majority of the rural poor. This points to the second area of Community Informatics in which ICT, as a 'set of resources and tools', can be interpreted as a general-purpose technology which has the potential to be complementary if a creative adaptation of available ICTs exists. Contrary to popular associations of ICT with only computer-mediated tools such as the Internet is the fact that its broader definition also includes long-existing mediums such as print-media, radio, telephone and television. In terms of development, discourse on ICT disparities have been largely obsessed with technological concerns relating to computer-mediated ICTs in terms of infrastructure, networks and connectivity, without acknowledging that communities can make the most of available ICTs to disseminate information.

The potential to adopt ICT in innovative applications in light of technological limitations is seen with Kothmale Community Radio where information is retrieved daily from the Internet and broadcast to 350,000 listeners in Sri Lanka in the local language of Sinhala or Tamil.<sup>5</sup> Community radio was established in 1989 to Kothmale in the central part of Sri Lanka, some three hours bus ride from the capital Colombo, and serves a 25 kilometre radius to cover neighbouring rural towns such as Gampola, Nawalapitiya and Thispane. While radio to date has served many development purposes such as the dissemination of information programmes on agricultural practises, rather than abandon radio for the Internet as a development channel Kothmale radio has blended the two media so that radio becomes an interface and intermediary between the Internet and its listeners requests which are submitted through letters, telephone calls or right in the studio. Using the radio as an interface is not only an appropriate use of complementary and available ICTs, but a reflection of the importance of taking into account the e-readiness levels of its community so that the Internet is introduced gradually and non-intrusively.

Turning once more to the Information Village Research Project managed by MSSRF in Pondicherry, weather forecasts downloaded from the US Navy's public website are broadcast by volunteers over loudspeakers to fishing villages on the Bay of Bengal for the benefit of fishermen who cannot read.<sup>6</sup> Another example of ICT as a malleable tool is Malaysia's Mobile Internet Unit (MIU) which has brought ICT skills training to rural students.<sup>7</sup> Taking into consideration the lack of resources for computer training to be offered at rural schools, these MIUs come equipped with multimedia equipment and trainers which illustrates the creative adaptation of ICTs. A final example on the theme of

<sup>4</sup> See <<http://www.sustainableicts.org/Gyandoot%20F.pdf>> and <<http://gyandoot.nic.in/>> 5 September 2003.

<sup>5</sup> See Kothmale Community Radio's portal <<http://www.kothmale.net/>> 7 August 2003.

<sup>6</sup> See <[http://ileia.test.kolibrie.net/2/18-2/28\\_30.PDF](http://ileia.test.kolibrie.net/2/18-2/28_30.PDF)> 5 September 2003.

<sup>7</sup> UNDP, 'Malaysia: Internet on Wheels', *CHOICES*, June 2000. Begun in 1999, the MIUs are equipped with personal computers, word processing, spreadsheet and Internet software, and peripherals such as digital headsets, cameras and laser printers.

appropriate ICTs is seen with the community-based group ACISAM (Association for Training and Research for Mental Health) in El Salvador which uses loud speakers and video recordings to raise community awareness on mental health issues to address the trauma of war and to rebuild communities.<sup>8</sup> These case studies demonstrate an innovative use of complementary ICTs, be they ‘new’ or more ‘traditional’, for rural development and the importance of adopting appropriately available technologies rather than those beyond reach.

While the importance of participation, indigenisation and creative adoption of available ICTs has been discussed, it is equally significant to focus on factors at the post-implementation period where best practise models, human capacity and social capital can determine the success of rural development projects. The issue of sustainability within the context of Community Informatics for developing countries raises questions on how to ‘ensure that individuals or communities may *make use* of the opportunities provided by ICTs’. A measure of any project’s success is not merely its rollout which is largely overshadowed by technological accomplishments, but more importantly, its sustainability at the post-implementation cycle. It would be shortsighted to focus only on a project’s rollout as it is people, and not technology per se, which affects sustainability.

In terms of best practise models, drawing on experiences enables projects to be *adapted* to avoid a total ‘reinvention of the wheel’. The key point here is the process of adaptation, rather than exact duplication as models must be indigenised to take account of available ICTs, the socio-economic contexts of rural communities (ie. their needs) and limitations such as funding and resources. Malaysia’s Mobile Internet Unit (MIU) project which was based on the Mobile Video Units (MVU) concept in Mali, Africa, is a case in point.<sup>9</sup> A second is the *E-Learning for Life* campaign, a joint partnership by Coca Cola, UNDP and the Malaysian Government which established six ICT hubs Malaysian schools. As a result of its success the campaign will be replicated in Bolivia and across Asia and Africa in due course.<sup>10</sup> More recently in Malaysia where the pilot project was initiated, Apple Malaysia launched their own *ELFL* campaign in five primary schools based on Coca Cola’s initial campaign. In the spirit of knowledge-based development, drawing on previous models that provide useful learnings are conducive to driving a multiplier effect in the long-term, which, in measuring sustainability and reach, can be used to gauge success. In turn, pilot projects such as the *ELFL* also demonstrate the importance of pilot projects to act as catalysts for further replication and working examples of ICT working in development projects.

Human capacity is also an integral component for sustainability and can be understood as a continuous process of providing and maintaining human resource development opportunities in the form of ICT training and skills. More than just an ad hoc and one-way learning process, human capacity involves a synergistic relationship and balance between people’s *access* to development projects and their *know how* to optimise the

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<sup>8</sup> See <<http://www.sustainableicts.org/ACISAM%20F.pdf>> 5 September 2003.

<sup>9</sup> UNDP, ‘Malaysia: Internet on Wheels’, *CHOICES*, June 2000. The MIUs concept came from Mobile Video Units in Mali, Africa, which travelled throughout rural communities in a bus with a mini theatre or truck equipped with a television to broadcast education programmes on community development issues such as agriculture and HIV/AIDS.

<sup>10</sup> See <[http://www2.coca-cola.com/citizenship/education\\_asia\\_digital\\_divid.html](http://www2.coca-cola.com/citizenship/education_asia_digital_divid.html)> 5 September 2003.

benefits.<sup>11</sup> Human capacity is driven by human interaction and networks to provide an increased flow and consolidation of knowledge capital and a multiplication of knowledge-sharing in the form of training. Cameroon's Association for the Development of Women and Health (FESADE) is an excellent example of the strength of human networks as intermediaries and multipliers of knowledge for human capacity where members train more than 36 women's groups in other localities upon receiving ICT training and health and education-related information themselves.<sup>12</sup>

Related to human capacity is the importance of infostructure so that *know how* can be encouraged and motivated by relevant content and applications which are demand-driven, take into consideration local language needs and suitable delivery channels in light of e-readiness levels. In the case of Technology Access Community Centres (TACCs) which are sponsored by UNDP in Egypt, ICT is being introduced to train low-income groups and individuals about access to information needs such as agriculture, health and education – areas which are *relevant* to their daily lives.<sup>13</sup> Incorporating as much Arabic content as possible, the three pilot telecentres in the governorate of Sharkeya have individuals who access information on farming practises and health information. To keep the project relevant, UNDP aims to train more individuals to develop Arabic content to expand the reach of the Internet to non-English speakers and ultimately, to make the Internet and its content more meaningful.

Also related to human capacity is the last factor of social capital, or what was termed *human infrastructure* in Writing 1 on *ICT and Development*, which is based on how effective people are in evangelising projects to ensure their sustainability. While much attention has been placed on physical infrastructure in the past, the concept of social capital involves the centrality of human networks and project champions to jumpstart development projects and more importantly, maintain their lifespan. To put it in simple terms, physical access to ICTs does not guarantee meaningful access to information or the sustainability of projects unless project champions or intermediaries within the social network in which ICTs are introduced have strong social ties with their beneficiaries so that trust, public opinion and support can be garnered to motivate people's usage of ICTs. There are thousands of projects worldwide which demonstrate how individuals have championed and maintained small-scale projects with powerful results,<sup>14</sup> with one of the most popular being the Grameen Bank.<sup>15</sup> These 'Philanthropic Entrepreneurs' are important conduits in identifying, acting on and continuing social programmes at the grassroots level.

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<sup>11</sup> At the most simplistic level, there is no point to build a community telecentre equipped with the latest technological offerings if people are not taught ICT literacy skills or even aware of its benefit to their daily lives, hence, the significance of participatory approaches for rural development discussed at the outset.

<sup>12</sup> UNDP, 'Cameroon: Information Empowers Women', *CHOICES*, June 2000.

In Cameroon, FESADE rely on their network of 300 members to identify areas of ICT which can be applied to people's daily lives. Individual members who regularly travel for Internet seminars and training workshops later return to share their learnings with more than 36 women's groups across several localities.

<sup>13</sup> UNDP, 'Egypt's Cyber Cafes for the Poor', *CHOICES*, June 2000.

<sup>14</sup> See Development Gateway's *ICT for Development* portal and UNDP's 'Stories from the Field' portal for an overview of development projects at the small-scale level which feature grassroots participation.

<<http://www.developmentgateway.org/node/133831/?>> and  
<<http://sdnhq.undp.org/it4dev/docs/stories.html>> 7 August 2003.

<sup>15</sup> See <<http://www.grameen-info.org/index.html>> 7 August 2003.

Social capital is an important driver of development projects simply because there is a close linkage between interpersonal relations and social development. The centrality of interpersonal relations that people have with their community can influence the extent to which development projects are embraced or abandoned as social capital also involves the cultural norms, rules and expectations that exist in a neighbourhood, community or society.<sup>16</sup> In terms of the introduction of ICTs to rural communities where social capital is paramount to everyday life, the challenge is how to ensure that intermediaries and influential members have the capacity to evangelise, convince or promote the rationale behind ICTs to benefit their livelihood. The *Gyandoot* project is a case in point, where community-based planning and consultation with the villagers' needs were undertaken to build support for the village kiosks so that content and services mirrored their needs. Once these baseline studies were undertaken and the project launched, two-thirds of the users belonged to the same village in which the kiosk was set up while one-third approached the kiosk from nearby villages. However, within a span of six months, half of the users started coming from nearby villages as the interplay of social capital among those who have traveled to use the kiosks was spread to other villagers to promote the benefits of accessing kiosks for information. In short, word-of-mouth from influential and respected village members was a driver behind increased kiosk usage.

While the ideals of the Community Informatics approach has been actively endorsed by development practitioners, no uniform guidelines or benchmarks exist to measure its success in terms of its multiplier effects, quality of services, level of transparency, extent of equitable distribution and degree to which members of a community experience an improvement in their lives. However, just as it would be presumptuous to assume that one model fits each and every development project (given that each is unique and driven by context specificities), the same would apply in using the same benchmarks to measure a project's success. What is more important in the context of Community Informatics is that because of its focus on *people*, a more relevant measure of success should be based on subjective and qualitative observations from primarily the point of view of beneficiaries since they experience firsthand the extent to which ICT has positive, negative or neutral affects on their lives. Immense challenges remain for rural development as a whole, but a participatory approach engendered from the bottom-up provides a more sanguine view that ICT-enabled projects can improve livelihoods if specific community needs are mirrored with relevant outcomes.

The critical success factors at the project development and post-implementation stage ultimately reinforce the importance of *people* as drivers for sustainability in light of rural development being largely information-based and dependent on a synergistic interaction of participatory approaches, human capacity-building and social capital which are central to Community Informatics. What becomes evidently clear in the study of Community Informatics for rural development is the *community* component which stresses a collective and decentralised approach in the decision-making process. At a more subjective and qualitative level, there is the ideal and belief that a delegation of responsibility will encourage more ownership by rural communities to initiate and maintain development projects. With the focus on people rather than technology, participation and involvement ensures that demand-driven objectives and content are accommodated and have enough *relevance* for people to regard ICT as beneficial in their daily lives, and hence, are important enough to ensure its sustainability.

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<sup>16</sup> Mark Warschauer, 'Social Capital and Access', *Universal Access in the Information Society*, 2 (4), 2003.

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## ICT and Women

Sharon Y.P. Lim \*

The promotion of gender equality and the empowerment of women are pledged as one of eight areas essential for sustainable human development under the United Nations Millennium Development Goals. Gender, and more specifically *women* as a grouping, is one of many social variables such as race, age, income, class and geography which when combined, affect an individual's life chances and opportunities. The increased emphasis on Information and Communications Technology (ICT) for human development is also matched by the growing recognition to reinforce and mainstream gender issues to ensure that women, particularly in developing countries, do not encounter a *double divide* whereby current gender inequalities translate to digital inequalities.

Understanding the relationship between women and ICT, as with other studies on human development, is full of intrinsic inequalities, challenges and opportunities. Women form the majority of the poor, have less access to basic resources, are economically disadvantaged, have lower literacy and education levels and experience gender discrimination and gender-related constraints. ICT is characterised by its own inherent challenges in terms of unequal access and adoption, infrastructure and cost, and more importantly, how ICT can be used appropriately to create meaning to people's lives - challenges which are influenced by social variables such as gender. The juxtaposition of 'Women' and 'ICT' in the same analysis presents further challenges on how to simultaneously reduce gender disparities and ICT barriers for equitable development.

In discussing women and ICT several questions are raised. What is the relationship between gender and ICT? Is ICT really the *equaliser* it is supposed to be, or is it the case that being *equal* does not necessarily translate to being the *same*? Is gender equality in common literature and thinking synonymous with only women's rights over men's?<sup>1</sup> By their very exclusivity, do ICT programmes tailored for women's needs marginalise other social groups such as men, youth, the disabled or the elderly? Are we at risk of homogenising the female experience in terms of ICT access, adoption and know-how? Are gender issues, namely women's issues considered when setting national ICT policies and policy processes as a whole? These issues highlight the relationship between women and ICT as a complex dynamic of challenges and contradictions despite the social good that ICT has the potential to achieve.

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\* The views expressed in this paper are those of the author. They do not necessarily represent the views of UNDP, the United Nations or any of its affiliated organisations, or the Government of Malaysia.

<sup>1</sup> Due to the unequal position of women vis-à-vis men in both developed and developing societies, gender has become synonymous with women's issues of empowerment and socio-economic and political suffrage. It is rare, if not at all, to juxtapose gender and men in any analysis as opposed to grouping gender and women under the same umbrella as is often the case.

The paper argues that an urgent need to seek the right balance between ICT programmes for development and women as their beneficiaries is the concern of *all* society. Underlying the discussion is the necessity to adopt gender-sensitivity in the favour of women to optimise the potential for ICT to be meaningful in their lives. In the dichotomous relationship between men and women it is women who are generally less empowered as evidenced in indicators related to most social, economic and political factors. Growing evidence points to the correlation between empowering women and its benefits towards human development as a whole, which raises concern over the negative affects of gender on human development if women's needs are ignored or overlooked in the policy-making process.<sup>2</sup> Gender inequalities in basic rights, health, education, access to resources and participation in public life affect both men and women, with ICT being no different in terms of its potential for human development. While there is potential to view this gender-sensitive and female-centric approach as exclusionist by its very selectivity of women as a priority concern for ICT and development, efforts must be made to alleviate any possibility of women facing a double divide.

With these issues for consideration it is important to discuss the relationship between *gender and technology* by examining what we actually mean by gender and the social constructions of masculinity and femininity. Unlike biological differences between males and females which are classified as sex, gender is a social or cultural construct of socially learned and expected behaviours between men and women. The most common ascription of gendered roles see men associated with public life and paid employment and women in private life in the home as homemakers and mothers.<sup>3</sup> The arguments for the development and reinforcement of gendered roles based on biological and social contexts within society is complex and has had significant implications on socio-economic and political opportunities for women at the societal level.

Remembering that gender is a subjective *social and cultural* construction of norms ascribed to men and women, do we also in turn construct masculine, feminine or neutral associations towards such 'inanimate' objects as *technology*? Is there such a thing as a gendered interpretation of technology and if so, does it really matter in addressing the Digital Divide experienced by a majority of women? In writing on gender policy gaps in Australia, Dr Supriya Singh examines the relationship between women and technology in which technology is regarded as *masculine* through its association with science as a traditionally 'male' domain.<sup>4</sup> The somewhat scientific basis of technology can be a psychological barrier due to its connotations of being incomprehensible, technical and impersonal for most women. While women view technology as a *tool for activity* rather than a quest to become a *master of technology* as is often the case with men, the whole process of technology access and adoption has different meanings for men and women.<sup>5</sup>

<sup>2</sup> See World Bank's publication on gender and development  
<<http://www.worldbank.org/gender/prr/ch1.pdf>> 20 August 2003.

<sup>3</sup> Other gendered roles in their very simplicity for the purpose of illustrating gender dichotomies are men as individualistic, women as collective, men as non-communicative, women as communicators, men as doctors, women as nurses, men as strong, women as weak. While men and women display their own sets of masculine and feminine traits these characteristics are not entirely homogeneous within each group nor are they exclusive to either men or women.

<sup>4</sup> Supriya Singh, 'Gaps in Policy Formulation on Gender Sensitivity in Australia and in the MSC', in Azizah Hamzah et al, eds., *International Forum on Women in the New ICT Era: Challenges and Opportunities*, Kuala Lumpur: UNDP, 2001, pp.95-117.

<sup>5</sup> That is not to say that there are no women who are inclined to master technology nor are then men who fear it as individual inclinations towards technology are sometimes independent of gender.

Put simply, once women become comfortable with technology as with the telephone, it is no longer seen as technology.

So what does this imply for women and their relationship with ICT? It is acknowledged that women are generally on the negative side of the Digital Divide as a result of existing socio-economic inequalities.<sup>6</sup> If men and women face different barriers when accessing ICT and have different *perceptions* towards ICT as a whole, be they because of certain behavioural, cultural or social contexts, is it not important then to adopt a gender-based sensitivity to make ICT more meaningful, inclusive and relevant to women's needs? This context-sensitive approach was introduced in Writing 1 on *ICT for Development* whereby development projects are only as successful as the meaning and value attached to it by its beneficiaries. In the discussion on women and ICT, any meaningful effort to address women's needs must take into consideration gender dynamics such as preferred learning and communication styles to emphasise the 'IC' component of the ICT tripartite instead of the 'T' side. This is particularly the case as women are generally more focussed on the *activity*, that is, ICT as a *tool* to achieve a certain end, rather than the *technology* or expert technical knowledge behind it.

Within this gender and technology dynamic which posits the different relationship women have with technology lies the importance of gender-specific programmes for women. Cameroon's Association for the Development of Women and Health (FESADE) is an excellent example of adopting human networks with gender-specificity through the emphasis on the 'IC' component which is resonant to women who generally favour personal communication styles. In this programme, the train-the-trainer concept works effectively for members who train more than 36 women's groups in other localities upon receiving ICT training and health and education-related information themselves.<sup>7</sup> Another example of ICT being gender-specific is the Self Employed Women's Association (SEWA) in India which is a movement promoting economic self-reliance and employment for women.<sup>8</sup> Through group sessions and personalised coaching, SEWA has provided customised software development and ICT training to semi-literate rural women to increase the efficiency of micro-level enterprise activities such as village embroidery, agriculture, incense, gum and salt. These two examples illustrate a gender-specific approach to introducing ICT to women where community and information-sharing is used as an appropriate conduit to introduce ICT as opposed to relying on purely technical means.<sup>9</sup>

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<sup>6</sup> A disproportionate rate of women accessing and adopting newer ICTs such as the Internet and PC worldwide vis-à-vis men exists (although technologies such as TV, radio and telephone are widely used between both groups). In terms of the ICT industry and labour, an evident segregation of labour exists where a high concentration of women are found in low-skilled, high-risk manufacturing, but are lowly represented in high-skilled, non-manufacturing positions. It must be noted however, that women are not a homogeneous group and that differences exist between women based on variables such as geography, race, income and education which contributes to the ICT bias favouring some women over others (eg. urban professional female compared to rural low-skilled female to use a simplistic scenario).

<sup>7</sup> UNDP, 'Cameroon: Information Empowers Women', *CHOICES*, June 2000.

<sup>8</sup> See SEWA's website <<http://www.sewa.org>> 20 August 2003.

<sup>9</sup> See also UNESCO's publication on knowledge centres managed by women in Pondicherry Village, India, which have attracted a higher number of women users compared to other centres due to their gender-specific strategies

<<http://www.unesco.or.id/apgest/pdf/india/india-bp-it.pdf>> 21 August 2003.

While these grassroots examples at the micro level highlight the effectiveness of gender approaches to ICT, it also raises the question of the extent to which gender sensitivity is considered across all forms of policy-making at the macro and micro level. This is important because within the context of development, gender relations and roles tend to determine policies which influence investments in human capital, labour division, and access to and control of productive sources between men and women.<sup>10</sup> Due to the general-purpose nature of ICT and its potential to be applied across all development areas, gender sensitivity in the policy-making process must firstly be entrenched in fundamental policy areas where ICT is applicable for human development such as health, education, employment, politics and rural development. In other words, gender and women's development issues need to be holistic and covered in all policy areas to create conditions that are conducive for the introduction of ICT.

As with most issues dealing with ICT, the 'T' side has overshadowed the 'IC' component, macro frameworks over micro considerations and access over 'know-how' in the hurried bid to establish some form of policy direction which has resulted in the absence of any constructive gender-sensitive approach. This is where the issue of gender mainstreaming<sup>11</sup> is important for policy-making as a whole in which gender equality is regarded as a primary goal in all areas of social and economic development. As it is women who are mainly disadvantaged and have been discriminated in the past, mainstreaming in popular discourse has involved more emphasis on gender-specific activities and affirmative action in situations involving women. The social ideal of gender mainstreaming is important within the context of ICT policy to ensure a pro-active approach towards policies which have been largely reactive or non-existent in the past.

In the realm of ICT and development, there is a greater need to implement gender guidelines in the form of performance indicators to measure the impact of ICT in women's lives. As a standard practise to encourage an active participation and contribution of women to ICT, a combination of appropriate *quantitative* and *qualitative* indicators should be adopted to provide a frame of reference in evaluating the impact of ICT on development goals. While quantitative targets such as quotas are statistically-driven and relatively straightforward to interpret, qualitative targets from a gender perspective are more subjective and perception-based in understanding the long-term effects of ICT on gender roles, women's access to ICTs and how to respond to practical gender needs.<sup>12</sup> Gender guidelines are important in terms of ensuring their explicit consideration in policy planning so that ICT can be *genderised* or *feminised* to take

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<sup>10</sup> <<http://www.worldbank.org/gender/prr/overview.pdf>> 20 August 2003.

<sup>11</sup> The concept of gender mainstreaming was established as a global strategy for promoting gender equality in the Platform for Action adopted at the United Nations Fourth World Conference on Women, held in Beijing, China in 1995. In July 1997, the United Nations Economic and Social Council (ECOSOC) defined the concept of gender mainstreaming as 'the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in any area and at all levels. It is a strategy for making the concerns and experiences of women as well as of men an integral part of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres, so that women and men benefit equally, and inequality is not perpetuated. The ultimate goal of mainstreaming is to achieve gender equality.'

Source <<http://www.ilo.org/public/english/bureau/gender/newsite2002/about/defin.htm>> 21 August 2003.

<sup>12</sup> See ESCAP's study on *Issues, Policies and Outcomes: Are ICT Policies Addressing Gender Equality?*, New York: United Nations, 2002.

account of women's relationship with technology and social and economic issues as a whole.

Adopting gender guidelines must also begin with creating greater gender and ICT awareness within the Public, Private and People levels to highlight issues specifically affecting women's appropriation of ICT. With awareness-raising and dialogue at all societal levels it is important to include a participation of both men and women, ICT providers and government and the private sector since gender mainstreaming concerns all segments of society. In the area of gender relations this is particularly important to avoid any marginalisation between men and women or any kind of exclusivity due to the focus on women. While such a task seems monumental in its undertaking, there are opportunities to introduce gender guidelines in developing countries where ICT frameworks are still largely non-existent or in their infancy if gender mainstreaming becomes a joint advocacy between the Public, Private and People levels.

At the outset this paper asked many competing questions concerning the relationship between women and ICT. The fact that there are no broad brushed solutions is indicative of the fact that issues on women and ICT are dependent on different cultural dynamics and contexts. The relationship between women and ICT varies just as much within their own grouping as they do between men, making it necessary to adopt sensitivities towards the treatment of gender and finding relevant (and meaningful) channels to introduce ICT. We have seen that gendered interpretations of technology are largely associated within the masculine domain which has implications on women's relationship with technology and how technology should be introduced to maximise its usage and relevance among women. The collective approach which facilitates communication, interaction and socialisation should be taken into consideration over individualistic approaches to ICT when promoting its adoption among women.

The context-sensitive approach also suggests that while ICT has been positioned as the all-round equaliser, being equal is *not necessarily the equivalent* of being the *same*, and in the case of women and ICT this means developing relevant strategies to *suit* their specific needs. Equality is a relative term where ICT should be viewed in less prescriptive and universalistic terms as women, as do individuals regardless of gender, have different experiences and relationships with ICT which are dependent on many variables such as age, education, income and geographic locale. As a multipurpose tool, ICTs represent a range of possibilities so that relevant ICTs which take into account available technologies, skill sets among women and the community's social network can be appropriately introduced.

If gender mainstreaming can be migrated and integrated into existing policies there is hope that ICT can reach and benefit a greater number of women in achieving development goals. While there is potential for the segregation of women's rights over other societal groups such as ethnic minorities, senior citizens and youth, affirmative action policies must be entrenched in all areas of policy development to address women's needs as they form the majority of the global poor despite their important place in society. The potential to maximise the adoption of ICTs among women is very much dependent on existing non-ICT indicators such as demographics and socio-economic position which suggests a strong correlation between gender mainstreaming in all policy areas and ICT uptake among women. ICT as a development tool to benefit women is

therefore very much dependent on existing policy frameworks and the extent to which they address or overlook women's needs, so that any effective introduction of ICTs must take into consideration the fundamentals of policy making which adopt a gendered approach from the very beginning.

## ICT and Governance: *Tana Otsustan Mina* (*Today, I'm Deciding*)

Sharon Y.P. Lim

The juxtaposition of the prefix 'Electronic' with the noun 'Government', otherwise known as *e-Government* in ICT parlance, implies an appropriate balance between technology as a tool to improve good governance by increasing the opportunities for interactions and dialogue between the government and those it serves, and an alternative channel for citizens to access government services, and participate in the decision-making process which strengthens the fundamental existence of governments to govern in a transparent, open and accountable manner.

The World Bank defines EG as the use by government agencies of information technologies that have the ability to *transform relations with citizens*, businesses and other arms of government so that a variety of different ends such as the better delivery of government services to citizens, improved interactions with business and industry, *citizen empowerment through access to information* or more efficient government management can be met. EG is therefore a process of reform in the way governments interact with the people they serve. While current discourse on EG and its potential for development has focussed on the relationship between Government-to-Citizen (G2C), EG also involves Government-to-Business (G2B), Government-to-Government Employee

(G2E) and Government-to-Government (G2G). While all four types are important for EG, in the context of ICT for development, the G2C, G2E and G2G stand out as significant actors to ensure the successful rollout and acceptance of EG.

As with all major themes concerning ICT for development, EG is more than just a technological exercise but a long-term programme which must focus on people in terms of creating awareness, securing trust, ensuring appropriate e-readiness levels and promoting the participation of its citizens. The focus on citizens as the main beneficiaries of EG necessitates a citizen-centric approach which provides services and government access points which are demand-driven through open consultation. This underpins the G2C approach and one which is driven by relevant services and appropriate content.

On the government front in terms of G2E and G2G, e-Government involves a significant process of administrative reform, from a re-evaluation of workflows within government departments to greater inter-ministerial cooperation to achieve consistency, the establishment of appropriate legal frameworks, the address of ICT literacy skills among government employees, the shared acceptance and ownership of EG strategies and the necessity of strong

leadership to drive its implementation. The co-existence of citizens and government actors points to the cultural dimensions of EG which looks at current interactions with government and internal work cultures of governments who must be willing to operate within an environment which becomes less hierarchical, transparent and open to public scrutiny.

Of course, EG has different meanings to different people, with each country embarking on customised programmes which address their citizens' needs that are dependent on demographics, infrastructure, political contexts and e-readiness levels to name a few variables. EG in India would have different strategies, circumstances, delivery channels and service maturity from EG initiatives in Malaysia or Estonia for example. EG developments would be different from the top five EG countries surveyed in Accenture's *eGovernment Leadership Report* (2001) that included Canada, Singapore, the United States, Norway and Australia, to countries like Sudan, Bhutan and Afghanistan. Despite varying levels of EG readiness between different countries, they all share the fundamental need to focus on the needs of the people they govern because at the end of the day, the return on investment for EG is not just about improved government administrative costs, however important and integral this may be for EG implementation, but about *citizenship satisfaction* with the government who represents, listens and addresses their needs.

The case of Estonia's EG development warrants attention at this juncture, as their vision to become an information society following the collapse of the

Soviet Union has been impressive. Estonia's drive to become an information society with its emphasis on EG had its roots in 1997 through a national campaign launched by President Meri to create public Internet sites and cyber visitor centres. This campaign to wire the small nation of 1.5 million was code-named 'Tiger Leap' to address the issue of developing Estonia's human capital in light of its limited natural resources and negative population growth. Estonia now has an Internet penetration rate of 45% which is higher in relative terms than more developed European nations such as France and Italy. Estonia is also ranked eighth out of 82 countries in terms of e-readiness in the *Global Information Technology Report* (2003) released by the World Economic Forum, an interesting feat considering that its GDP is one-third of the European Union average and its human development index ranking is 41 in the United Nations Development Programme's *Human Development Report* (2003).

**'Estonians had been disconnected for so long...The Tiger Leap programme is not simply about surfing the Internet. It's about access to information. It's about democracy.'**

Petra Lantz-de Bernardis, UNDP Resident Representative in Tallinn (cited in UNDP's Choices magazine – June 2000)

In 2000, more than 280 public services were made available online, with the Ministry of Finance posting daily accounts on the web and Estonians able to submit their taxes online. In March 2003, the Estonian Government launched their bi-lingual Russian and

English EG portal branded the ‘Citizen’s IT Center’, serving as a one-stop shop for online government services. Estonia is also known for its e-Cabinet, where government cabinet meetings are held online without the use of paper documents, and an e-democracy website called ‘Tana Otsustan Mina’ or ‘Today, I’m Deciding’, which enables citizens to comment on draft bills and provide their feedback on legislation and other issues.

Some of the reasons given for Estonia’s successful transition to the information society are based on *people* as actors of change, and not ICT per se. Based on people’s desire to obtain better living standards than what they had under the Soviet Union led to a general consensus on the need to embrace ICT for development. The commitment of the political elite, budget allocations and President Meri’s support were also driving forces. The creation of an IT advisor position in the government to attend cabinet meetings to guide the country’s ICT course is also an indication of the importance of strong political support.

Consultation with Estonians on their needs led to their increased contact with government and their participation in the decision-making process to garner support and ownership of the EG programme. Meanwhile, the early correlation between ICT deployment and public administrative reform led to changes in administrative procedures and government work culture. Lastly, the shift in thinking from the concept of information technology to the concept of *information society* enabled the government to break away from the highly entrenched technology driven

paradigm to one driven by people to gain support for EG.

While the delivery channels for EG in Estonia is predominantly online and its service maturity is in the medium to high range, EG in the Dhar district of the Central Indian state of Madhya Pradesh, relies on public kiosks to achieve the same EG ideals in a region which is poverty-stricken and marginalised from ICT and the political process in terms of the delivery of basic human services. Begun in January 2000, the *Gyandoot* project in the Dhar district of Madhya Pradesh has involved the installation of 31 low-cost Intranet-based kiosks covering 311 *Panchayats* (village committees), over 600 villages and a population of half a million. Under the leadership of Shri Digvijay Singh, Chief Minister of Madhya Pradesh whose mantra is to involve the participation of people in governance for sustainable socio-economic development, Gyandoot has been championed at the highest level.

Gyandoot in Hindi means ‘purveyor of knowledge’, and in order to address the knowledge needs of the Dhar district the project began with community-based planning to investigate their information and service needs. A range of services such as agricultural produce auction rates, copies of land records, online public grievance redress, information on government programmes and ‘ask an expert’ sections for information on relevant topics such as child labour, child marriage and illegal possession of land are offered. Agricultural produce rates, land records and grievance services have been the most popular, making up some 95% of all services accessed through the kiosks. Some

examples of better governance through these kiosks include the bringing of drinking water to a tribal hamlet of 39 households following an online complaint costing Rs.10, the vaccination of 256 milch animals in one day following an urgent email alert, greater trust for government and increased computer literacy.

**‘I sold my cow in the digital market’**

A villager in the Dhar district who used the Gyandoot community kiosk to sell his cow which he had difficulty selling in the past.

Taking into consideration the rural context of Gyandoot’s circumstances, it was no surprise that village kiosks were adopted to ensure equal access for the rural poor on a cost-effective, timely, replicable and financially viable model. To promote a grassroots entrepreneurial approach, self-employment by local youths to run these kiosks were encouraged as user fees are charged. The use of village kiosk centres also built on existing community networks by establishing a common meeting point to make the kiosk concept familiar to villagers so that existing socialisation patterns and people-based community networks rather than individual approaches were emphasised. The community network approach through these village kiosks is also intended to advance social goals, build community awareness, encourage involvement in local decision-making and develop economic opportunities.

Despite the different circumstances and EG models between Estonia and the Dhar district, similar themes underlie both models. The first is improved

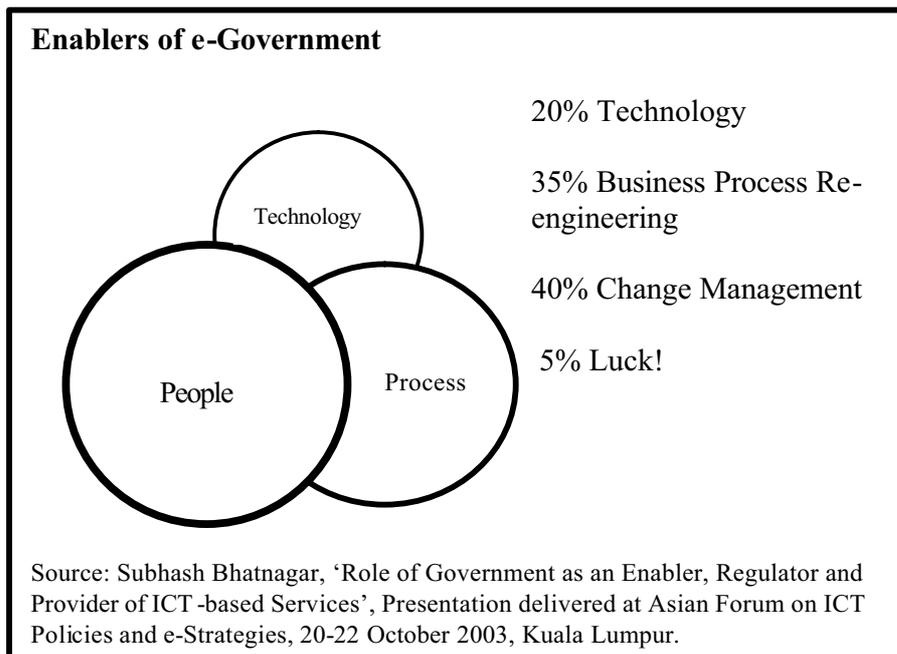
interactions between citizens and government and increased access to government through alternative channels provided by ICT. Aside from forging closer links to government, citizens have better and timely access to information content that is relevant to their needs which raises the promise of digital democracy to allow people to make better-informed choices.

Related to digital democracy is also the broadening of public participation in the decision-making process which is encouraged under EG initiatives, be it the submission of public grievances in Gyandoot or opinions concerning new legislature in Estonia. Public consensus was especially notable in Gyandoot where community participation was sought to determine the scope of services required to make EG relevant to encourage its sustainability in the long-term.

Strong political leadership, also known as project champions featured as driving evangelisers of EG and its potential to address development needs as did inter-ministerial cooperation to consolidate government services into a one-stop shop for Estonians to access their Citizen’s IT Center and the Dhar villages to tap into different local government services. On another level, EG has reduced the spread of corruption due to the relationship between ICT and corruption which posits that an increased reliance on ICTs will bring about a reduction in the level of interaction between a citizen and an official to lessen the opportunity to solicit a bribe. Moreover, as electronic transactions are characterised by checks and balances, detecting anomalies is faster and more apparent.

Of course, before the adoption of EG initiatives can take fruition, the necessary condition to focus on people, their access to information and a government's responsiveness in the *offline* world must already be substantial as the transition to EG in the online world is more about transforming a government's relationship with its citizens than it is about adopting technological tools. The equation of EG with self-service in varying degrees, puts the onus on the citizen to seek information to make informed decisions affecting their livelihood which leads to the concept of citizen empowerment through the accumulation of knowledge.

The accessibility of government services, information and assistance via EG delivery channels becomes more of a two-way relationship between government and citizens so that an indicator of a government's effectiveness rests with citizen satisfaction. With the focus on demand-driven content and administrative reform rather than technology, EG will have a greater chance of success. One perhaps should think of EG as 'G4C' rather than 'G2C', moving away from prescriptive notions of EG to one which is citizen-centric and **for** the people.



## Open Source Software and Development: Should developing countries be *open* to the idea?

Sharon Y.P. Lim

With its roots beginning in the 1980s, the open source software community has gained steady momentum over the last decade with the popularity of Linux driving its gradual mainstream acceptance. Based on the ethos of peer review, constructive feedback and a decentralised approach to software development, open source can be understood as applications and operating systems whose source codes are open for other parties to review, comment, refine and add to. This is in distinct contrast to proprietary and closed software development environments of incumbent players like Microsoft where software development is characterised by protected source code, centralised control and revenue generation models. Whereas open source's mantra to 'release early and release often' is driven by a development environment that encourages efficient software refinement, proprietary software's closed system delays responsiveness to market demands because peer review is limited which translates to longer gestation periods between new releases.

While the antipodal relationship between open source and proprietary software has many commercial implications, within the non-commercial context of ICT for Development (ICT4D) projects, open source provides a welcome alternative in efforts to increase ICT usage and

adoption in a majority of the world's developing countries. Some of the benefits of open source in relation to ICT4D and its advantages over proprietary software include cost, compliance with Intellectual Property Rights (IPR), localisation of content, quality, knowledge-sharing and security.

**... in the Vietnamese context... the cost of proprietary systems such as Microsoft is \$560 - the equivalent of 1 year 3 month's salary for the average Vietnamese... it would be the equivalent of expecting the average American to pay \$38,000 for the same version.**

In terms of cost, open source is a cheaper alternative compared to proprietary systems. Due to the removal of cost barriers such as the absence of licensing and continuous software upgrades as seen with proprietary systems, and the fact that open source systems do not need to be run on best-of-breed equipment, maintenance costs in the long-run are more favourable.

The most compelling cost factor in terms of licensing can be seen in the Vietnamese context where the cost of proprietary systems such as Microsoft (Windows XP plus standard version Office) is \$560 - the equivalent of 1 year 3 month's salary for the average Vietnamese. In a developed country

context like America, it would be the equivalent of expecting the average American to pay \$38,000 for the same version. In developing countries which range from the very poor to intermediate poor, such cost savings could be better spent on basic necessities such as food, shelter, health and education while basic ICT projects using open source to accompany these priorities are jumpstarted.

Based on the fact that most people in developing countries do not and cannot afford to pay for legal software, piracy has become a common practise to the chagrin of proprietary vendors. In developing countries which experience high levels of piracy, open source is a suitable alternative to meet IPR compliance while having access to affordable applications. In simple terms, it is difficult to pirate free software.

Localisation of content is also an important selling point of open source given the golden rule in ICT4D that content must be relevant and meaningful to beneficiaries through the incorporation of local language and content. Proprietary incumbents such as Microsoft who are revenue-driven are unable to accommodate all local language capabilities because a majority of the world's markets are considered too small to justify return on investment in software localisation efforts. There are 8,500 languages worldwide, with only 24 languages localised for Microsoft 2000. The opportunity to adopt open source to localise language and content independently and in response to beneficiaries' needs is reflective of open source's flexibility to encourage efficient software creation and refinement. Thailand's SchoolNet pilot is a case in

point where the Thai language has been successfully documented using open source.

Quality is another area deserving attention in open source due to the peer review environment which creates the opportunity for friendly and mutually beneficial competition, since reputation is important in this development community, to develop better code collectively. The second mantra of open source, 'given enough eyeballs, all bugs are shallow', is important for developing countries who with already limited resources and budgets must invest in software which is robust, delivers results and is as problem-free as possible. Proprietary models which concentrate on revenue generation rather than bug fixing is not really in the interest of developing countries as technical glitches require more resources to fix in the long-run.

<p><b>There are 8,500 languages worldwide, with only 24 languages localised for Microsoft 2000.</b></p>
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The whole ethos of knowledge-sharing which drives the philosophical pillars of open source has been achieved through dedicated online communities made up of like minded volunteers who engage in reciprocal peer review to improve programme design. In terms of project set-up for developing countries which choose open source, it is not uncommon for a majority of development and localisation to be carried online overseas, thereby addressing skill shortages which are inherent in developing countries. Where development is managed in-market, there is always the option to seek assistance online from other developers

and hence, the benefit of knowledge-sharing that open source provides.

Open source solutions also have security benefits in terms of reducing the dependency on foreign proprietary products to store and disseminate sensitive information. Knowing what goes into software development is a growing selling point among governments in developing countries in efforts to protect sensitive information which is being increasingly stored on computer networks. This provides the opportunity for developing countries to develop customised solutions through access to open code which also encourages local skills-based and industry development. Related to security and quality code is the stability of open source systems such as Linux which are virus-free and very secure. Once more from a cost and maintenance perspective, developing countries are able to maximise their limited resources for greater return.

Given the benefits of open source, a number of notable projects have taken place in developing countries. Ganesha's Project in Nepal aims to bring ICT training to children living below the poverty line by using open source software like Linux on donated computers. Aside from cost savings due to the absence of licensing, the choice of Linux is based on the reality that the computer infrastructure in Nepal must remain as functional and reliable as possible. After all, a country like Nepal does not have the luxury of upgrading its software and hardware components as often as one might do in developed countries. The robustness of the Linux platform, its ability to run on computers which would be considered outdated by

'TechTV' standards and the absence of viruses have made open source a good choice for Ganesha's Project.

Along similar lines to Ganesha's Project, the Goa Schools Computers Project (GSCP) in the former Portuguese colony of Goa in India aims to provide labs to all secondary schools in the district. As the first project in India to use open source, the adoption of low-end recycled computers using the Linux platform has provided a feasible alternative to sustain the project. With an average lab containing at least 8 Internet-enabled computers at an average unit cost of \$35, an entire lab can be built for only \$500 compared to higher costs experienced elsewhere. Similar projects in Pakistan and Africa to adopt recycled computers or build low-cost computers running on open source platforms have also been witnessed.

A further example of the adoption of open source for development can be found with the Simputer (Simple, Inexpensive, Multilingual People's Computer) which runs on open source software that supports text-to-voice conversion, a wireless modem and removable smart card to allow users to store their data separately. As an alternative to the standard desktop computer, the Simputer is a low cost handheld device which can accommodate multiple users through the use of smart cards and open source licensing. The selection of the Linux kernel to develop the Simputer has also minimised development costs and the costs of units themselves.

While open source provides a rosier picture for developing countries to provide ICT access and adoption, it also

has its own set of accompanying challenges. Laura Fokkena has likened open source to the equivalent of ‘goat poop’ because ‘It’s messy. It’s inelegant. It’s decentralized. And most of all it’s free, available to anyone who has the guts and stamina to work with it.’ While Fokkena acknowledges the benefits of open source over proprietary systems for users in developing countries, the ‘guts and stamina’ she refers to is that its potential remains largely within the community of computer programmers and hence, underused by a majority of people outside this group. The challenge of making open source mainstream and available in the developing world is therefore a humbling reminder to focus on its development potential (the ‘IC’ of ICT) rather than the technology side.

**... open source ... the equivalent of ‘goat poop’ because ‘It’s messy. It’s inelegant. It’s decentralized. And most of all it’s free, available to anyone who has the guts and stamina to work with it.’**

In efforts to mainstream the use of open source over proprietary systems in development projects, the notion of network externalities where the value of software increases as its user-base increases must be taken into consideration. Network externalities in the desktop and operating system market to date have favoured incumbents like Microsoft, whose systems have become the lingua franca among a majority of users and one which most people will use. This poses challenges for development projects which adopt ICT because key decision-makers will be faced with the decision of whether to incorporate proprietary or open source solutions. Although proprietary solutions

are more expensive, because of network externalities and the sense of security this brings, it could still be the preferred choice over open source solutions. While there are no available statistics on the comparison between proprietary and open source adoption for development projects, it is important to acknowledge the workings of network externalities which currently favour proprietary systems. In short, the known good versus the unknown better is a central issue to open source.

A final challenge to address is that of skill sets when it comes to open source. While there is always the opportunity to rely on virtual assistance, skill sets as a whole in relation to ICT and not just to open source is already limited in developing countries and should not be taken for granted when proselytising open source. While skill transfer is one of open source’s greatest benefits, it is equally important that once skills are learned through online exchange, they are in turn, shared offline and so on. However, this leads to the problem of how effective online communities are for open source if countries do not even have the infrastructure to access the plethora of online knowledge. Skills training therefore should be viewed as requiring a combination of online and offline skill transfer based on specific needs and infrastructure realities.

Despite these challenges, open source should be firmly fixed on people’s radar screens when considering appropriate ICTs for development projects due to the inherent benefits which come from having access to source code. Open source is a positive alternative for ICT4D projects due to its ethos of knowledge-sharing, cost-benefits and

localisation potential which are synergistic to development projects as a whole through its bottom-up approach. Open source and ICT4D share common traits in that there is a grassroots and decentralised approach, greater participation and involvement, and more effective localisation and customisation of content for its beneficiaries (see Writing 4 on *ICT and Rural Development*). With all of its benefits, it makes sense for development practitioners and donor countries to be *open* to the idea of open source.

## **ANNOTATED BIBLIOGRAPHY: ICT FOR DEVELOPMENT**

### **BACKGROUND READINGS**

**ACCENTURE**, Markle Foundation and United Nations Development Programme, Creating a Development Dynamic – Final Report of the Digital Opportunity Initiative <<http://www.opt-init.org/framework.html>> 14 November 2003.

As a collaboration between Accenture, the Markle Foundation and the United Nations Development Programme (UNDP), the Digital Opportunity Initiative launched in July 2000 has released a report on the potential for Information and Communications Technology (ICT) to improve livelihoods in developing countries. Using case studies from such countries as Malaysia, Estonia and Bangladesh, the report examines a range of experiences in the deployment of ICT to meet specific development goals and national strategies. This report provides an informative introduction to ICT-enabled development initiatives by stressing the importance of solid policy frameworks, infrastructure, human capacity, entrepreneurship and the development of relevant content and applications as critical success factors.

**BATCHELOR**, S.J. et al., Sustainable ICT Case Histories <<http://www.sustainableicts.org/Final%20Tech%20report%20for%20Sus%20ICT%2031012003.pdf>> 23 July 2003.

This paper presents a selection of 12 case studies where ICT-enabled projects have been considered sustainable. Presenting country case studies like El Salvador, China and Uganda, this paper argues that ICT, when incorporated into projects which have clear objectives, institutional frameworks, local capacity and identifiable development benefits, can enhance and sustain the longevity of development projects. As this was published in 2003, it provides a comprehensive overview of current ICT for development projects.

**BACKUS**, Michiel, E-Governance and Developing Countries <<http://www.ftpicd.org/files/research/reports/report3.pdf>> 18 November 2003.

Backus provides a general overview of E-Governance models and their technological and development impact through the incorporation of three case studies in Ghana, Tanzania and Kenya. The challenges of E-Governance are addressed, as are SWOT analyses on EG in developing countries, EG policy frameworks and implementation strategies. The report also contains a comprehensive bibliography on EG resources to provide an excellent starting point for materials on the subject. As a whole, this report provides useful background reading for understanding EG in the context of developing countries.

**CASTELLS**, Manuel, Information Technology, Globalization and Social Development, United Nations Research Institute for Social Development (UNRISD), Discussion Paper 114, Geneva, 1999.

Also available online:

<[http://www.cis.washington.edu/courses/pbaf537d/readings/castells\\_infosoc99.pdf](http://www.cis.washington.edu/courses/pbaf537d/readings/castells_infosoc99.pdf)> 15 July 2003.

Castells' paper examines the complex relationship between economic growth and social development in light of the Information Technology revolution, increasing globalisation and importance of networks. Castells shows particular concern for the further accentuation of social inequalities in this 'new' Information Age and reinforces the necessity for shared responsibility to synergise technological innovation with human values for a sustainable model of development. This paper is useful background reading to understand the dynamics of ICT and social development from a sociological perspective.

**CECCHINI**, Simone and Talat Shah, Information and Communications Technology As a Tool for Empowerment, World Bank Empowerment Sourcebook: Tools and Practices 1, 2002.

Also available online:

<<http://www.worldbank.org/poverty/empowerment/toolsprac/tool01.pdf>> 16 July 2003.

Cecchini and Shah explore the potential for ICTs to empower citizens in terms of access to basic services, improved governance, support for entrepreneurship and access to financial services. Through case studies in developing countries, the authors demonstrate the necessity of local content and community participation as critical success factors for projects to be sustainable. This paper provides a useful summary of ICT-enabled projects to serve development goals.

**CHAPMAN**, Robert and Tom Slaymaker, ICTs and Rural Development: Review of the Literature, Current Interventions and Opportunities for Action, Overseas Development Institute, Working Paper No.192, 2002.

Also available online: <[http://www.odi.org.uk/publications/working\\_papers/wp192.pdf](http://www.odi.org.uk/publications/working_papers/wp192.pdf)> 16 July 2003.

This paper examines ICT in the context of rural development strategies and their relation to current Digital Divide debates. While Chapman and Slaymaker recognise that well established barriers to improving ICT access and adoption exist, they advocate a change in perception towards issues of Digital Divide whereby ICT, when applied on a small-scale, should be viewed as a flexible and accommodating tool for social development. This argument advocates stakeholders to go beyond current debates which have largely focussed on large-scale ICT infrastructure projects that are often outside the reach of the rural poor.

**CHETLEY**, Andrew, 'Improving health, fighting poverty: the role of information and communication technology (ICT)', *International Perspectives on Health Communication*, No. 1, July 2001, pp. 1-4.

Also available online: <<http://www.healthcomms.org/pdf/findings1.pdf>> 24 July 2003.

This short paper provides a useful review of ICT usage in the health sector by arguing that more emphasis should be placed on the 'communication' element of ICT instead of 'technology' per se. Chetley advocates that where more attention is paid to communication processes the value of ICT to development projects in health increases.

**GURSTEIN**, Michael, Rural Development and Food Security: A 'Community Informatics' Based Conceptual Framework for FAO <<http://www.fao.org/sd/CDdirect/CDre0055c.htm>> 13 November 2003.

Gurstein discusses the role of ICT in rural development within the context of Community Informatics, an approach which posits that access to ICT can provide a set of tools which communities can use to pursue their socio-economic goals. A summary of issues related to Community Informatics from the perspective of physical infrastructure requirements and non-physical considerations such as community networks are provided, as are brief examples of ICT applications for rural development. Issues of sustainability, content, language and culture are also explored in this introductory paper on Community Informatics.

**HADDAD**, Wadi D. and Alexandra Draxler, eds., *Technologies for Education: Potentials, Parameters and Prospects*, UNESCO and Academy for Educational Development, 2002.

Also available online: <<http://www.aed.org/publications/TechEdInfo.html>> 24 July 2003.

This book explores the role of ICT in education and learning systems by examining case studies where radio, television, community telecentres and the Internet have been adopted. Comprising of 19 chapters from a range of contributors, *Technologies for Education* examines topics such as the potential and constraints for ICT in education, strategies for its effective use, teacher development and learning systems. This comprehensive study provides an excellent overview on the rationale behind ICT-mediated education, key issues and challenges for the future.

**HAFKIN**, Nancy, Gender Issues in ICT Policy in Developing Countries: An Overview, United Nations Division for the Advancement of Women (DAW), Expert Group Meeting on 'Information and Communication Technologies and their impact on and use as an instrument for the advancement and empowerment of women', Seoul, Republic of Korea, 11-14 November 2002

<<http://www.un.org/womenwatch/daw/egm/ict2002/reports/Paper-NHafkin.PDF>>  
14 November 2003.

Hafkin provides an overview of gender issues within the context of ICT policy frameworks in developing countries. The paper covers fundamental policy issues such as the need for greater gender sensitivity to policy-making as a whole, its translation in the area of ICT policy and its implications for women's access to ICTs. Gender considerations such as women's physical access to ICTs, social and cultural contexts impacting their usage, and educational and financial resources are highlighted. The dual need to sensitise policy makers to gender issues and to sensitise gender advocates to ICT issues is viewed as an important precursor for ICT policies to address women's needs more effectively. Hafkin presents a useful table (Gender Aspects of ICT Policy Issues) to illustrate the multidimensional relationship between generic ICT issues and their impact on gender considerations.

**HAFKIN**, Nancy and Nancy Taggart, Gender, Information Technology and Developing Countries: An analytic study, United States Agency for International Development, June 2001.

Also available online:

<[http://learnlink.aed.org/Publications/Gender\\_Book/pdf/Gender\\_Book\\_NoPhotos.pdf](http://learnlink.aed.org/Publications/Gender_Book/pdf/Gender_Book_NoPhotos.pdf)>  
23 July 2003.

This study explores gender issues within the context of Digital Divide debates with a particular focus on the economic and political opportunities that ICT can present to women in developing countries. An in-depth study is conducted on specific areas for improving the empowerment of women in the political sphere through the use of ICT in terms of its networking potential, access to government and information services, education and the dissemination of indigenous knowledge. It is a valuable read towards understanding the relationships, challenges and opportunities for women to participate effectively in the Information Age.

**HAMBLY ODAME**, Helen et al., Gender and Agriculture in the Information Economy, International Service for National Agricultural Research, Briefing Paper No. 55, September 2002.

Also available online: <<ftp://ftp.cgiar.org/isnar/publicat/bp-55.pdf>> 23 July 2003.

This briefing paper highlights the relationships between ICT, gender, agriculture and rural development in developing countries by discussing current international efforts and country-specific initiatives. This paper provides a useful introduction to how ICT can be used to empower disadvantaged women living in rural communities.

**HEEKS**, Richard, Understanding e-Governance for Development  
<[http://idpm.man.ac.uk/publications/wp/igov/igov\\_wp11.shtml](http://idpm.man.ac.uk/publications/wp/igov/igov_wp11.shtml)> 12 November 2003.

Heeks provides an overview of the potential for ICT to promote good governance in developing countries by outlining three main contributions in the area of improving

government processes, connecting citizens and building external interactions. The incorporation of brief case studies illustrates different applications of ICT as a tool for governance in improving administration, public services and sustainable development. Heeks also highlights the challenges posed by e-Governance in terms of a country's e-readiness levels and e-Governance models.

**ILEIA**, [Centre for Research and Information on Low External Input and Sustainable Agriculture], Changing Information Flows, [special journal issue on uses of ICTs for agriculture in developing countries] <<http://www.ileia.org/2/nl18-2.html>> 23 July 2003.

This online journal features a collection of insightful papers on ICT and agricultural development in terms of ICT as an enabler to improve agricultural communities' access to not only information pertaining to agricultural techniques but also to information in general. These papers signal the growing importance of ICT for agricultural communities through an examination of case studies where radio, Internet and a community magazine have enhanced access to information. This special journal issue provides an excellent introduction to the potential usage of ICT in agricultural and rural development.

**INDIAN INSTITUTE OF MANAGEMENT**, Gyandoot: Rural Cybercafes on Intranet, Dhar, Madhya Pradesh, India - A Cost Benefit Evaluation Study <<http://www.iimahd.ernet.in/egov/GDeval-cegiima.PDF>> 13 November 2003.

Begun in January 2000, the *Gyandoot* project in the Dhar district of Madhya Pradesh, India has involved the installation of low-cost Intranet-based kiosks to provide a range of relevant services such as agricultural produce auction rates, copies of land records, online public grievance redress and information on government programmes to rural communities in the district. The *Gyandoot* project provides a useful snapshot of the usage of ICT for governance through its incorporation of local content, relevant services and community participation throughout the project's duration. This study aims to identify and evaluate the benefits of the project to the community, its impact at the government level for transparency and how this benefits sustainable development.

**INDIAN INSTITUTE OF MANAGEMENT & WORLD BANK**, M.S. Swaminathan Research Foundation's Information Village Research Project (IVRP), Union Territory of Pondicherry <[http://poverty.worldbank.org/files/14654\\_MSSRF-web.pdf](http://poverty.worldbank.org/files/14654_MSSRF-web.pdf)> 13 November 2003.

Prepared by the Indian Institute of Management and the World Bank, this case study on the Information Village Research Project in Pondicherry, southern India, provides useful insights into ICT-enabled development projects at the local level. Implemented by the Swaminathan Research Foundation (MSSRF), information village shops in 10 villages of Pondicherry are equipped with computers, telephones and dial-up connections to benefit the community through access to relevant information relating to agriculture, weather reports and government programmes. This study provides an excellent entrée for understanding key themes in the area of ICT for development through an assessment of the programme's objectives, community impact, challenges and success factors.

*infoDEV, Annual Report 2002: Information for Development Program*, The World Bank, 2002.

Also available online: <<http://www.infodev.org/library/AR/ann02.pdf>> 16 July 2003.

This publication provides a summary of key findings, initiatives and programmes administered under the *infoDEV* program. Established in 1995, *infoDEV* is a global grant program managed by the World Bank to promote the use of ICT for projects targeted at socio-economic development in developing countries. As with most core agencies involved in ICT for development, *infoDEV* advocates an innovative and localised approach to managing development projects which have an ICT component.

**KENNY**, Charles, 'Information and Communication Technologies for Direct Poverty Alleviation: Costs and Benefits', *Development Policy Review*, 20 (2), 2002, pp. 141-57.

Kenny reviews the barriers to equitable Internet access among developing countries and suggests a return to more traditional ICTs such as the telephone and radio as a more effective medium for development projects in terms of its cost advantages, accessibility, ease of use and ability to address cultural issues such as language and content. The positioning of the telephone and the radio as an alternative for the Internet in poverty alleviation programmes is made in light of the relevance or appropriateness of the Internet in developing countries which are non-English speaking, experience high illiteracy levels and cannot afford Internet access. Kenny advocates for an indirect rather than direct usage of the Internet in development projects and provides a timely reality check on the extent to which the Internet can benefit developing countries.

**KENNY**, Charles, Juan Navas-Sabater and Christine Qiang, 'Information and Communication Technologies', in World Bank, *Poverty Reduction Strategy Sourcebook*, Washington DC: World Bank, 2001.

Also available online: <[http://poverty.worldbank.org/files/4414\\_chap24.pdf](http://poverty.worldbank.org/files/4414_chap24.pdf)> 12 November 2003.

The paper by Kenny et al on 'Information and Communication Technologies' forms one component of the World Bank's compilation of papers on poverty reduction strategies. A comprehensive overview on the potential of ICTs to address poverty and development needs in the area of education, health, the environment and governance are presented, as are the barriers to access and strategies to reduce poverty. The paper on ICT is complemented by supporting materials including case studies, resource materials and key statistics. This is a useful guide to understanding the potential of ICTs for poverty reduction.

**MADON**, Shirin, *The Internet and Socio-economic Development: Exploring the interaction* <<http://is.lse.ac.uk/ifipwg94/pdfs/internet.pdf>> 16 July 2003.

Madon establishes the context of current debate regarding ICT and development by examining the current and potential usage of the Internet in developing countries. Madon argues that ICT can only be a useful tool for socio-economic development if it is viewed as malleable and thus adaptable to local conditions. Madon aims to sensitise policy makers on the need to create relevant content, realistic access points and skills training for Internet adoption. Drawing on case studies such as health, education and poverty alleviation, Madon presents a useful overview of the Internet as a tool for development.

**MANSELL**, Robin and Uta Wehn, *Knowledge Societies: Information Technology for Sustainable Development*, United Nations Commission on Science and Technology for Development, Oxford: Oxford University Press, 1998.

Also available online: <<http://www.susx.ac.uk/spru/ink/knowledge.html>> 15 July 2003.

Mansell and Wehn have compiled a sourcebook of issues which were raised by members of the UNCSTD Working Group during 1995 and 1997 in their discussions on the potential of ICT for development. This report offers policy-oriented perspectives on three issues – constructing and accessing ICT infrastructure, building capabilities and skills and preparing the framework of strategies, policies and regulations for developing countries to embrace ICT to support their own development goals. It is a useful source in terms of the report's address of key issues related to ICT and development.

**MOORE**, Michael M. and Alan Tait, eds., *Open and Distance Learning: trends, policies and strategy implications*, Paris: UNESCO, 2002.

Also available online: <<http://unesdoc.unesco.org/images/0012/001284/128463e.pdf>> 24 July 2003.

Moore and Tait have compiled a comprehensive report on the current state of open and distance learning and UNESCO's current activities in this area. In addressing the opportunities and challenges of incorporating ICT in education, the report provides regional case studies where ICT has been adopted for distance learning initiatives, teacher training and skills upgrade, and non-formal education and community development. The report also documents UNESCO's priorities and activities in specific relation to open and distance learning.

**NATH**, Vikas, *Digital Governance Models: moving towards good governance in developing countries* <<http://www.innovation.cc/volumes&issues/Nath%20Digital.pdf>> 12 November 2003.

This paper provides a brief theoretical background on ICT-enabled knowledge networks and their potential for good governance models based on empowerment processes inherent within knowledge societies. A range of digital governance models in developing

countries are presented to illustrate the different models of e-Governance in the area of broadcasting, critical flows, comparative analyses, mobilisation and lobbying, and the interactive-service model. As a theoretical entrée into understanding the relationship between ICT-enabled knowledge networks and digital governance, this paper is a worthwhile primer on various e-Governance models.

**OSTERWALDER**, Alexander, ICT in Developing Countries: A cross-sectoral snapshot <[http://inforge.unil.ch/aosterwa/Documents/InternetInEmergingMarkets/Publications/IS\\_GLOB03.pdf](http://inforge.unil.ch/aosterwa/Documents/InternetInEmergingMarkets/Publications/IS_GLOB03.pdf)> 15 July 2003.

In his analysis on ICT in developing countries, Osterwalder presents a number of case studies which highlight three factors essential to capitalize on ICT opportunities: (1) ICT infrastructure (2) local content and (3) use of applications. Within this framework, Osterwalder takes a brief look at business, educational, health, environment and social applications of ICT. This paper provides good background reading to understand the rationale behind ICT-enabled development projects.

**RAJORA**, Rajesh, Gyandoot: ICT to improve community participation in local governance and to provide the building blocks for consensus building and enhanced transparency <[http://www.cornerstone-msc.net/infosockk/day1\\_session1/F\\_RajeshRajora.doc](http://www.cornerstone-msc.net/infosockk/day1_session1/F_RajeshRajora.doc)> 13 November 2003.

As a key project implementer and researcher of the *Gyandoot* project in the Dhar district of Madhya Pradesh, India, Dr Rajesh Rajora examines the socio-economic impact of the project which involved the installation of low-cost Intranet-based kiosks to provide a range of relevant government services to rural communities. The paper covers issues of community participation, development networks and governance, providing a useful background on the project's objectives, key learnings and challenges. Key information on the community's demographic profile and usage patterns are also presented in this case study analysis.

**RAMILO**, Chat, National ICT Policies and Gender Equality, Regional Perspective: Asia, United Nations Division for the Advancement of Women (DAW), Expert Group Meeting on 'Information and Communication Technologies and their impact on and use as an instrument for the advancement and empowerment of women', Seoul, Republic of Korea, 11-14 November 2002 <<http://www.un.org/womenwatch/daw/egm/ict2002/reports/Paper-CRamilo.PDF>> 14 November 2003.

Ramilo highlights the key issues and challenges of ensuring the benefits of ICT are accessible to marginalised groups in society such as women. A brief summary of ICT policy considerations from a gender perspective are advocated in terms of the importance of adopting gender-sensitive ICT indicators and the integration of gender mainstreaming in national policy frameworks in order to create better universal access to ICT among

women. This paper provides a good starting point to understanding the gender dimension of ICT access and adoption from a development perspective.

**SCHILDERMAN**, Theo, *Strengthening the Knowledge and Information Systems of the Urban Poor*

<[http://www.itdg.org/html/shelter/docs/kis\\_urban\\_poor\\_report\\_march2002.doc](http://www.itdg.org/html/shelter/docs/kis_urban_poor_report_march2002.doc)> 23 July 2003.

While current debates on the Digital Divide approach inequalities largely from the supply side in terms of how information is disseminated (largely to rural areas), Schilderman considers issues of ICT access from the demand side by addressing the needs of the urban poor. Through fieldwork studies undertaken in Peru, Sri Lanka and Zimbabwe, Schilderman moves beyond conventional studies that largely focus on rural development to illustrate the complexity of life in urban areas and the role that development agencies must adopt to address the information needs of the urban poor.

**UNESCO**, *World Communication and Information Report 1999-2000*, Paris: UNESCO, 1999.

Also available online: <<http://www.unesco.org/webworld/wcir/en/report.html>> 5 August 2003.

The UNESCO report provides a comprehensive documentary on the impact of ICTs on human development with selected statistics on the development of ICTs worldwide. Regional chapters examine the impact of information mediums such as newspapers, radio, television, telecommunications, computers and the Internet on both developed and developing countries, urban and rural areas, literates and illiterates, and the rich and the poor. A compilation of 18 articles provides useful background information on the development of ICT and its social and cultural implications.

**UNITED NATIONS**, *E-Commerce and Development Report 2002*, United Nations Conference on Trade and Development, New York and Geneva: United Nations, 2002.

Also available online: <[http://r0.unctad.org/ecommerce/docs/edr02\\_en/ecdr02.pdf](http://r0.unctad.org/ecommerce/docs/edr02_en/ecdr02.pdf)> 14 November 2003.

Also available at UNDP Resource Centre, Kuala Lumpur, Malaysia

This report examines the current status of E-Commerce in developing countries and issues such as barriers to full participation from a regional perspective. The report also addresses the policy and business options available to developing countries and recommends practical approaches to maximise the contribution of E-Commerce to socio-economic development. It provides a general overview of the potential uses of E-Commerce for development.

**UNITED NATIONS DEVELOPMENT PROGRAMME**, *Human Development Report 2001 – Making Technologies Work for Human Development*, New York and Oxford: Oxford University Press, 2001.

Also available online: <<http://hdr.undp.org/reports/global/2001/en/>> 14 November 2003.  
Also available at UNDP Resource Centre, Kuala Lumpur, Malaysia

This annual report published by UNDP focuses on the opportunities and challenges facing developing countries in light of new developments in ICT. The report looks at today's technological transformations, the risks of technological change and the importance of human creativity. A technology achievement index in addition to its annual Human Development Index (HDI) is also introduced for this special report on human development and technology. Its global and macro coverage provides an excellent overview on the current pace of technology achievement and its relation to human development.

**UNITED NATIONS DEVELOPMENT PROGRAMME**, *Cooperation South – Getting Connected: Information and Communications Technology for Development*, New York: TCDC, UNDP, 2001.

Also available online: <[http://tcdc.undp.org/tcdcweb/coop\\_south\\_journal/2001\\_oct/](http://tcdc.undp.org/tcdcweb/coop_south_journal/2001_oct/)> 14 November 2003.  
Also available at UNDP Resource Centre, Kuala Lumpur, Malaysia

This special feature on ICT for Development presents the challenges and opportunities of ICT from the perspective of developing countries. The publication provides an excellent overview of themes related to the Digital Divide, E-Commerce policies, open-source software, ICT and governance and the Knowledge-based economy.

**UNITED NATIONS ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC (ESCAP)**, *Issues, Policies and Outcomes: Are ICT Policies Addressing Gender Equality?*, New York: United Nations, 2002.

Also available online:  
<<http://www.unescap.org/esid/gad/04widresources/05pubreport/Issues.pdf>> 13 November 2003.

Commissioned by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), this study reviews national, regional and global initiatives pertaining to ICT access from a gender perspective through an analysis of six countries in the region. The ICT policies and frameworks from Australia, India, Japan, Malaysia, Philippines and the Republic of Korea are reviewed from the extent to which they address gender mainstreaming and the gender component of the digital divide. Targeted at policy makers and ICT practitioners, this comparative review provides a useful overview of current developments in the area of ICT and specific gender considerations.

**WARSCHAUER**, Mark, 'Social Capital and Access', *Universal Access in the Information Society*, 2 (4), 2003.

Also available online: <<http://www.gse.uci.edu/markw/soccap.pdf>> 13 November 2003.

Warschauer examines the relationship between access to ICTs and the greater information society by introducing the concept of social capital as the key element to link both processes. Drawing on examples from developing countries such as India, the paper discusses the concept of social capital at the theoretical level and its relationship to Internet use. The focus on human networks and relationships as an important component of social capital in ICT-enabled development projects are illustrated throughout the paper.

**WARSCHAUER**, Mark, Reconceptualizing the Digital Divide

<[http://www.firstmonday.dk/issues/issue7\\_7/warschauer/](http://www.firstmonday.dk/issues/issue7_7/warschauer/)> 12 September 2003.

Appearing in the First Monday online journal, Warschauer's paper examines the need to focus more on people than on technology in development projects which are ICT-enabled in order to achieve better results and sustainability. In re-examining the concept of Digital Divide, Warschauer presents an alternative view to focus on technology for social inclusion rather than on technology access per se. This brief and easy-to-read paper provides a people-centric approach to understanding meaningful ICT usage over conventional analyses which focus on technological infrastructure such as hardware and software access. In re-examining the Digital Divide concept, brief reference is made to the historical analogy of literacy and ICT access.

## **MALAYSIAN & ASIAN READINGS**

**CHAN**, Foong-Mae, ICT in Malaysian Schools: Policy and Strategies, Seminar/Workshop on the Promotion of ICT Education to Narrow the Digital Divide, 15-22 October 2002, Tokyo, Japan  
<[http://www.unesco.org/bangkok/education/ict/ict\\_enabling/ap\\_policy/malpol.doc](http://www.unesco.org/bangkok/education/ict/ict_enabling/ap_policy/malpol.doc)> 24 July 2003.

Chan documents efforts of the Malaysian Government to adopt ICT for education. As background reading, the paper provides a general overview and road map of ICT in the Malaysian education system in areas such as Smart Schools, computerisation programmes and teaching training.

**DERAMAN**, A.B. and A.K. Shamsul Bahar, 'Bringing the Farming Community into the Internet Age: A Case Study', *Informing Science*, 3 (4), 2000, pp.207-14.

Also available online: <<http://informingscience.org/Articles/Vol3/v3n4p207-214.pdf>> 24 July 2003.

This paper presents the current situation of Malaysia's agricultural sector and the challenges of farming communities to access the Internet. Deraman and Shamsul Bahar use the TaniNet case study as an example of government efforts to introduce an Internet-based service on agriculture and biotechnology to Malaysia's rural farming community. The paper provides an overview of TaniNet's objectives, website architecture, implementation and evaluation process in terms of its contribution to community development.

**E-LEARNING FOR LIFE**: The Malaysian Initiative, Progress Report, November 2002  
<<http://www.elearningforlife.org/resources/Progress%20report%20presented%2020%20Nov%202002.doc>> 24 July 2003.

This is a brief progress report on the e-Learning for Life project which began in March 2002. As a partnership between Coca Cola, UNDP and the Malaysian Government to establish ICT hubs at selected secondary schools, this report tracks key developments and activities to date of the six schools selected to participate in this project.

**FROST & SULLIVAN**, *Benchmarking of the Smart School Integrated Solution*, Report conducted for Ministry of Education, Malaysia and Multimedia Development Corporation, Malaysia, 2003.

This is the first benchmarking study to be conducted for the Multimedia Super Corridor's flagships through a comparison of ICT-mediated education in eight countries (Australia, Britain, Canada, Ireland, Japan, New Zealand, Singapore and USA) to benchmark best practices with that of Malaysia. Smart School initiatives in each country are reviewed, with further comparisons undertaken from Ireland and New Zealand in relation to Malaysia's Smart School Integrated Solution (SSIS) due to these countries' maturity

levels in regard to ICT-mediated education. The report outlines a combination of hard and soft factors in relation to SSIS in terms of the Smart School Management System, Teaching Learning Material, Change Management, Infrastructure and Technology, Support Services, System Integration, Interoperability, Project Management and Security.

**HARRIS**, Roger, Internet Access by Remote Communities in Sarawak: The Smart School as a Demonstrator Application

<[http://www.bellanet.org/leap/docs/Bario\\_final\\_report.doc?ois=yes&template=blank.htm](http://www.bellanet.org/leap/docs/Bario_final_report.doc?ois=yes&template=blank.htm)> 22 July 2003.

Beginning in May 1999, the *E-Bario* project was conceived and initiated by Dr Roger Harris and implemented with the support of Universiti Malaysia Sarawak (UNIMAS) and funded by the IDRC and the Malaysian Government through its Demonstrator Application Grant Scheme (DAGS). *E-Bario* was a project to determine the extent to which ICT could benefit remote communities like Bario, situated in northeast Sarawak. Harris provides a useful summary of principal findings, impacts and recommendations.

**HARRIS**, Roger et al., 'Challenges and Opportunities in Introducing Information and Communication Technologies to the Kelabit Community of North Central Borneo', *New Media and Society*, 3 (3), 2001, pp. 270-95.

Appearing in *New Media and Society's* feature publication entitled 'On the Edge: Cultural barriers and catalysts to IT diffusion among remote and marginalised communities', this paper provides an overview of key findings and recommendations based on *E-Bario*, an ICT pilot project to establish a telecentre in the remote locale of Bario, in northeast Sarawak. This article highlights the key successes and challenges of applying ICT for sustainable human development.

**KEMP**, Melody, Stuart Mathison and Jane Prasetyo, *Digital Dividend or Digital Divide? A World of Difference* <<http://www.fdc.org.au/files/reportfinal.pdf>> 22 July 2003.

Conducted in 2002, this study explores the potential usage of ICT towards global development strategies by focusing on the Malaysian and Indonesian experience. The study identifies barriers to equitable access and critical success factors by presenting a model for the design and evaluation of ICT4D projects. An overview of six ICT4D projects in Malaysia is presented to provide a snapshot of key activities.

**KU Joo Bee** and Flora Fung, Bridging the Digital Divide – Sabah's Experience with Des@net and other ICT Programmes [paper presented at INFOSOC MALAYSIA 2002, 'K-Initiatives for Improved Local Governance', 4-5 June 2002, Sabah]

<<http://www.nitc.org.my/infosoc2002/html/programme.shtml>> 18 November 2003.

This brief paper provides a general summary of current and future ICT initiatives by the Sabah State Library and other state agencies to address its low Internet access rates and ICT literacy levels in the East Malaysian state of Sabah. A brief overview of initiatives such as the mobile computer training facility introduced under the *Des@net* programme

to rural districts are provided, as is a brief run-down on training programmes, key issues and future strategies.

**MARILEE**, Karl, ed., *The Global Knowledge Women's Forum: Transcending the Gender Transformation Divide*, Proceedings of the Global Knowledge Women Forum, 6-7 March 2000, Kuala Lumpur, NCWO, UNDP and APGEN.

Also available at UNDP Resource Centre, Kuala Lumpur, Malaysia

This brief report documents the discussions and recommendations from the GKII Women's Forum held in Kuala Lumpur in 2000. The report summarises the Women's Forum Action Plan and presentations delivered during the forum. As a brief read, the report presents a good starting point to understand the importance of furthering development policies and programmes aimed to improve the participation of women in the emerging knowledge economy.

**MATHISON**, Stuart, *Digital Dividends for the Poor: ICT for Poverty Reduction in Asia*, Brisbane <<http://www.fdc.org.au/files/ictandpovertyinasia.pdf>> 22 July 2003.

Mathison looks at the role of ICT for poverty reduction in Asia by examining the distinction between theories on development and poverty. Using specific country studies such as India, China and Malaysia, an assessment of different ICTs and their effectiveness in reducing poverty is presented. This provides a useful snapshot of regional initiatives across a variety of development areas such as agriculture, gender empowerment and rural development.

**MD SIDIN AHMAD ISHAK**, *The Dawn of the Digital Age in Malaysia* <<http://www2.accu.or.jp/09/pdf32-2/32-2P008-9.pdf>> 24 July 2003.

This brief article presents an overview of Malaysia's Smart School pilot project and efforts to date to utilise ICT for educational enhancement. Smart School-related initiatives such as Networked Neighbourhood Centres, Mobile Internet Units and online activities are also mentioned.

**MITTER**, Swasti, *The Global Knowledge II Women's Forum - Asian Women in the Digital Economy: Policies for Participation*, Kuala Lumpur: UNDP, 2001.

Also available at UNDP Resource Centre, Kuala Lumpur, Malaysia

As a follow-up to the Global Knowledge II Conference held in Kuala Lumpur during March 2000 which resulted in the final forum report entitled *Transcending the Gender Digital Divide*, this monograph documents the impact of the digital economy on women's lives in Malaysia and other Asian countries. The monograph highlights the opportunities and threats that ICT presents to women and how new technologies themselves can be used to transcend the digital divide surrounding gender. The monograph emphasises the

importance of participation of all three stakeholders – the state, private sector and NGOs in a policy framework that explores the use of ICT for women's empowerment.

**MIMOS BHD**, *The 2002 Internet Subscriber Study*, Kuala Lumpur: MIMOS Bhd, 2003.

Also available at MIMOS Bhd Resource Centre

This is the first issue of MIMOS' Information Age Statistics series which is based on a national study of personal and corporate dial-up subscribers to the JARING network. Aside from capturing key demographic information, the study aims to create a new statistical measurement system in the absence of relevant measures to assess Malaysia's performance and status in the new information economy. Complemented by key statistics and commentary, this study provides a useful starting point to understand the dynamics of Malaysia's Internet penetration levels and its impact on key policy developments in relation to ICT as a whole.

**MINISTRY OF FINANCE**, Knowledge-Based Economy Master Plan <<http://www.treasury.gov.my/englishversionbaru/index.htm>> 18 November 2003.

The Knowledge-Based Economy Master Plan (KBEMP) provides the rationale behind Malaysia's drive to become a knowledge-based economy (KBE) which is underpinned by seven strategic thrusts, 136 recommendations and six essentials to cover the period from 2001 to 2010, effectively the periods of the Eighth and Ninth Malaysia Plans. Introduced in September 2002, the KBEMP provides an overview of Government initiatives and socio-economic imperatives to accelerate Malaysia's shift from a production-based to knowledge-based economy in light of increasing competition for Foreign Direct Investment (FDI), globalisation and the growing importance of knowledge-based services.

**MUHAMMAD RAIS ABDUL KARIM** and Nazariah Mohd Khalid, *E-Government in Malaysia*, Subang Jaya, Malaysia: Pelanduk Publications, 2003.

Written by two key figures in Malaysia's E-Government programme, this book provides a comprehensive documentary of Malaysia's E-Government initiatives to date. The book captures Malaysia's EG experience in terms of its implications for technology infrastructure and security issues, human resource development, change management and legal frameworks.

**NATIONAL INFORMATION TECHNOLOGY COUNCIL (NITC)**, Building Knowledge Societies Series, vol. 1, *Access, Empowerment and Governance in the Information Age*, Kuala Lumpur: NITC, 2000.

Also available online: <<http://www.nitc.org.my/resources/bkss.pdf>> 15 July 2003.

In preparation towards the Second Global Knowledge Conference (GKII) held in Kuala Lumpur in 2000, the NITC organised a National Consultative Workshop to discuss issues

of access, empowerment and governance in light of Malaysia's Knowledge Economy. This publication is a useful collection of papers presented during the workshop which addresses key challenges in the Malaysian and global context.

**NATIONAL INFORMATION TECHNOLOGY COUNCIL (NITC) / MIMOS Bhd**, *Mobile Internet Unit (MIU): A pilot study report submitted to UNDP/APDIP*, Kuala Lumpur: NITC, 2001.

This report presents an evaluation of MIMOS' Mobile Internet Unity (MIU) pilot initiative launched in August 1999 which brought basic ICT skills training to rural students through a mobile coach equipped with personal computers, multimedia software and trainers. The report summary covers the pilot project's background, roll-out, outcomes, findings and recommendations and is supplemented by a technical and financial report. The MIU is a good case study to understand the importance of partnerships and the potential of ICT to be used in rural and human resource development at the grassroots level.

**NG, Cecilia**, ed., *Teleworking and Development in Malaysia*, UNDP, Penang: Southbound, 2001.

This special feature on teleworking in Malaysia is compiled from the findings of the policy research project on Teleworking and Development in Malaysia (1997-1999) which was spearheaded by the United Nations University Institute for New Technologies in collaboration with MIMOS Bhd and UNDP. This compilation examines the potential of teleworking in the Malaysian context through studies in the telecommunications, software, printing and publishing, banking and finance and airlines industry. It also covers the implications of teleworking for Malaysian women.

**ORBICOM, IDRC, UNDP-APDIP**, *Digital Review of Asia Pacific 2003/2004*, Penang: Southbound, 2003.

Also available online: <<http://www.digital-review.org/>> 14 November 2003.

The *Digital Review of Asia Pacific 2003/2004* presents a current-state-of-play on ICT developments for 28 countries in the region. Each country case study covers such areas as ICT indicators, regulatory environment, enabling policies, content and future trends. The review provides a useful source of information to understand current ICT policies and strategies in the region.

**RASLAN AHMAD**, Malaysian Way to Reach the Unreached: Demonstrator Application as Social Innovation Solution <<http://www.ukhap.nic.in/ict/bpapers.htm>> 18 November 2003.

Presented during UNESCO's Global Forum on Learning Technology (Learntec 2002) held in Germany during February 2002, this paper discusses Malaysia's Demonstrator Application Grant Scheme (DAGS) which provides 12-months funding for small ICT-

based projects at the Demonstrator Application stage. The bottom-up approach encourages the utilisation and innovative application of ICT-enabled projects to priority areas such as Social Digital Inclusion, Economic Competitiveness and E-Public Services. Dr Raslan provides a good overview of the DAGS initiative and its key learnings.

**UNITED NATIONS DEVELOPMENT PROGRAMME**, *Promoting ICT for Human Development in Asia: Realizing the Millennium Development Goals: A Malaysian Perspective in the Asia Pacific Development Information Programme's (APDIP) Regional Initiative on HDRs 2002 / 2003.*

This report provides an overview of current ICT4D initiatives in Malaysia in the UN Millennium Development Goal areas of poverty alleviation, education, gender equality, health, HIV/AIDS, environmental sustainability and global partnerships. It provides a comprehensive overview of ICT4D projects administered at the Government, private and civil society levels.

**YU, Joyce and Tam Pham, eds.**, *Asian Women in the Digital Economy: Policies for Participation*, UNDP, 2001.

The monograph looks at the impact of the Digital Economy on the lives of Malaysian and Asian women. In addressing the emerging Digital Economy, this monograph addresses the dual opportunities for ICT to empower women and its threats in exacerbating existing inequalities. As a light yet useful read, the monograph illustrates the importance of multi-stakeholder participation at the state, private and NGO level.

## **Malaysian ICT4D Road Map: Malaysian ICT4D Programmes and the Eighth Malaysia Plan (2001-2005)**

UNDP has compiled a list of ICT for Development (ICT4D) programmes, initiatives and activities currently undertaken by stakeholders at the Government, private and non-government sectors in Malaysia. Although this list is by no means an authoritative representation or entire coverage of ICT4D programmes in Malaysia, it provides a preliminary road map and snap shot of existing efforts to adopt ICT4D initiatives across a range of development areas such as education, health, gender, environment and rural development. While the bulk of programmes have human resource development needs in terms of ICT literacy and training as their central objectives, at a wider level these programmes serve the purpose of regional and community development. It should be noted at the outset that programme details have been compiled on a best-effort basis in the absence of publicly available information and the requirement to rely on multiple information sources.

Information has been gathered primarily through web-based research, UNDP publications and meetings with several programme promoters and have been categorised according to the development areas (chapters) addressed in the Eighth Malaysia Plan (2001-2005).<sup>1</sup> As most programmes address multiple development areas they have been categorised by their primary area for the purpose of this list. However, in the accompanying *Malaysian ICT4D Matrix* in Part Four, the breadth of programmes in addressing multiple areas of the 8MP is illustrated. The matrix is further categorised by programmes initiated at the Federal, State and Local levels, and other areas such as the Ministry of Science, Technology and Environment's DAGS programme (Demonstrator Application Grant Scheme), UNDP, NGOs and Corporate Citizenship programmes. A majority of initiatives fall under the DAGS programme due to their emphasis on grassroots participation particularly in the area of social digital inclusion. In relation to the 8MP, the majority of ICT4D programmes in Malaysia predominantly cover the areas of human resource development (Population, Employment & Human Resource Development), rural development (Regional Development) and community development (Housing & Other Social Services).

The 8MP has 21 development areas with a separate chapter on ICT although it permeates other chapters due to its role as an enabling technology. ICT in the 8MP is based on positioning Malaysia as a major ICT hub, upgrading ICT infrastructure, enhancing human resource development, promoting e-commerce, fostering local content development, rolling out Malaysia's Multimedia Super Corridor flagship applications, nurturing a critical mass of ICT-based SMEs and promoting R&D activities on soft factors of ICT and Information Age developments. Since ICT is a general-purpose technology that can be applied across multiple development areas, the ICT category has not been used for this list. As a result, these ICT-enabled programmes are categorised by their primary objective areas that align with the 8MP below.

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<sup>1</sup> See *Eighth Malaysia Plan* <[http://www.epu.jpm.my/RM8/front\\_RM8.html](http://www.epu.jpm.my/RM8/front_RM8.html)> 5 December 2003.

### **Poverty Eradication & Restructuring of Society**

- Reorienting poverty eradication programmes to reduce poverty to 0.5 per cent by 2005
- Intensifying efforts to improve the quality of life, especially in rural areas by upgrading basic amenities
- Improving income distribution and narrowing income imbalance
- Achieving Bumiputera participation as well as equity ownership
- Developing resilient and sustainable Bumiputera enterprises
- Restructuring employment to reflect ethnic composition of population
- Creating bigger Bumiputera middle-income group

### **Population, Employment & Human Resource Development**

- Expanding the supply of highly skilled and knowledge manpower to support the knowledge-based economy
- Increasing the accessibility to quality education and training
- Improving quality of education and training delivery systems
- Promoting lifelong learning
- Optimising utilisation of local labour
- Increasing supply of S&T manpower
- Accelerating the implementation of productivity-linked wage systems
- Strengthening labour market information systems to increase labour mobility
- Intensifying efforts to develop and promote Malaysia as a regional centre of educational excellence
- Reinforcing positive values

### **Regional Development**

- Diversifying the economic structure of the less developed states
- Improving the quality of urban services
- Accelerating development in rural areas
- Promoting Growth Triangles cooperation

### **Public Sector Programme & its Financing**

- Facilitating public sector initiatives to develop a knowledge-based economy
- To expand productive capacity of the economy and enhance productivity and efficiency
- To upgrade quality of entrepreneurship and human resources, investment in R&D, technology development and improving social and physical infrastructure

### **Privatization**

- Emphasising projects which stimulate economic growth
- Further streamlining of privatisation process
- Ensuring that privatised projects are commercially viable and contribute to social well-being
- Strengthen regulatory authorities to protect consumer interests
- Enhancing Bumiputera participation through vendor schemes
- Promoting wider public participation in privatised entities through public listing

### **Agricultural Development**

- Expanding food production to meet growing demand with a view to reduce imports and increase exports
- Promoting private sector participation in medium and large scale commercial food production
- Intensifying aquaculture development
- Intensifying land use by enhancing a wider crop mix
- Enhancing competitiveness of agricultural produce by promoting cost and labour saving technologies and accelerating downstream processing
- Intensifying R&D, particularly in yield improvements
- Consolidating oil palm hectarage to rationalise production
- Reorienting rubber as a strategic crop supplying timber for wood-based and rubber-based industry
- Utilising natural resources on a sustainable and environment-friendly basis
- Developing activities and crops with commercial potential
- Strengthening human resource development by promoting new skills such as those related to ICT
- Enhancing income of farmers and smallholders

### **Industrial Development**

- Positioning industries to take advantage of the opportunities arising from globalisation
- Strengthening the manufacturing base by developing strong industrial clusters
- Sustaining the momentum of growth by strengthening manufacturing-related services
- Providing more focused incentives for high value-added industries
- Increasing the use of technology and developing strong domestic capability
- Enhancing the local production of capital and intermediate goods to reduce import intensity and foster industrial development
- Enhancing competitiveness through productivity improvement
- Developing new initiatives in export promotion
- Increasing the use of ICT
- Developing resilient SMEs

### **Infrastructure & Utilities**

- Emphasising long-term integrated planning and coordinated implementation of projects
- Providing a comprehensive range of infrastructure facilities and amenities to facilitate economic growth
- Promoting multimodalism to enhance the seamless integration of all modes of transport
- Encouraging the use of public transport as well as intelligent transport systems
- Increasing efficiency, productivity and reliability of service
- Ensuring the availability of reliable infrastructure facilities and services and reasonable costs

**Energy**

- Ensuring adequacy and security of fuel supply as well as promoting the utilisation of gas and renewable energy
- Ensuring adequacy of electricity supply
- Developing energy-related industries and services as well as increasing local content
- Promoting Malaysia as a regional centre for energy-related engineering services
- Encouraging efficient utilisation of energy, particularly in the industrial and commercial sectors

**Science & Technology**

- Adopting an integrated national approach in the use of R&D resources to ensure an effective implementation of research and innovation projects
- Accelerating the role of commercialisation of R&D findings
- Enhancing private sector involvement and commitments in R&D
- Increasing the supply of scientific and technological manpower
- Acquiring new and imported technologies through acquisition of equity in foreign companies and forging strategic alliances
- Promoting development of indigenous S&T capabilities in strategic and key technologies
- Improving and expanding technical extension services and training

**Finance**

- Creating a core of strong, well-managed and adequately capitalised banking institutions
- Improving the overall efficiency and competitiveness of the banking sector
- Developing Islamic financing as an effective avenue for the mobilisation and allocation of funds
- Strengthening the capital market as well as developing a strong and competitive environment for capital market intermediation service
- Accelerating the development of the bond market to reduce the concentration of risks in the banking sector
- Encouraging the growth of the local venture capital industry in order to support the development of knowledge-based and high technology industries
- Further strengthening the insurance industry to facilitate more effective and efficient risk transfers as well as to mobilise resources for long-term financing

**Tourism**

- Emphasising sustainable tourism development
- Focusing on a holistic and integrate approach to tourism development
- Projecting Malaysia as a fascinating destination with year-round carnival atmosphere
- Engaging in customer-focused product development and promotions
- Enhancing human resource development
- Facilitating and increasing accessibility
- Ensuring the comfort, safety and security of tourists
- Forging strategic alliances and enhancing international cooperation

**Distributive Trade**

- Enhancing competitiveness of distributive trade
- Facilitating the development of new distribution modes
- Expanding e-commerce
- Intensifying efforts to increase Bumiputera participation
- Strengthening linkages with other sectors of the economy
- Ensuring price stability
- Promoting consumer education and protection

**Health**

- Improving accessibility to affordable and quality healthcare
- Expanding the wellness programme
- Promoting coordination and collaboration between public and private sector providers of healthcare
- Increasing the supply of various categories of health manpower
- Strengthening the telehealth system to promote Malaysia as a regional centre for health services
- Enhancing research capacity and capability of the health sector
- Developing and instituting a healthcare financing scheme
- Strengthening the regulatory and enforcement functions to administer the health sector

**Housing & Other Social Services**

- Providing adequate, affordable and quality houses for all income groups with emphasis on the development of low and low-medium cost houses
- Improving the delivery and quality as well as expanding the coverage of urban services
- Fostering harmonious living among the various communities as well as expanding the coverage of urban services
- Fostering harmonious living among the various communities as well as building strong and resilient families towards creating a caring society
- Enhancing the aesthetic aspects of life through greater participation in sports and recreation as well as the arts and cultural activities

**Environment & Sustainable Resource Management**

- Reducing the energy, materials, pollution and waste intensity of urban-industrial activity
- Increasing the use of fiscal policy in pursuit of environmental objectives and promoting the use of appropriate market-based instruments and self-regulatory measures among industries
- Promoting environmental performance measurement and strengthening the database for environmental decision-making
- Empowering local authorities and engaging communities in addressing environmental issues
- Enhancing land use planning, intensifying biodiversity conservation and the sustainable management of forests as well as improving the management of maritime affairs

### **Women & Development**

- Increasing female participation in the labour market
- Providing more education and training opportunities for women to meet the demands of the knowledge-based economy and improve their upward mobility in the labour market
- Enhancing women's involvement in business
- Reviewing laws and regulations that inhibit the advancement of women
- Improving further the health status of women
- Reducing the incidence of poverty among female-headed households
- Strengthening research activities to increase participation of women in development and enhance their well-being
- Strengthening the national machinery and the institutional capacity for the advancement of women

### **Youth in Development**

- Continue to focus on developing the right attitudes to nurture positive values as well as equipping youths with knowledge to ensure continuity of the development process
- Providing youths with the necessary skills to enable them to cope with the challenges of rapid development and globalisation
- Enhancing youth participation in various programmes to ensure greater representation and integration

### **Development through International Cooperation**

- Continue to actively participate at both the bilateral and multilateral levels in promoting development cooperation
- Continued participation in regional groupings and groupings of South countries for mutual benefit
- Expansion of the Malaysian Technical Cooperation Programme (MTCP) to contribute to capacity-building and sharing of knowledge with other South countries

### **Administrative Improvements for Development**

- Reinforcing quality management programmes under Total Quality Management (TQM)
- Ensuring the successful implementation of Electronic Government (EG)
- Developing the ICT infrastructure for efficient flow of electronic communications and information and high quality network services
- Ensuring strategic ICT planning through the preparation of comprehensive IT strategic plans by all public sector agencies and optimising the use of ICT through sharing of resources across agencies
- Adopting a more responsive work culture
- Upgrading information dissemination through the Malaysian Civil Service Link (MCSL) and development of agency websites
- Improving the various aspects of management integrity in the public sector
- Strengthening organisational development and human resource management
- Forging strong collaborative links with the private sector and non-government organisations

The Malaysian Government has positioned ICT as an important enabler to complement, support and facilitate these 21 development areas. In addition to government initiatives to pursue these development needs, non-Government and civil society groups have also played an active role to embark on ICT4D programmes. The list below categorises current ICT4D programmes by these 21 development areas. It should be noted that not all development areas currently have ICT4D programmes.

**UNDP Malaysia**  
**December 2003**

## Poverty Eradication & Restructuring of Society

**Programme:** *e-Upcom*

**Partners:** Ministry of Rural Development, National IT Council, Yayasan Strategik Sosial and Petaling Jaya Municipal Council (MPPJ)

**Launch Date:** N/A

**Objective:** To improve ICT literacy and access to information among urban poor communities for former squatters to improve their decision-making capabilities.

**Description:** This is a pilot project to focus on awareness, ICT literacy and poverty alleviation for former squatters in low cost flats. The pilot community consists of former squatter dwellers located at Petaling Utama low-cost flats, situated on the Old Klang Road in Kuala Lumpur.

**Target:** Urban poor communities (former squatters)

**Location:** Petaling Utama, Kuala Lumpur

**URL:** No website

**Comment:** *e-Upcom* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Project is currently under development.

**Programme:** *Online Poverty Database*

**Partners:** Ministry of Rural Development and City Hall of Kuala Lumpur (DBKL)

**Launch Date:** 1998

**Objective:** To provide a uniform system to centralise the coordination of information on the urban poor.

**Description:** This web-based system is significant in providing information, simplifying the verification process, averting discrepancies in information gathering and ensuring that all types of assistance are recorded.

**Target:** Government ministries, agencies, Civil Society Organisations (CSOs) and private institutions who are responsible for poverty alleviation.

**Location:** Kuala Lumpur (project management base)

**URL:** Online database is accessible only by relevant agencies and not the general public.

**Comment:** This system has established a network among the Ministry of Rural Development, City Hall of Kuala Lumpur, Federal Territory Islamic Council (MAIWP), Social Welfare Department, Amanah Ikhtiar Malaysia (AIM), Foundation for Poverty Alleviation of Selangor (YBK) and Pusat Rahmat.

## Population, Employment & Human Resource Development

**Programme:** *E-Learning for Life (Coca-Cola)*

**Partners:** Asia Pacific Development Information Programme (APDIP), Kuala Lumpur, United Nations Development Programme, Coca-Cola and Ministry of Education

**Launch Date:** January 2002

**Objective:** Supporting the Malaysian government's vision to build a knowledge-based economy, the project is bringing e-learning opportunities and ICT training and access to more than 10,000 students as well as their teachers and local communities.

**Description:** ICT 'hubs' have been set up in six secondary schools in semi-urban and rural areas across Peninsular Malaysia. The hubs are equipped with Internet connectivity, hardware and software for students and teachers to gain access to and training in ICT.

**Target:** Students and teachers in semi-urban and rural areas

**Location:** Jitra (Kedah), Seberang Perai Utara (Pulau Pinang), Gerik (Perak), Alor Gajah (Melaka), Ayer Hitam (Johor), Jerantut (Pahang)

**URL:** <http://www.elearningforlife.org/>  
<http://www.undp.org/dpa/pressrelease/releases/2002/march/06mar02.html>  
[http://www2.coca-cola.com/citizenship/education\\_asia\\_digital\\_divid.html](http://www2.coca-cola.com/citizenship/education_asia_digital_divid.html)

**Comment:** The pilot phase ended on June 30 2003 and a report on its findings has been completed. Due to its positive impact, an E-Learning Resource and Competency Centre (PUSKEL) was launched in SMK Tunku Anum, Jitra (Kedah) in September 2003 to continue the efforts of the pilot project. To provide further support to PUSKEL and the *E-Learning for Life* programme, Universiti Sains Malaysia was selected to be the E-Learning Centre of Excellence to develop T+L materials for primary standard 5 and 6 English language. RM247,000 has been provided to the Centre of Excellence to develop this project while RM57,000 has been allocated for USM to establish the centre itself.

**Programme:** *E-Learning for Life (Apple Malaysia)*

**Partners:** Apple Malaysia and Ministry of Education

**Launch Date:** September 2003

**Objective:** To provide ICT-enabled teaching and learning tools for teachers to prepare materials based on the project of the same name initiated by UNDP through the support of Coca Cola in January 2002.

**Description:** ICT 'hubs' have been set up in five primary schools in semi-urban and rural areas across Peninsular Malaysia. The hubs are equipped with Internet connectivity, hardware (iBooks and iMacs) and software for students and teachers to gain access to and training in ICT.

**Target:** Students and teachers in semi-urban and rural areas

**Location:** Klang (Selangor), Muar (Johor), Terengganu, Tampin (Negeri Sembilan) and Perlis

**URL:** N/A

**Comment:** This is a one-year programme based on the *E-Learning for Life* pilot initiated in January 2002. The Malay Language Institute in Kuala Lumpur will provide teacher training for the programme.

**Programme:** *The Malaysian Smart School Project***Partners:** Ministry of Education, Telekom Smart School Sdn Bhd**Launch Date:** 1997 (1999 commencement of pilot programme)**Objective:** Based on Malaysia's National Philosophy of Education, the objectives of the Smart School are to produce a thinking and technology-literate workforce, to democratise education, to increase participation of stakeholders, to provide all-round development of the individual and to provide opportunities to enhance individual strengths and abilities. The project has been defined as 'a learning institution that has been systematically reinvented in terms of teaching-learning practices and school administration in order to prepare children for the Information Age'.**Description:** The Malaysian Smart School project is one of seven Flagship Applications under Malaysia's Multimedia Super Corridor. Out of the initial proposal of 90 schools, 87 schools went through the 3-year pilot project at a cost of RM300 million. The pilot project was completed in December 2002 with the 87 schools given exemplar school status.**Target:** Primary and secondary school students and teachers**Location:** As of 1999: Perlis (2 schools), Kedah (6), Pulau Pinang (3), Perak (9), Kuala Lumpur (8), Selangor (14), Negeri Sembilan (6), Melaka (2), Johor (9), Pahang (6), Terengganu (4), Kelantan (6), Sabah (7) and Sarawak (6).**URL:** <http://202.190.218.3/smartschool/>**Comment:** Following the completion of the pilot project, 100 schools will be selected for Phase 1 in 2004, with an additional 200 schools to follow for Phase 2 in 2005. The Government aims to upgrade all of Malaysia's 10,000 primary and secondary schools to Smart School status by 2010.**Programme:** *Computer In Education (CIE)***Partners:** Ministry of Education**Launch Date:** 1995**Objective:** To increase ICT literacy in Malaysian primary and secondary schools by introducing ICT as a subject itself.**Description:** In order to introduce ICT as a subject in schools, the programme has provided computer laboratories to 90 secondary schools and 20 primary schools. Between 1996 and 1998, about 1,230 teachers were trained to conduct the CIE course. Computer Aided Design and Computer Aided Manufacturing (CAD and CAM) courses were also taught in secondary technical schools. This programme has been carried out in conjunction with the Smart School project.**Target:** Primary and secondary school students and teachers**Location:** Nationwide coverage**URL:** <http://www.geocities.com/Athens/Olympus/1512/ns828it.html>**Comment:** RM17.5 million was allocated for CIE in 1999. Funding for ICT equipment is now funded by the *Computerisation Programme in Schools* which focuses on infrastructure provision.

**Programme:** *Computerisation Programme in Schools***Partners:** Ministry of Education**Launch Date:** 2000**Objective:** To provide ICT infrastructure and equipment to promote ICT literacy in Malaysian primary and secondary schools.**Description:** The *Computerisation Programme in Schools* centres on infrastructure provision with the first stage of the pilot project undertaken from March to June 2000, involving 18 schools in six selected states where networked computer laboratories were built. The second stage of the project continued in November 2000 and by February 2002, over 40% of the laboratories were completed. This programme has been carried out in conjunction with the Smart School project.**Target:** Primary and secondary school students and teachers**Location:** Nationwide coverage**URL:** <http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan011288.pdf>**Comment:** The Ministry of Education expects the provision of ICT infrastructure to be delivered by 2004-2005.**Programme:** *Intel® Teach to the Future (Malaysia)***Partners:** Intel, Microsoft, Ministry of Education, Ministry of Entrepreneur Development, Universiti Sains Malaysia and i-EduWeb.com Centre**Launch Date:** July 2001**Objective:** *Intel® Teach to the Future* is a worldwide effort to help both experienced and pre-service teachers integrate technology into instruction and enhance student learning. Participating teachers receive extensive training and resources to promote effective technology use in the classroom.**Description:** Teachers learn from other teachers how, when and where to incorporate technology tools and resources into their lesson plans. In addition, they are instructed on how best to create assessment tools and align lessons with educational learning goals and standards. The programme incorporates use of the Internet, Web page design and student projects. Intel often collaborates with ministries of education or other government entities to adapt the curriculum for each location. *Intel Teach to the Future* is available today in 26 locations with more than 650,000 teachers completing the programme since its inception in 2000. In Malaysia, 15,000 teachers have been trained under the programme.**Target:** Teachers**Location:** Kuala Lumpur (project management base)**URL:** <http://www97.intel.com/education/teach/index.htm><http://www.intel.com/community/malaysia/education.htm><http://www.i-eduweb.com/teachtothefuture.asp>**Comment:** Other educational programmes supported by Intel in Malaysia include:

- (1) Tertiary Equipment Grant, Scholarships, Fellowship Faculty Research Grant, Technical Lectures, and Component Donation.
- (2) Intel Labs - University Malaya, University Science Malaysia, University Technology Malaysia, MultiMedia University, Polytechnic Tengku Omar, University Technology MARA, and Penang Skills Development Center
- (3) Primary/Secondary computer training for students and teachers (PRISE), motivational talks for students, human development course for teachers (Human Dynamics), PC troubleshooting, Young Enterprise (YE) program, PC donation, and encouraging girls in

high school to take up science education through the Women in Science and Engineering Fair (WISE).

**Programme:** *Cisco Networking Academy (Malaysia)*

**Partners:** Cisco Systems

**Launch Date:** N/A

**Objective:** To provide education and training for Malaysia's knowledge workers in the area of Internet technology.

**Description:** The Cisco Networking Academy Program is a non-profit, philanthropic education initiative to bridge the digital divide and contribute to the national development goals of Malaysia. The curriculum focuses on teaching students to design, build and maintain computer networks, and is designed to prepare students for the 21st Century workplace, while serving as a model for e-learning. In March 2002, RM\$3.5 million (US\$900,000) worth of equipment was donated to ten institutes of higher education in Malaysia to set up the advance networking labs required to run the programme.

**Target:** Malaysian institutes of higher education

**Location:** Cyberjaya (MSC- project management base), Multimedia University (Cyberjaya), UiTM (Shah Alam, Selangor), UNIMAS (Sarawak) and USM (Penang). The remaining six institutions will be signed up by the end of 2002.

**URL:** [http://newsroom.cisco.com/dlls/global/asiapac/news/2002/pr\\_03-19.html](http://newsroom.cisco.com/dlls/global/asiapac/news/2002/pr_03-19.html)  
<http://www.cisco.com/asiapac/academy/>

**Comment:** The first Networking Academy was established in the US in October 1997, and the Cisco Networking Academy Program was launched in the Asia Pacific in September, 1998. Today, there are more than 8,700 Academies operating in 136 countries, with over 254,000 students enrolled.

**Programme:** *@learning program*

**Partners:** Malaysian Institute of Microelectronic Systems (MIMOS Bhd)

**Launch Date:** 1997

**Objective:** To increase the usage of ICT among teachers, students, staffs, parents and the local community in education and to increase awareness of ICT's strengths and weaknesses in daily life.

**Description:** The program has three components: (1) Smart Learning Environment (SLE) (2) Mobile Internet Unit and (3) Learning Management System. The SLE has dominated the *@learning program* and aims to create and nurture an environment to motivate life-long learning activities by using the Internet and relevant technologies. MIMOS provides selected schools with free 64Kbps leased line Internet connections.

**Target:** Students, teachers, parents and local communities

**Location:** Smart Learning Environment:

Kuantan (Pahang), Jasin and Paya Rumput (Melaka), Seremban (Negeri Sembilan), Lumut (Perak), Besut (Terengganu), Kuala Lumpur and Selangor

**URL:** Smart Learning Environment: <http://www.jaring.my/learning/sle/index.html>  
<http://www.magazine.jaring.my/articles/Elearning3.pdf>

**Comment:** Current project status is unknown

**Programme:** *CikguNet*

**Partners:** Malaysian Institute of Microelectronic Systems (MIMOS Bhd), National Union Teaching Profession (NUTP), Universiti Teknologi Mara (UiTM), Universiti Pertanian Malaysia (UPM), Universiti Perguruan Sultan Idris (UPSI), Universiti Sains Malaysia (USM), Berita Harian, Pearson Education Malaysia, National Archives, Dewan Bahasa dan Pustaka, Karangkrif Sdn Bhd, iBroadnet Sdn Bhd, New Straits Times, IT Publications Sdn Bhd and Education Quarterly.

**Launch Date:** March 2000

**Objective:** The main objective of *Cikgu.Net* is to create a major repository for teaching and learning resources as well as to provide tools for content development.

**Description:** *CikguNet* is part of MIMOS' Smart Learning Environment (SLE) initiative which started in 1997. *CikguNet* is Malaysia's first education portal that aims to support and prepare educators for the e-learning environment in line with the aspirations of the National IT Agenda (NITA). As an education portal developed by MIMOS Bhd, it provides teaching resources, services, assistance and knowledge exchange for all teachers to promote e-learning.

**Target:** Educators

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.cikgu.net.my>

**Comment:** Current project status is unknown

**Programme:** *Mobile Internet Unit*

**Partners:** MIMOS Bhd, Asia Pacific Development Information Programme (APDIP), Kuala Lumpur; United Nations Development Programme, Ministry of Education (Selangor State Education Department), Selangor State Library and Automotive Corporation Malaysia

**Launch Date:** August 1999

**Objective:** To bring basic ICT skills training to rural students through the use of Mobile Internet Units.

**Description:** As part of MIMOS' *@learning program*, four Mobile Internet Units are equipped with personal computers, multimedia software and trainers to visit 20 rural schools in Selangor to offer computer training to students.

**Target:** Students and teachers in semi-urban and rural areas

**Location:** Batu Caves Gombak, Selayang, Semenyih, Ampang, Kuala Kubu Bharu (2 schools), Batang Kali, Kapar, Pulau Indah, Tanjong Sepat, Sungai Besar, Pulau Carey, Tanjong Karang (2 schools), Puchong, Petaling Jaya, Sungai Pelek (2 schools), Sepang and Sabak Bernam.

**URL:** <http://www.miu.nitc.org.my/miu.htm>

<http://www.undp.org/dpa/choices/2000/june/p15-17.htm>

**Comment:** The Malaysian government intends to expand the number of MIUs from 4 to 20. The success of the MIUs has resulted in a number of spin-off projects which have been initiated across Malaysia including:

- (1) *Cybercomm SS3* – targeting senior citizens and housewives to improve ICT literacy [currently applying for DAGS funding]

(2) *MIU@Tunjang* – targeting family members via ‘ICT literacy for family’ approach [refer below]

(3) *e-kuantan.net* – targeting schools via ‘School as a Community Hub’ [refer to section on ‘Environment & Sustainable Resource Management’]

(4) *Cyber Plant Conservation Project* – targeting schools focusing on conservation of nature projects [refer to section on ‘Environment & Sustainable Resource Management’]

(5) *Rural@Sarawak* - targeting rural communities along the Rejang River where MIUs are in the form of boats. Four community centres will also be built in Mukah, Bau, Marudi and Kapit. This project is being organised by UNIMAS, AZAM and local communities and is awaiting DAGS approval.

**Programme:** *MIU@Tunjang*

**Partners:** MIMOS Bhd

**Launch Date:** April 2001

**Objective:** Based on the theme ‘ICT Literacy for the Family’, *MIU@Tunjang* is a community-based programme to increase ICT literacy among all family members to give communities a direct communication link to the government.

**Description:** *MIU@Tunjang* is the first mobile Internet unit outreach programme to be set up outside Selangor which offers free computer lessons for one year to seven surrounding villages. The project is a spin-off from the Mobile Internet Unit programme administered by MIMOS. Under the programme, Sekolah Kebangsaan Tunjang will be turned into a knowledge centre with a laboratory consisting of 10 internet-enabled computers. MIMOS' Mobile Internet Unit (MIU) will train volunteer teachers from the school while Universiti Utara Malaysia will teach participating villagers.

**Target:** Students, teachers and families in rural communities

**Location:** Jitra, Kedah

**URL:** <http://www.etunjang.nitc.org.my/info.html>

<http://www.miu.nitc.org.my/MIU@Tunjang/welcome.htm>

**Comment:** To date 35 groups of families have enrolled in the programme and will attend eight lessons on basic computing and the Internet. Upon completion, participants return to teach other interested families on a voluntary basis. It is the first Mobile Internet Unit outreach programme to involve the community and not just teachers and students.

**Programme:** *Penang e-Learning Community*

**Partners:** Basic Education Research Unit (BERU) or *Unit Penyelidikan Pendidikan Asas (UPPA)* of Universiti Sains Malaysia, State Department of Education, Penang Network Services Sdn Bhd, participating industries, parents, teachers and government bodies who have come into a mobilisation of resources in the School-Industry Partnership Initiative (SIPI) programme.

**Launch Date:** N/A

**Objective:** To provide an online community portal to facilitate interaction and knowledge-sharing amongst interest groups, common members and the general public.

**Description:** As a portal, the *Penang e-Learning Community* is positioned to create a form of documentation of formal and informal education. The portal will provide (1) a one-stop electronic community centre for information, communication and collaboration, archived and documented information to form knowledge through variety of resources from education, personal experiences, experiments and projects and (2) an open-end platform for the addition of other web-based applications to enrich the community's knowledge resources.

**Target:** Penang Community

**Location:** Penang

**URL:** <http://www.el.net.my/index.cfm>

**Comment:** The SIPI programme aims to transform marginalised schools into top performing schools through the use of current information technology. Current members include 26 schools, the State Department of Education and 12 participating industries in Penang. This programme has been running since 1996.

**Programme:** *Des@Net: Delivering Electronic Services to All*

**Partners:** Sabah State Library, Unit Kemajuan IT Negeri (KIT), Chief Minister's Department, Jabatan Perkhidmatan Komputer Negeri, Jabatan Pendidikan/Schools and KKIP Communications Sdn Bhd

**Launch Date:** January 2002

**Objective:** The objective of *Des@Net* is to promote the effective use and awareness of ICT as a means to improve standards of living, learning, work and recreation among students in rural Sabah.

**Description:** *Des@Net* is a mobile computer training centre that contains 10 notebooks, a server and laser printer. The vehicle visits 10 schools in the rural district of Papar. Each school is visited once every fortnight for a full day where students are taught basic computing skills, usage of Internet browsing and e-mail, word processing and homepage creation. The *Des@Net* notebooks have also been used for other ICT programmes such as computer training workshops conducted for women in Sipitang by the Sabah Women Advisory Council. Computer equipment has also been loaned to University Malaysia Sabah for their IT Awareness Camp in Tawau and Lahad Datu.

**Target:** Schools with limited or no computer facilities and Internet access  
Students in Secondary Levels 1, 2 and 4

**Location:** Papar, Kudat and Kota Belud (Sabah)

**URL:** [http://www.desanet.sabah.org.my/desanet\\_bi/](http://www.desanet.sabah.org.my/desanet_bi/)

[http://www.cornerstone-msc.net/infosockk/day1\\_session3/F\\_KuJooBee.doc](http://www.cornerstone-msc.net/infosockk/day1_session3/F_KuJooBee.doc)

**Comment:** *Des@Net* will be extended to five secondary schools in each of the rural districts of Kudat and Kota Belud from June 2002 onwards. Two more *Des@Net* cybermobiles are in the pipelines under the Eighth Malaysia Plan with a total allocation of RM600,000 from the National Library of Malaysia.

**Programme:** *Selangor Government's Initiative in Bridging the Digital Divide***Partners:** Selangor State Government**Launch Date:** N/A**Objective:** For Selangor residents to become an ICT literate society by 2005 and to reduce the digital divide between rural and urban residents by 30 per cent in 2004.**Description:** Under the initiative, the state government will establish 64 ICT centres of which 46 will be located in rural areas. The state government will also introduce computers to children through the Community Development Department's KEMAS kindergartens. In addition, local village heads will undergo a three-month computer training course.**Target:** Residents of all age groups in Selangor, with particular emphasis on rural communities.**Location:** Statewide coverage**URL:** <http://www.selangor.gov.my/suk/prodnews.php?cod=60>**Comment:** The focus on rural communities is based on computer literacy rates of 20 per cent in contrast to 70 to 80 per cent in urban areas. The State Government has spent RM19 million on ICT programmes so far. RM14.3 million has been allocated for ICT programmes in 2003.**Programme:** *Pusat Latihan ICT - Klang***Partners:** Klang Municipal Council (MPK)**Launch Date:** May 2001**Objective:** To promote ICT awareness and training for residents in Klang, Selangor**Description:** To raise the ICT literacy rate and provide easy access to computers, the MPK opened *Pusat Latihan ICT* in May 2001 in Port Klang. Costing RM500,000, it is the first such centre within the municipal council's area and one of 10 in Klang. The centre is open to the public and MPK staff who are interested in computer and Internet courses and is part of the Selangor Government's initiative to bridge the digital divide.**Target:** Klang residents of all age groups**Location:** Klang (Selangor)**URL:** <http://portal.mpklang.gov.my> (website of MPK with online and information services)  
[http://www.emedia.com.my/TECH/BizComp/SpecialReport/20030805172839/pp\\_index.html](http://www.emedia.com.my/TECH/BizComp/SpecialReport/20030805172839/pp_index.html)**Comment:** RM2 million and RM3 million have been budgeted for MPK's ICT budget in 2003 and 2004 respectively.**Programme:** *Malaysian Grid for Learning (MyGfL)***Partners:** Ministry of Education, Ministry of Human Resources, National Library and MIMOS Bhd**Launch Date:** 2003**Objective:** To connect the Malaysian learning community, schools and education institutions, industry, communities, individuals and online learning resources into one integrated platform.**Description:** Malaysian Grid for Learning (MyGfL) is an integrated online learning platform catering to Malaysians of every age, from kindergarten children to adult learners. *MyGfL* will become a one-stop centre for all existing e-learning projects by providing free online learning resources and services.**Target:** All Malaysians and educators**Location:** Nationwide coverage

**URL:** <http://www.mygfl.net.my/>  
**Comment:** The Ministry of Education will champion the development of formal learning content while the Ministry of Human Resources will provide an inventory of online courses. The National Library provides an inventory of e-learning resources while MIMOS Bhd develops the technical and content guidelines besides developing the *MyGfL* integrating platform. In 2003 *MyGfL* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

**Programme:** *e-Warga Kota (e-City Residents)*

**Promoter:** Bioenergy Sdn Bhd

**Partners:**

**Launch Date:** June 2003

**Objective:** To use ICT as enablers not only for bridging the digital divide but to improve the socio-economic well-being of Malaysia's urban poor.

**Description:** Launched by Kuala Lumpur City Hall (DBKL), this pilot project involves the introduction of ICT training and access to residents through the upgrading of local ICT resource centres.

**Target:** Urban poor

**Location:** Kuala Lumpur (project management base)  
 Public Housing Sri Perak Bandar Baru Sentul (pilot project)  
 Public Housing Jalan Jelatek (pilot project)

**URL:** Under construction

**Comment:** *e-Warga Kota* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Project has been endorsed and is currently under development.

**Programme:** *Pendidikan Perdana*

**Promoter:** Mr Murali Mano, Cyber-Village Sdn Bhd

**Partners:** Sekolah Menengah Kebangsaan Taman Maluri, Cheras

**Launch Date:** N/A

**Objective:** To provide an e-learning portal for 800 students and 20 teachers at Sekolah Menengah Kebangsaan Taman Maluri.

**Description:** Pendidikan Perdana is a web-based application to develop e-learning and enhance teacher-student relationships. The website enables students and teachers to interact via the Internet in various educational and extra-curricular activities while a unique student performance application helps teachers identify their students' areas of weakness to enable a customisation of programmes for each student.

**Target:** Students and teachers at Sekolah Menengah Kebangsaan Taman Maluri

**Location:** Cheras (Kuala Lumpur)

**URL:** <http://www.kakaktua.com>

**Comment:** Recently, KakakTua.com was proud to launch Malaysia's first trial PMR and UPSR online examination. *Pendidikan Perdana* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

**Programme:** *Virtual-access.com.my*

**Promoter:** Ms Cheryl Phee, Smart-Ed Dot Com Asia Sdn Bhd

**Partners:** Penang State Government, State Education Departments of

Penang and Kedah, Pusat Sumber Pendidikan Negeri, Pulau Pinang, Penang State Library, Kwong Wah Yit Poh Press Bhd, Young Malaysian Movement, Felda Prodata Systems Sdn Bhd, Inventec Electronics (M) Sdn Bhd and Telekom Multimedia

**Launch Date:** N/A

**Objective:** *Virtual-Access.com.my* is an educational website aimed at providing an interactive online environment for socio-educational activities for secondary school students and teachers.

**Description:** The implementation of the project involves two main elements. First, the *virtual-access.com.my* website which has features such as e-learning modules, interest group activities, e-counselling, online competitions and educational resources. The other element of the project involves the creation of an e-Community. Teachers and students from selected schools will be given exposure and training on Internet skills, webpage design and publishing techniques.

**Target:** Secondary school students and teachers

**Location:** Penang (project management base)

**URL:** <http://www.virtual-access.com.my>

**Comment:** *Virtual-Access.com.my* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *E-Learning in Islamic Schools*

**Promoter:** Associate Professor Salwani Mohd Daud, Universiti Teknologi Malaysia

**Partners:** Pusat Pendidikan Al-Amin and AAEN Sdn Bhd

**Launch Date:** N/A

**Objective:** This project aims to develop an e-learning community in Pusat Pendidikan Al-Amin.

**Description:** The project is based on the following activities: (1) providing ICT literacy training for students, parents and teachers (2) developing IT competency for the development of web based multimedia courseware (3) designing and developing web-based courseware in Islamic Subjects and science using Tulisan Jawi (4) designing and developing an e-learning portal and (5) the development of virtual communities.

**Target:** Students and teachers of Pusat Pendidikan Al-Amin

**Location:** Sekolah Rendah Islam Al-Amin (Kuala Lumpur) and Sekolah Rendah Islam Al-Amin (Gombak)

**URL:** <http://www.al-amin.edu.my/>

**Comment:** *E-Learning in Islamic Schools* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *ICT-LitPro*

**Promoter:** Mr Nadaraj Ramasamy, InfoRam.net Resources

**Partners:** Sekolah Menengah Kebangsaan Bandar Sunway, its Parents-Teachers Association and the Sunway Residents' Association

**Launch Date:** N/A

**Objective:** *ICT-LitPro* is aimed at inculcating computer literacy among the 13, 14 and 15 year old youths in the community to take them beyond using the computer for only entertainment purposes and games.

**Description:** This programme is divided into three different levels which has a set curriculum of 80 hours each. At the end of each topic, a test and practical assessment are done. A complete understanding of the curriculum will enable students to pursue higher education in the field of ICT. Another focus of this programme is the training of teachers and parents in ICT skills.

**Target:** 13-15 year old youths, teachers and parents

**Location:** Bandar Sunway (Selangor)

**URL:** <http://www.ict-litpro.com/index.htm>

**Comment:** *ICT-LitPro* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *Karyanet*

**Promoter:** Dr Anuar Ridhwan, Dewan Bahasa dan Pustaka

**Partners:** IGD Hitech Corporation Sdn Bhd

**Launch Date:** N/A

**Objective:** Under the aegis of Dewan Bahasa dan Pustaka, *KaryaNet* was set up with the vision to encourage new authors to write scholarly publications.

**Description:** *KaryaNet* will provide potential writers with reference materials, training on writing techniques and mentoring. Writers, editors, reviewers, publishers, researchers and others involved in content creation will be networked in a community nurturing a continuous stream of new publications and budding writers.

**Target:** Writers, editors, reviewers, publishers, researchers and others involved in content creation

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.karyanet.com.my>

**Comment:** *KaryaNet* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *Pesaka Ilmu*

**Promoter:** Professor Dr Ghazally Ismail, Malaysia University of Science & Technology (MUST)

**Partners:** MICE Channel Sdn Bhd and Intelec Asia

**Launch Date:** N/A

**Objective:** Using ICT as a tool, *Pesaka Ilmu* aims to promote and develop an e-Publishing Community made up of editors, rights negotiators, writers, content marketers and e-book manufacturers.

**Description:** *Pesaka Ilmu* aims to establish a steady pool of academicians, writers and contributors to produce knowledge content. This electronic application will ensure a continuous flow of publication updates. An e-payment scheme will also be available through *Pesaka Ilmu* for the purchase of their products.

**Target:** Academics, writers and editors

**Location:** Petaling Jaya (Selangor)

**URL:** <http://www.pesakailmu.com/>

**Comment:** *Pesaka Ilmu* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *Raja Kita*

**Promoter:** The National Library of Malaysia

**Partners:** DEMC Anzagain Sdn Bhd, Prime Minister's Department, Istana Negara, National Museum and National Archives

**Launch Date:** February 2002

**Objective:** To establish an Internet portal to promote a better understanding of the Malaysian monarchy system.

**Description:** The National Library of Malaysia aims to develop a bilingual portal to provide insights into Malaysia's monarchy system. Some of the features include a 3D walk through the palace and a 360 degree view of its special rooms. Vocabulary building and interactive exercises will be provided to create a fun learning environment. *Raja Kita* will also serve as the virtual platform to link the monarchy with the rakyat.

**Target:** General public with an interest in Malaysian monarchy

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.rajakita.org/>

**Comment:** This project will be the model for the development of similar projects featuring the Heads of State throughout Malaysia. *Raja Kita* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

**Programme:** *Malaycivilization.com*

**Promoter:** ATMA-UKM (Institute of Malay World and Civilization, Universiti Kebangsaan Malaysia)

**Partners:** Paragon Automation Sdn Bhd

**Launch Date:** 2002

**Objective:** To increase the ability and capacity of Malaysian institutes to aggregate, analyse and publish timely and accurate online content on resources related to Malay civilisation to preserve Malay culture.

**Description:** *www.malaycivilization.com* is a research-based digital library project promoted by ATMA-UKM (Institute of Malay World and Civilization, Universiti Kebangsaan Malaysia) to provide access to online resources related to the Malay civilisation in a variety of formats such as text, graphic, audio and video. A variety of services are available to registered users such as the request and purchase of documents and participation in online events.

**Target:** Scholars, researchers, students, publishers and media in Malaysia and worldwide.

**Location:** Bangi, Selangor (project management base)

**URL:** <http://www.malaycivilization.com/>

**Comment:** *Malaycivilization.com* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project is under development.

- Programme:** *PersaraJaya*  
**Promoter:** Persatuan Pesara Kerajaan Malaysia  
**Partners:**  
**Launch Date:** 2003  
**Objective:** To focus on tapping the knowledge, expertise and skills of retired civil servants in addressing crucial development and public issues.  
**Description:** N/A  
**Target:** Retired civil servants  
**Location:** Kuala Lumpur (project management base)  
**URL:** Under construction  
**Comment:** *PersaraJaya* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Project has been endorsed and is currently under development.
- Research:** *Promoting ICT for Human Development in Asia: Realizing the Millennium Development Goals*  
**Date:** 2002 / 2003  
**Author:** Asia Pacific Development Information Programme (APDIP), Kuala Lumpur  
 Asia Pacific Regional Initiative on HDRs, (APRI-HDRs), HDRC, New Delhi  
 Regional Bureau for Asia and the Pacific  
 United Nations Development Programme
- Sponsors:**  
**Summary:** This report provides an overview of current ICT4D initiatives in Malaysia in the UN Millennium Development Goal areas of poverty alleviation, education, gender equality, health, HIV/AIDS, environmental sustainability and global partnerships. It provides a comprehensive overview of ICT4D projects administered at the Government, private and civil society levels.
- Research:** *Teleworking and Development in Malaysia*  
**Date:** 2001  
**Author:** Cecilia Ng (editor)  
**Sponsors:** United Nations Development Programme  
**Summary:** This research aims to document the nature, extent and potential of teleworking in Malaysia by assessing its impact on employment both at the national and international level. It also examines the various factors that will attract or inhibit the implementation of teleworking and teletrade in key service sectors in Malaysia. This publication is derived from the findings of the policy research project on Teleworking and Development in Malaysia (1997-1999) executed by the United Nations University Institute for New Technologies (UNU/INTECH) in close collaboration with MIMOS Berhad.
- Research:** *Study of Human Resources Requirements to Support the Application and Diffusion of IT in Malaysia*  
**Date:** December 2000  
**Author:**  
**Sponsors:** United Nations Development Programme  
**Summary:** The objective of the study is to review and assess the depth and sophistication of IT applications and the implications for human resource

development in Malaysia. The results of the study will provide policy makers with a comprehensive overview of IT and human resource issues to develop appropriate strategies for the period 1998-2005.

- Research:** *Formulation of Human Resource Development Master Plan*
- Date:** November 2003 (Expected completion date)
- Author:** N/A
- Sponsors:** United Nations Development Programme  
Economic Planning Unit
- Summary:** The objective of this study is to enable Malaysia to formulate a Human Resource Development Master Plan that will leapfrog Malaysia's transition into a knowledge-based economy. It will incorporate recommendations on policies and strategies for the development of high quality and globally competitive human resources to support Malaysia's economic goals and competitive advantage. The study will also formulate an action plan for the effective implementation of the HRD Master Plan.

## Regional Development

**Programme:** *Community Communications Development Programme (CCDP)*

**Partners:** MCMC, Maxis Communications, Time dotCom and state EPUs

**Launch Date:** December 2002

**Objective:** The aim of the CCDP is to build capacity, as well as to introduce and encourage growth in the usage of communications and multimedia-based services to communities all over Malaysia which have limited access to communications networks and services. The MCMC intends to create community communication equipped with a range of communications and multimedia services to facilitate Internet access, e-commerce and e-learning.

**Description:** The first phase of CCDP was launched in December 2002 in two locations in East Malaysia. Falling under the CCDP is also the *Kedai.Kom* project which has a target of 173 sites with five sites per district in Pahang, Perak, Kedah, Perlis and Malacca. The remaining States will be included in the second phase.

**Target:** Rural and remote communities

**Location:** Pakan (Sarawak), Kinabatangan (Sabah), Kuala Kedah (Kedah), Kuala Muda (Kedah), Perak, Perlis, Pahang and Malacca.

**URL:** <http://www.mcmc.gov.my/mcmc/newsdesk/press/ViewPressRelease.asp?cc=7768757&prid=971111>  
<http://www.mcmc.gov.my/mcmc/newsdesk/press/ViewPressRelease.asp?cc=20728100&prid=46824283>

**Comment:** The MCMC has allocated RM90 million for the CCDP for 2002/03 and aims to provide an integrated approach to the introduction of communications and multimedia services through collaboration with state agencies, industry, NGOs and the local population.

**Programme:** *KTKM-Maxis Cyberkids Camp*

**Partners:** MCMC, Maxis Communications and state education departments

**Launch Date:** December 2002

**Objective:** To bridge the digital divide by providing ICT training camps for children in remote communities.

**Description:** The pilot project was held in December last year with a total of 60 pupils and 12 teachers from six schools in the Pitas, Kudat and Kota Marudu districts in Sabah. As part of Maxis' Bridging Communities Program, Maxis has organised two camps so far in an effort to bridge the digital gap through the use of wireless connectivity with computers, very small aperture terminal (VSAT) technology and MEASAT satellite services.

**Target:** Students in remote / rural communities

**Location:** Pitas, Kudat and Kota Marudu (Sabah), Sarawak (3 camps) and Perlis (4).

**URL:** <http://www.emedia.com.my/TECH/BizComp/SpecialReport/20030805172932/wartrevamp>

**Comments:** Overall, the project aims to cover 220 schools in East Malaysia within two years, with plans to expand the camps in multiple locations in the future to Sarawak and Perlis.

**Programme:** *Rural Internet Centre (RIC) - Internet Desa*

**Partners:** MCMC, Maxis Communications, Shell, POS Malaysia

**Launch Date:** March 2000

**Objective:** To provide ICT training and the establishment of Internet access centres in remote Malaysian communities.

**Description:** The *Internet Desa* programme involves the provision of Internet access points at public venues such as post offices and Shell petrol stations.

**Target:** People in rural and remote communities above 18 years of age

**Location:** Siburan (Sawarak), Ketari (Pahang) and other selected sites nationwide

**URL:** [http://www.tradenex.com/SharedImages/Library/pdf/F\\_21.pdf](http://www.tradenex.com/SharedImages/Library/pdf/F_21.pdf)  
[http://www.maxis.com.my/personal/about\\_us/newsroom/press/2001/index.asp](http://www.maxis.com.my/personal/about_us/newsroom/press/2001/index.asp)

**Comment:** The *Internet Desa* programme aims to supply computers and free Internet access at 100 access points. Current project status is unknown.

**Programme:** *e-Kundasang*

**Partners:** Ministry of Rural Development and National IT Council

**Launch Date:** N/A

**Objective:** This is a bridging the digital divide (BDD) pilot project that focuses on alleviating poverty in rural areas using ICT.

**Description:** It is an attempt to build farmers' families with knowledge of agriculture and economics to improve their livelihoods. It provides an ICT Centre with websites containing relevant content in terms of agriculture and provides ICT training to farmers and their families.

**Target:** Very poor farmers in Sabah

**Location:** Targeted for Sabah

**URL:** No website

**Comment:** Project at proposal stage

**Programme:** *Infodesa programme*

**Partners:** Ministry of Rural Development

**Launch Date:** N/A

**Objective:** To provide ICT training and the establishment of Internet access centres in remote Malaysian communities. To develop innovative and appropriate applications to serve the needs of rural and under served areas.

**Description:** The *Infodesa* programme offers ICT training to remote communities by providing one-stop centres for information on government services and ICT training. The centres can also be utilised for teleworking and distance learning. The programme is run from its own building or site.

**Target:** Rural and remote communities

**Location:** Eight selected rural areas

**URL:** N/A

**Comment:** Under the Eighth Malaysia Plan (2001-2005), the Government will implement the *Infodesa* programme in eight rural areas. Current status is unknown.

**Programme:** *Desa Digital (Digital Village)*

**Partners:** Malaysian Institute of Microelectronic Systems (MIMOS Bhd)

**Launch Date:** 2001

**Objective:** The *Desa Digital* project aims to narrow the digital divide between the rural and urban community with regards to Internet usage. The main objective is to encourage communities in rural areas to embrace and use the Internet, hopefully resulting in an improvement in the community's standard of living.

**Description:** *Desa Digital* is the result of MIMOS' Smart Learning Environment (SLE) initiative which started in 1997. The project is expected to reach 40,000

families in rural areas with Internet access, equipment, training and the construction of cyber community centres. The nationwide project will see 40 Desa Digital communities involving 1,000 families in each community. The plan also calls for each Desa Digital community to have a 'digital' centre, where community members can access the Internet 24 hours a day, seven days a week. The centre, which acts as a community centre, will also provide a multitude of facilities ranging from content development, training, teleconferencing, teleconsultation, distance learning and a virtual library. Special emphasis will also be placed on the community's specific economic activities and how to improve marketing efforts to optimise distribution channels for their own produce. It is expected that around 200,000 people will benefit from the nationwide programme.

**Target:** Communities in rural Malaysia  
**Location:** Nationwide coverage  
**URL:** <http://www.magazine.jaring.my/2000/october/webbusiness1.html>  
**Comment:** Current project status is unknown

**Programme:** *Highland Business Community Station (Hibiscus)*

**Partners:** Institute for Development Studies (IDS) Sabah

**Launch Date:** 2002

**Objective:** Hibiscus is a pilot project for the farming community in Kundasang, Sabah to assist them through strategic deployment and utilisation of Information and Communications Technology (ICT).

**Description:** *Hibiscus* is an initiative of the Institute for Development Studies, a thinktank to the Sabah State Government, to develop a common e-platform for business to assist farmers and growers in Kundasang. Under the project, there are plans to provide hands-on training to farmers on the use of computers and the Internet to access relevant information such as prices of agricultural produce and modern farming practices.

**Target:** Rural community in Kundasang  
**Location:** Kundasang (Sabah)  
**URL:** <http://www.newsabahtimes.com.my/June2003/18.6/local4.htm>  
**Comment:** A proposal is being prepared by IDS for DAGS funding. IDS is also in the process of replicating the *Hibiscus* model for the development of the proposed Sabah Agro-Business Virtual Community Station, a web-enabled database to serve as the Sabah Agro-Industrial Precinct (SAIP) virtual gateway. This would provide a common platform for those involved in the supply and demand value chain in the agricultural industry.

**Programme:** *e-Sematan*

**Partners:** Information and Communication Technology Unit (Chief Minister's Department of Sarawak) and NITC

**Launch Date:** N/A

**Objective:** To provide equal access to information and opportunities to stimulate local capacities for informed decision-making for community development in the areas of agriculture, fishery and eco-tourism through the effective deployment of ICT.

**Description:** Communities will be provided with Internet access via a telecentre and will have access to other services such as photocopying machines.

**Target:** Rural poor of Sarawak

**Location:** Sawarak

**URL:** No website

**Comment:** Project at proposal stage

**Programme:** *SM@SY (Smart Masyarakat)*

**Promoter:** Dr Lin Mui Kiang, Worldview Foundation Malaysia

**Partners:** Aincom Computer Centre, Jabatan Kemajuan Masyarakat (KEMAS) Kuala Selangor

**Launch Date:** 1999

**Objective:** Worldview Foundation started the *SM@SY* project in 1999 as a means of bringing information technology to the remote village of Kampung Raja Musa, Kuala Selangor, as a powerful tool for communities to develop the new skill sets and knowledge they need to sustain themselves. *SM@SY* also aims to develop capacity-building programs to heighten the community's receptiveness to IT and enhance their ability to use it.

**Description:** In the first phase of the project, *SM@SY* provided interactive touch-screen information kiosks located at traditional community gathering places such as primary schools, women's activities centres and community halls to introduce and familiarise the community members with ICT. In the second phase, *SM@SY* set up its own LAN-networked computer centre with 10 PCs, a printer, a scanner and Internet access. The *SM@SY* centre and kiosks are now managed by full-time staff under the supervision of *SM@SY* team members and the Village Security and Development Committee.

**Target:** Community of Kampung Raja Musa, Kuala Selangor

**Location:** Kampung Raja Musa, Kuala Selangor (Selangor)

**URL:** <http://www.wvview.com.my/smasy>

**Comment:** *SM@SY* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). The project is still ongoing through self-funding by the local community.

**Programme:** *e-Bario*

**Promoter:** Professor Dr. Khairuddin Abdul Hamid, Faculty of IT, Universiti Malaysia Sarawak

**Partners:** Compuserve (Sarawak) Sdn Bhd, the e-Community Task Force of Strategic Thrust and Implementation (STIC), Telekom Malaysia and Canada IDRC

**Launch Date:** May 1999

**Objective:** The project set out to define the extent to which contemporary ICTs could deliver sustainable human development to remote rural communities in Sarawak.

**Description:** The *e-Bario* project sees the establishment of one telecentre with Internet access and computers to serve the residents of 12 longhouses in Bario, Sarawak. The secondary school of the community, Sekolah Menengah Bario will also be outfitted with Internet-enabled computers. Using participatory action-oriented research methods on this testbed community, the project will identify, implement and refine ICT-based information

systems that can nurture human development in rural and remote communities.

**Target:** Residents in Bario, Sarawak  
**Location:** Bario (Sarawak)  
**URL:** <http://www.unimas.my/ebario/>  
**Comment:** *e-Bario* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown

**Programme:** *e-Pondok*

**Promoter:** Serambi Saujana (M) Sdn Bhd

**Partners:** Pusat Pembangunan Pondok (PPPB)

**Launch Date:** N/A

**Objective:** To promote the benefits of ICT to members of the Pondok community (informal centres for Islamic religious teaching).

**Description:** *e-Pondok* is an ICT literacy awareness campaign that benefits the Pondok community through ICT training and seminars, computer rooms and the creation of Pondok websites. 850 people have already attended basic ICT skills training programmes while 1500 have attended a series of 5 ICT seminars.

**Target:** 2050 members of Pondok Terusan, Pasir Tumbuh; Pondok Sungai Durian, Kuala Krai; Pondok Lubok Tapah, Pasir Mas; Pondok Tunjung, Kota Bharu and Pondok Gelang Mas, Pasir Mas.

**Location:** Pasir Tumbuh, Kuala Krai, Pasir Mas and Kota Bharu (Kelantan)

**URL:** <http://www.epondok.com.my/epondok/>

**Comment:** *e-Pondok* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *e-Kuantan.net*

**Promoter:** SMK Tanah Putih, Kuantan, Pahang.

**Partners:** MIMOS Bhd, The Media Shoppe and e-Kuantan Community Partners

**Launch Date:** N/A

**Objective:** This project aims to address low literacy levels and promote awareness of ICT among communities in Kuantan, Pahang.

**Description:** SMK Tanah Putih is the designated hub for the project which has been used as the community learning centre for ICT skills training and development. The school will also be the hub for the design of local web portals. It is hoped that *e-Kuantan.net* will provide alternative channels for communication, content development, e-commerce opportunities and the creation of e-communities.

**Target:** Communities of Kuantan, Pahang

**Location:** Kuantan (Pahang)

**URL:** Website under construction

**Comment:** *e-Kuantan.net* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

## Public Sector Programme & its Financing

N/A

## Privatization

N/A

## Agricultural Development

**Programme:** *AkisNet*

**Promoter:** TMM-Biotech Sdn Bhd

**Partners:** Local Farmer Associations (LFAs), Ministry of Agriculture (Farmer Organisation Authority - FOA), Marditech Corporation Sdn Bhd and Industrial and Financial Systems AB

**Launch Date:** September 2001

**Objective:** To create a collaborative environment to bridge the digital divide for the agricultural community with an emphasis on (1) establishing a sustainable technology infrastructure (2) creating productivity and enhancement programmes (3) developing ICT literacy within farming communities and (4) creating new commercial opportunities for these communities

**Description:** *AkisNet* is a suite of e-Agriculture software applications designed to be adapted for specific agricultural sub-sectors. The first pilot project entitled *PadiNet* involved a group of rice-growing farmers in Penang who used the *AkisNet* platform to collect and consolidate information to their Local Farmer Associations (LFAs). The *AkisNet* programme aims to assist in local farming projects to develop cost efficient solutions to prepare these communities for their successful participation in the e-Marketplace. ICT training is also provided to support the programme.

**Target:** Local farming communities

**Location:** Pokok Sena, Kampung Pelet, Penaga and Lahar Bubu (Pulau Pinang)

**URL:** <http://www.akisnet.com.my/default.asp>

**Comment:** *AkisNet* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *TaniNet*

**Promoter:** Dato' Dr Salleh Mohd Noor, TropBio Research Sdn Bhd

**Partners:** Bioenergy Sdn Bhd, Local Farmer Associations (LFAs), Ministry of Agriculture (Farmer Organisation Authority - FOA) and Universiti Malaya

**Launch Date:** September 1999

**Objective:** Created to enable the Malaysian agricultural community to use the Internet as a tool for communication and a place to share information on agriculture and biotechnology.

**Description:** *TaniNet* provides each LFA with one personal computer with dial-up connection to the Internet. The website provides access to information and services on agriculture and biotechnology with bulletin boards to submit information requests. ICT training is also provided to farmers and family members.

**Target:** Local Farming communities (First phase made up of 4 LFAs in Selangor)

**Location:** Selangor

- URL:** <http://www.taninet.com.my/>
- Comment:** Phase 2 is to be implemented with 50 LFAs throughout West Malaysia. *TaniNet* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.
- Programme:** *Majuikan FAMA Online*
- Promoter:** Dr Nik Rushdi Nik Hassan, Pasarborong Online Sdn Bhd
- Partners:** Lembaga Kemajuan Ikan Malaysia (LKIM) and the Federal Agricultural Marketing Authority (FAMA)
- Launch Date:** N/A
- Objective:** To expand the accessibility of Malaysian fishery and agricultural products to interested parties to facilitate improved livelihoods for fishermen and farmers and better produce for consumers.
- Description:** *Majuikan FAMA Online* aims to achieve this goal by taking advantage of the infrastructure available to Pasarborong.com to build online ordering and auction systems that will enable buyers to purchase products such as fish, vegetables, fruits and poultry directly from the landing or entry areas as well as suppliers. This system will shorten the delivery chain between the supplier and the consumer.
- Target:** Local fisherman and farmers
- Location:** Kuala Lumpur (project management base)
- URL:** <http://agrolink.moa.my>
- Comment:** *Majuikan FAMA Online* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

## Industrial Development

- Programme:** *MyBiz*
- Promoter:** Mr Cheong Yuk Wai, MyBiz International Limited
- Partners:** SMIDEC, BCB Bank, MIMOS, Citibank, AT Kearney, Microsoft and Ariba
- Launch Date:** N/A
- Objective:** *MyBiz BusinessRelationshipNetwork™* aims to help small and medium-sized industries (SMIs) migrate their business online to form a collaborative e-Community.
- Description:** *MyBiz* has built technology and business solutions to enable business organisations to profit from e-commerce. *MyBiz* has created an affordable path for SMIs to move traditional business activities online. Currently, *MyBiz* has expanded its skills and knowledge to build private business networks. The B2B community with transactional capabilities was created through DAGS funding. Trade leads, a database of local and international traders and other features such as selling in different currencies, catalogue management, user profile maintenance, contract management and customer care are available through *MyBiz*.
- Target:** SMIs
- Location:** Kuala Lumpur (project management base)
- URL:** <http://www.mybiz.net>

**Comment:** *MyBiz* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *TradeNex.com*

**Promoter:** Ybhg Datuk Paul Low, Vice President, Federation of Malaysian Manufacturers (FMM)

**Partners:** Federation of Malaysian Manufacturers (FMM), FMM Institute of Manufacturing (FMM-IM), EAN Malaysia, Malaysian Plastics Manufacturers Association (MPMA), Malaysian Iron and Steel Industry Federation (MISIF), Malaysian Rubber Products Manufacturers Association (MRPMA), Malaysian Rubber Gloves Manufacturers Association (MARGMA), Malaysian Automotive Components Parts Manufacturers (MACPMA), Malaysian Wood Moulding and Joinery Council (MWMJC), Malaysian Associated Indian Chambers of Commerce and Industry (MAICCI), Malaysian Retailers Association (MRA), Federation of Malaysian Foundry and Engineering Industry Associations (FOMFEIA), Dancom Telecommunications (M) Sdn Bhd, Hewlett-Packard Malaysia, Microsoft Malaysia, MIMOS Bhd, Viinx Malaysia and Devote NV

**Launch Date:** April 2001

**Objective:** To develop a community-based portal for the manufacturing sector, offering e-commerce services to Malaysian manufacturers.

**Description:** As a subsidiary of the Federation of Malaysian Manufacturers (FMM), *TradeNex.com* was established to promote the adoption of e-commerce among local SMIs so they can be internationally competitive. The e-commerce services offered by *TradeNex* can be based on the international RosettaNet standard. *TradeNex* also provides training to Malaysian manufacturers on how to leverage ICT to enhance their business and operational procedures.

**Target:** Malaysian manufacturers

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.tradenex.com>

**Comment:** *TradeNex.com* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *TIGeR*

**Promoter:** TIGeR Consortium

**Partners:**

**Launch Date:** 2002

**Objective:** The objectives of the *TIGeR* project are as follows:

- (1) To jumpstart an integrated e-Manufacturing Hub for Global Supply Chain Management (SCM) to sharpen Malaysia's competitiveness in the E&E Cluster
- (2) To strengthen business relationships between global buyers and local manufacturers and suppliers by eBusiness integration of the Global Supply Chain
- (3) To develop a community of Malaysian manufacturers and suppliers with the necessary tools, skills, processes and technology to be a value added and key component in the integrated global supply chain

(4) To provide an integrated platform for local Malaysian manufacturers and suppliers to leverage on the proven technology to integrate to global supply chain

(5) To promote locally developed technology and services to build and spur the growth of knowledge-based industry in Malaysia

**Description:** *TIGeR* stands for Technology + Industry + Government for the e-Economic Revolution of Malaysian businesses with the aim of strengthening the competitiveness of the Malaysian manufacturing industry. *TIGeR* also promotes the use of local technology for collaboration amongst the industries for a sustainable economy. The first year will see *TIGeR* target the Electrical and Electronics industry followed by other industries in the coming years.

**Target:** Malaysian manufacturers

**Location:** Nationwide coverage

**URL:** <http://tiger.tradenex.com/>

**Comment:** *TIGeR* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project is under development.

**Research:** *Study on Knowledge Contents in the Key Economic Sectors*

**Date:** December 2003 (Expected completion date)

**Author:** Economic Planning Unit

**Sponsors:** United Nations Development Programme

**Summary:** The objective of this study is to develop a framework that will (1) enable the assessment of the level of knowledge content in key sectors of the economy on a regular basis (2) identify sectors/industries that are lagging behind (3) identify sectors/industries that have the biggest potential to benefit from greater use of knowledge and technology and (4) formulate appropriate policies to promote greater application of knowledge. The results of this study will serve as inputs to the Economic Planning Unit and relevant implementing agencies in the formulation of appropriate policies, strategies and programmes to improve the knowledge content of these industries with the view to increase their productivity and competitiveness.

## Infrastructure & Utilities

N/A

## Energy

N/A

## Science & Technology

**Research:** *Forecasting Malaysia's Science and Technology Human Resources and Research and Development Investment Needs Leading to the Year 2020*

**Date:** February 1997

**Author:** SRI International

**Sponsors:** Malaysian Ministry of Science, Technology and the Environment  
United Nations Development Programme

**Summary:** SRI International examines the current state of Malaysia's human resource

development issues in the areas of science and technology (S&T) and investments in research and development (R&D). While the findings document existing and future shortages of human resources in S&T they also point to Government programmes which are favourable to address the problem.

## Finance

N/A

## Tourism

**Programme:** *myKedah.com*

**Promoter:** Hajjah Mazizah bt. Haji Mohd Darus, Kedah State Public Library Corporation.

**Partners:** Cosmopoint Sdn Bhd

**Launch Date:** N/A

**Objective:** *myKedah.com* will be developed to provide information on the state of Kedah.

**Description:** Unique to this project is the contribution of content from members of the Kedah community. This website provides information on Kedah, including its history, arts and culture.

**Target:** People with an interest in Kedah

**Location:** Kedah (project management base)

**URL:** <http://www.mykedah.com/>

**Comment:** *myKedah.com* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

## Distributive Trade

**Programme:** *E-Koop*

**Promoter:** Jabatan Pembangunan Koperasi Malaysia (Department of Co-operative Development)

**Partners:** PrettyMind Sdn Bhd

**Launch Date:**

**Objective:** *E-Koop* aims to expose their members to the benefits of using information and communications technology.

**Description:** Initiated by Jabatan Pembangunan Koperasi Malaysia, *E-Koop* will help train their members on ways to use electronic tools to manage and administer their shops in order to enhance the efficiency and effectiveness of current operating systems. E-commerce applications will also be developed for the co-operatives to put their businesses online.

**Target:** Members of Jabatan Pembangunan Koperasi

**Location:** Selangor (project management base)

**URL:** Under construction

**Comment:** *E-Koop* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

## Health

**Programme:** *Telehealth Flagship Application*

**Partners:** Ministry of Health, Medical Online Sdn Bhd, World Care Sdn Bhd and selected Malaysian hospitals

**Launch Date:** 1997

**Objective:** The Telehealth initiative aims to keep Malaysians in the 'wellness' paradigm, through the seamless availability of health information and virtual health services to transform the way healthcare services are delivered and accessed.

**Description:** There are four pilot programs which are being administered by the two consortia, Medical Online and World Care: (1) Teleconsultation (2) Mass Customised / Personalised Health Information and Education (3) Lifetime Health Plan and (4) Continuing Medical Education.

**Target:** All Malaysians

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.telehealth.com.my>

<http://www.moh.gov.my/SPEECH/menteri/18091997-0900-1030-BI.htm>

**Comment:** Current project status is unknown

**Programme:** *PROSTARNET*

**Partners:** AIDS/STD Section, Department of Public Health (Ministry of Health)

**Launch Date:** 1995

**Objective:** To promote the Ministry of Health's PROSTAR community programme to disseminate online information on AIDS/STD prevention and awareness.

**Description:** PROSTAR is a community mobilisation programme where youths are trained as educators to promote health education and healthy lifestyle choices. A new website called *PROSTARNET* is being constructed to provide an online channel for information dissemination and to monitor various PROSTAR programmes and its 850 clubs with a total membership of 20,000. The AIDS/STD Section of the Department of Public Health Malaysia will also use *PROSTARNET* to monitor its peer-educator training programmes and other activities.

**Target:** Malaysian youth

**Location:** Kuala Lumpur (project management base)

**URL:** <http://prostar.dph.gov.my/>

**Comment:** A new website is being developed and will be launched in September 2003. Current project status is unknown.

**Programme:** *NutriWeb Malaysia*

**Promoter:** Nutrition Society of Malaysia

**Partners:** MIMCED Sdn Bhd and Versacomm Sdn Bhd

**Launch Date:** November 1999 till November 2000

**Objective:** The Nutrition Society of Malaysia (NSM) seeks to establish an e-community of people who share a common interest in nutrition and healthy eating habits. The objective on *NutriWeb Malaysia* is to promote healthy nutrition in the community in support of Government efforts to

combat the increase in diet-related diseases and to advance nutrition science among the Society's members.

**Description:** NutriWeb® is a comprehensive website on nutrition, initiated by a professional body, the Nutrition Society of Malaysia (NSM). The website provides access to authoritative information on nutrition and health, a means to interact with nutritionists and provides a greater awareness of healthy eating habits.

**Target:** General public, health and nutrition specialists, academic and research fraternity, food producers and restaurateurs and the media.

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.nutriweb.org.my>

**Comment:** *NutriWeb Malaysia* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *e-Farmasi*

**Promoter:** Mr Ganesan Shamugam, GS Vision Sdn Bhd

**Partners:** Dr P.T. Thomas, Pharmacy Consultant, Universiti Kebangsaan Malaysia; the Pharmacy Division, Ministry of Health and Malaysian Pharmaceutical Society

**Launch Date:** N/A

**Objective:** To provide an online portal for members of the public to access unbiased information on medicines and health-related information.

**Description:** *e-Farmasi* is an online portal containing information to medicines and a guide to self-care for minor ailments. A link is also provided for the public to interact with pharmacies, direct questions to the pharmacist and where appropriate, complete a pharmaceutical transaction online.

**Target:** General public and health and medical practitioners

**Location:** Selangor (project management base)

**URL:** <http://efarmasi.com.my>

**Comment:** *e-Farmasi* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *e-Thalassaemia*

**Promoters:** Cleo Thomas-Mahesan

**Partners:** Hospital Universiti Kebangsaan Malaysia Paediatricians and Malaysian Open-Source Group

**Launch Date:** 2000

**Objective:** To create an online community to provide support, counselling and assistance to Thalassaemia patients and their families and to promote awareness of the disorder to the general public.

**Description:** The *E-Thalassaemia* project is an electronic community for the blood disorder, Thalassaemia. The aim is to provide support for the sufferers of this disorder, their families, medical personnel, social workers, voluntary workers and members of the public both locally and internationally. The project also involves the linking of various hospitals and Thalassaemia Associations to the e-community. It embodies the self-help concept through the use of the Internet as an inexpensive, 24-hour medium of communication.

**Target:** Thalassaemic patients and their families, friends, medical personnel, social workers, volunteers, researchers, members of the public and drug and medical suppliers.

**Location:** Selangor (project management base)

**URL:** <http://www.tam.org.my>

**Comment:** *E-Thalassaemia* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *Primary Healthcare Network Services*

**Promoter:** Dr Molly Cheah, Primary Care Doctors' Organisation Malaysia (PCDOM)

**Partners:** GHC Management (M) Sdn Bhd; Dato Dr Megat Burhainuddin, Melaka-Manipal Medical College; Professor Dr Syed Aljunid, Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia; Dr Ding Lay Ming, Clinical Research Centre, Malaysian Ministry of Health and Dr Lee Seldon, School of Network Computing, Faculty of Information Technology, Monash University

**Launch Date:** June 2001

**Objective:** To improve the delivery of quality healthcare and capacity of services of primary care doctors by (1) transforming the manual processes of clinics using ICT to improve work processes (2) improving quality of primary health care through new value-added services using ICT (3) introducing better resource management to clinics and (4) offering public health information to the general public to promote preventive health care.

**Description:** The Primary Health Care pilot project was initiated by general practitioners (GPs) who are committed to improving the quality of care to their patients. Through the adoption of information and communications technology, the sharing of information via an electronic community of GPs, their nurses and staff will take place. This system will enable them to set in place a clinic management and decision support system (CMSS) using evidenced-based learning. The content for this network is being developed by practising GPs and selected medical practitioners in the private and public sector and educational institutions. The project is piloted amongst GPs based in Subang Jaya, Shah Alam and Petaling Jaya.

**Target:** Medical practitioners

**Location:** Subang Jaya, Shah Alam and Petaling Jaya (Selangor)

**URL:** <http://www.pcdom.net.my/dags>

**Comment:** Eventually the system will be expanded to GPs nationally and be replicated to benefit other service sectors and geographic locations. *Primary Healthcare Network Services* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *Penang e-Doctor*

**Promoter:** Dr Chew Weng Yew, ProHighway.com, Sdn Bhd

**Partners:** Malaysian Medical Association, Private Medical Practitioners Society of Penang and National Cancer Society

**Launch Date:** N/A

**Objective:** *Penang e-Doctor* aims to increase ICT awareness among doctors through a greater use of ICT in their work.

**Description:** The project involves equipping individual medical practitioners with a home-grown application called ProHighway Clinical Manager, developed by ProHighway.com. Through *Penang e-Doctor*, medical practitioners are also able to communicate and share their expertise with local and foreign counterparts, develop e-communities and access online medical journals.

**Target:** Private medical practitioners in Penang

**Location:** Penang

**URL:** <http://www.prohighway.com/Others/PenangEDoctor/Default.asp>

**Comment:** *Penang eDoctor* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *ForensikNet.com*

**Promoter:** Professor Madya Dr Shahrom Abdul Wahid, Malaysian Association for the Advancement of Medical Instrumentation and Imaging Technology (MAAMIIT)

**Partners:** The Forensic Department of Hospital Universiti Kebangsaan Malaysia, Hospital Kuala Lumpur, Hospital Penang, Clinical Specialists, Chemists Department, Polis DiRaja Malaysia and the Attorney General's Office

**Launch Date:** N/A

**Objective:** *Forensik.Net* aims to provide online research, education, training, tools and technology to meet the current and future needs of the forensic medicine, science and law enforcement communities in Malaysia.

**Description:** Being a part of the Forensic Centre of Malaysia, *Forensik.Net* leads in the provision of proactive and innovative solutions to challenges facing the forensic science and criminal justice communities. *Forensik.Net* collaborates closely with the Malaysian Police in the formation of a forensic medicine and science centre which will also double up as a virtual call centre to provide services and the examination of evidence for Federal, State, and local law enforcement agencies. Examiners will also provide expert witness testimony in court regarding the results of the forensic examinations and investigations.

**Target:** Forensic Scientists and law enforcement agencies

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.forensiknet.com>

**Comment:** *Forensik.Net* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *MIOSHnet*

**Promoter:** Medi-Ihsan Occupational Safety and Health Sdn Bhd (MIOSH)

**Partners:** National Institute of Occupational Safety and health (NIOOSH), Institute of OSH Management, UUM, Rendang Fire and Safety Training Centre, Malaysian Occupational Health Nurse Association and Multiskill Training and Consultancy, Melaka

**Launch Date:** N/A

**Objective:** To enhance networking among OSH practitioners in Malaysia and abroad by providing an online platform to establish the development of a safety and health culture in Malaysia.

**Description:** Through membership, users can access information on OSH, publish their research, access relevant databases and network with other OSH practitioners.

**Target:** OSH practitioners

**Location:** Kuala Terengganu (Terengganu)

**URL:** <http://www.miosh.net/>

**Comment:** *MIOSHnet* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *e-RHAM (Reproductive Health for Adolescents Module)*

**Promoter:** Federation of Family Planning Associations Malaysia (FFPAM)

**Partners:** United Nations Population Fund, Ministry of Education, Ministry of Women and Family Development, Ministry of National Unity and Social Development and National Population and Family Development Board, Ministry of Health

**Launch Date:** 1998

**Objective:** To provide education in human sexuality, family life and related-services to increase the awareness among adolescents and youths on the importance of maintaining and practicing responsible living.

**Description:** Based on the 'Reproductive Health for Adolescents Module (RHAM)' developed in 1998, the FFPAM has developed an electronic version of this programme called *e-RHAM* to further disseminate knowledge on reproductive health through the creation of Internet courseware.

**Target:** Youths aged 10 to 24 years

**Location:** Petaling Jaya (Selangor – project management base)

**URL:** <http://www.ffpam.org.my/>

**Comment:** The effectiveness of *e-RHAM* was demonstrated on 1400 Form 1 and Form 2 students from five national schools. Current project status is unknown. *E-RHAM* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

**Programme:** *Clinical Pathway and Training Modules in Healthcare (CLIPT)*

**Promoter:** Mediconsult Planning and Consulting Services Sdn Bhd

**Partners:** University Malaya Medical Center

**Launch Date:** 2001

**Objective:** To demonstrate the use of information technology and multimedia in integrating healthcare information to the community.

**Description:** *CLIPT* enables the provision of consensus information via a web-based platform on disease management which is modified into clinical pathways and interactive training content for regional healthcare providers, patients and the general public.

**Target:** Healthcare providers, patients and general public

**Location:** Kuala Lumpur (project management base)

**URL:** [http://203.115.192.141/1.1.%20About\\_clipt.asp](http://203.115.192.141/1.1.%20About_clipt.asp)

**Comment:** *Clinical Pathway and Training Modules in Healthcare* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

## Housing & Other Social Services

**Programme:** *Maxis PC Community Project*

**Partners:** Maxis Communications

**Launch Date:** March 2001

**Objective:** To provide computers complete with servers and networks to selected schools, welfare homes and organisations throughout Malaysia to promote the usage of computers.

**Description:** The *Maxis PC Community Project* is part of Maxis' corporate philosophy to promote ICT in education to expose Malaysians to the growing knowledge economy. Valued at RM500,000, the year-long project has seen Maxis donate 70 computers.

**Target:** Schools, welfare homes and organisations

**Location:** Schools, welfare homes and organisations in Sarawak, Melaka, Perlis, Sabah and Kuala Lumpur

**URL:** [http://www.maxis.com.my/personal/about\\_us/newsroom/press/2001/index.asp](http://www.maxis.com.my/personal/about_us/newsroom/press/2001/index.asp)

**Comment:** The project ended in March 2002. Current project status is unknown.

**Programme:** *Citibank ICT Smart Lab and Resource Center for Inclusive Students*

**Partners:** Citibank Malaysia

**Launch Date:** July 2002

**Objective:** To enhance teaching and learning techniques for blind and visually-challenged students through the use of ICT-enabled technologies.

**Description:** As part of Citibank's Cyberschool Education Program which aims to promote the proliferation of ICT in education, a smart lab and resource centre was established in SMK Tunku Abdul Malik in Alor Setar (Kedah) to provide programmes for blind and visually-challenged students. The centre is equipped with computers containing voice synthesizing software, braille printers, calculators and embossers to aid visually-challenged students in their studies and recreational activities. The lab caters to the school's 53 visually-challenged students who are enrolled in the programme while serving close to 2,000 students, 115 teachers and administrators as a whole.

**Target:** Blind and visually-impaired students in SMK Tunku Abdul Malik in Alor Setar (Kedah)

**Location:** Alor Setar (Kedah)

**URL:** <http://www.citigroup.com/citigroup/press/2002/020713a.htm>

**Comment:** Citibank has provided RM536,000 for the establishment of the *Citibank ICT Smart Lab and Resource Center for Inclusive Students*. A total of RM2.1 million has been contributed to advance ICT in Malaysian educational institutions through the Citibank Cyberschool Education Program overall.

**Programme:** *Microsoft Foundation Campaign (Malaysia)*

**Partners:** Microsoft Malaysia

**Launch Date:** November 1998

**Objective:** To provide better technology access to underprivileged communities through educating Malaysians on the benefit of protecting intellectual property rights and its benefits to the community.

**Description:** Globally, the Microsoft Foundation Campaign is a corporate initiative that sees Microsoft returning a portion of anti-piracy settlements and damages to the communities in which it operates. The Microsoft Foundation Campaign in Malaysia brings together, under one umbrella, the corporate philanthropy and community developments of Microsoft (Malaysia) Sdn Bhd. By including successful settlements of copyright infringement cases, the company also hopes to increase understanding of the importance of, and direct link between, software piracy and local communities.

The *Microsoft Foundation Campaign* is based on three areas of:

(1) Expanding opportunities through technology access:

More than 110 orphanages have been connected to the Internet as part of the CyberCare programme which is a DAGS initiative. The aim of this ongoing sponsorship is to provide software, hardware and training to increase the number of 'connected orphanages'. The CyberCare programme features the CyberCare eCommunity Programme, Donate a Computer Programme and the Microsoft Foundation Campaign Education Excellence Programme.

(2) Strengthening nonprofits through technology:

This entails donations of a selection of Microsoft's software products to help non-profit Malaysian organisations maximise productivity and efficiency through the use of new technology.

(3) Building Community:

Microsoft supports innovative technology programs and projects that enhance access, strengthen nonprofits and foster diversity within the technology workforce. This is a new program that is being embarked upon.

**Target:** Underprivileged communities in Malaysia

**Location:** Petaling Jaya (Selangor – project management base)

**URL:** <http://www.microsoft.com/malaysia/giving/default.htm>

**Comment:** Microsoft has donated RM1.5 million worth of software, hardware and training to the CyberCare programme. Current project status is unknown.

**Programme:** *Demonstrator Application Grant Scheme (DAGS)*

**Partners:** Ministry of Science, Technology and the Environment, MIMOS Bhd and National IT Council

**Launch Date:** April 1998

**Objective:** The main objectives of DAGS are to (1) Acculturate Malaysians to Information and Communication Technology (ICT), enabling them to maximise the benefit of ICT applications at work and at home (2) Build an integrated network of electronic communities using ICT and multimedia technology (3) Promote the dynamic growth of Malaysians web-shapers and web-adapters (4) Develop entrepreneurial communities enabled by electronic networks (5) Enhance closer cooperation and collaboration between public agencies, private corporations, non-profit organisations (NPOs) and non-governmental organisations (NGOs) through joint ventures and institutional linkages and (6) Encourage Malaysians to be more innovative in using and adapting existing ICT and multimedia technologies

**Description:** Launched in April 1998, DAGS provides 12-months funding for small ICT-based projects at the Demonstrator Application stage to promote the

utilisation and innovative application of ICT for projects which cover the strategic areas of Social Digital Inclusion, Economic Competitiveness or E-Public Services. There are currently over 70 DAGS projects in progress, covering a wide range of community-based projects ranging from education, health, environment, women and rural development.

**Target:** All Malaysians  
**Location:** Nationwide coverage  
**URL:** <http://www.nitc.org.my/dags/index.shtml>  
**Comment:** RM50 million was allocated for DAGS under the Seventh Malaysia Plan (1996-2000), with a further RM100 million allocated under the Eighth Malaysia Plan (2001-2005).

**Programme:** *Cybercare*

**Promoter:** The Lions Club of CyberCare, Kuala Lumpur

**Partners:** HitechNiaga Sdn Bhd and Microsoft Foundation

**Launch Date:** N/A

**Objective:** The *CyberCare* project aims to form an electronic community by connecting orphanages, home administrators, the private and public sectors and non-governmental organisations.

**Description:** Under the *CyberCare* project, both orphans and orphanage staff are trained in computer literacy. Selected orphanages are also networked under the *CyberCare* Community Care System which allows public, private and other communities to align their activities with the homes. The Putting Orphans Online (POOL) programme has linked 26 homes and currently benefits over 640 children, with 200 of them already trained in computer usage.

**Target:** Underprivileged children in orphanages

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.lion-cybercare.org>

**Comment:** Aside from gaining ICT knowledge, the *CyberCare* network has noted an improvement of orphans' self confidence, personal acceptance and social skills through the moral support afforded by the network. *CyberCare* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

**Programme:** *E-pek@k*

**Promoter:** Encik Mohamad Sazali Shaari, Malaysian Federation for the Deaf

**Partners:** Ministry of Education (Special Education Department), Ministry of Health and the Ministry of National Unity and Social Development (Social Welfare Department)

**Launch Date:** November 2000

**Objective:** To provide a visual medium for deaf people to access information, services, job opportunities and peer support.

**Description:** *E-pek@k* has a two prong strategy to firstly create a website to provide information, services and networking opportunities for the deaf community. The second aim is to establish IT centres in a number of deaf schools along with the provision of IT training and education.

**Target:** Deaf community

**Location:** Klang Valley (Kuala Lumpur and Selangor)

**URL:** <http://www.epekak.net.my>

**Comment:** *E-pek@k* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *The Masjid as a Neighbourhood Centre*

**Promoter:** YPEIM Management Academy

**Partners:** Masjid Ar-Rahimah, Kg Pandan, JAWI and MIMOS

**Launch Date:** N/A

**Objective:** Using ICT as a leverage, this project aims to enable a mosque to become the hub of the networked communities around it.

**Description:** Based in Masjid Ar-Rahimah, Kampung Pandan, the project team worked closely with community leaders to provide the 200 neighbourhood communities they served with training in various ICT applications. With the DAGS grant they received, a community website and a Management Information System were designed whereby the online MIS enabled more efficient mosque administration.

**Target:** Community in Kampung Pandan

**Location:** Kampung Pandan (Kuala Lumpur)

**URL:** <http://www.j-tetangga.mimos.my/ar-rahimah>

**Comment:** The project received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *FamilyPlace*

**Promoter:** Mrs Chong Wai Leng, Trans-Education Sdn Bhd

**Partners:**

**Launch Date:** 1998

**Objective:** *FamilyPlace* is an initiative for parents by parents using ICT to bridge families and build communities. Among many objectives, *FamilyPlace* aims to create a platform for effective networking and community-building among families to facilitate a positive exchange of family values and to encourage the use of ICT as a tool for empowerment and learning.

**Description:** *FamilyPlace* was started by a husband-and-wife team, KV Soon and Chong Wai Leng to establish a virtual community for parents to network and learn from one another. Through their website, articles, discussions and news about education and family issues are presented and discussed. The *FamilyPlace* Infosheets are printed and distributed quarterly to members as well as non-members as another platform to discuss or highlight educational issues.

**Target:** Parents

**Location:** Selangor (project management base)

**URL:** <http://www.familyplace.com.my>

**Comment:** In 2001, *FamilyPlace* was nominated as a finalist for the Pikom/Computimes Best Community Website Award. *FamilyPlace* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

**Programme:** *PDKNet***Promoter:** Jabatan Kebajikan Masyarakat Malaysia**Partners:** Ministry of National Unity and Social Development**Launch Date:** 2003**Objective:** To provide access to information and learning on rehabilitation and Community Based Rehabilitation (CBR) programmes by using ICT.**Description:** N/A**Target:** People with disabilities**Location:** Kuala Lumpur (project management base)**URL:** Under construction**Comment:** *PDKNet* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Project has been endorsed and is currently under development.**Programme:** *VeteranWira.com***Promoter:** Datin Dr Rohani Hussin, Ron Nisay Associates**Partners:** Infinite Card Solutions (M) Sdn Bhd and Persatuan Bekas Tentera Malaysia (PBTM)**Launch Date:** N/A**Objective:** To create an online community for retired members of the Malaysian Armed Forces.**Description:** This online community provides retired armed forces personnel access to information on their association's activities and the range of financial, medical and educational aid available to them.**Target:** Retired members of the Malaysian Armed Forces**Location:** Kuala Lumpur (project management base)**URL:** <http://www.veteranwira.com>**Comment:** *VeteranWira.com* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.**Programme:** *EagleNest***Promoter:** Desa Amal Jerih**Partners:** Ministry of National Unity and Social Development**Launch Date:** 2003**Objective:** To explore the feasibility and viability of re-utilising the human capital of senior citizens and their potential in the knowledge society.**Description:** N/A**Target:** Senior citizens**Location:** Kuala Lumpur (project management base)**URL:** Under construction**Comment:** *EagleNest* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Project has been endorsed and is currently under development.**Programme:** *Warga Emas Networks***Promoter:** Multimedia & DigitalWorks Sdn Bhd**Partners:****Launch Date:** 2003

**Objective:** To enhance the quality of life of senior citizens by focussing on the maintenance of their mental and emotional health through social activities.

**Description:** N/A

**Target:** Senior citizens

**Location:** Petaling Jaya (project management base)

**URL:** Under construction

**Comment:** *Warga Emas Networks* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Project has been endorsed and is currently under development.

**Programme:** *Neighbourhood Watch*

**Promoter:** USJ18 Neighbourhood Watch Committee (pilot programme)

**Partners:** The Media Shoppe, MIMOS Bhd and Microsoft Foundation Campaign

**Launch Date:** 2001

**Objective:** *Neighbourhood Watch* is a community initiated and driven programme aimed at enlisting the active support and participation of all residents in cooperation with local law enforcement agencies to reduce crime.

**Description:** *Neighbourhood Watch* began as a DAGS-funded pilot programme in USJ18 to adopt ICT to strengthen all mechanisms involved in neighbourhood watching such as the maintenance of resident databases, generation of night duty rosters and reportage of crimes. *Neighbourhood Watch* is now a component of the *SJ2005 Programme* and has expanded to ten other precincts. To support the *Neighbourhood Watch* initiative and to promote the importance of ICT as a way of life, a community information portal has also been established.

**Target:** Residents of Subang Jaya City Council

**Location:** USJ5, USJ9, USJ12, USJ16, USJ17, USJ18, USJ20, USJ23, USJ26, USJ27 and Sunway

**URL:** <http://www.nwatch.net.my>

<http://www.sj2005.net.my/>

**Comment:** *Neighbourhood Watch* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

**Programme:** *Multipurpose Cybercafe e-Community Hub (MCCH)*

**Promoter:** N/A

**Partners:** N/A

**Launch Date:** N/A

**Objective:** To address the issue of cybercafes being abused and misused by irresponsible operators and to promote a positive image of cybercafes as centres for the dissemination of information and knowledge for community learning.

**Description:** Through appointed cybercafe operators, MCCH delivers educational programmes, ICT classes and training sessions to encourage community learning. MCCH also provides further support to cybercafes in terms of role expansion, infrastructure and professional consultancy.

**Target:** Malaysian community and cybercafe operators

**Location:** Johor (10 locations) and Selangor (1)

**URL:** <http://www.mol.com/programmes/MCCH/index.htm>

**Comment:** *MCCH* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *JuvaNet*

**Promoter:** Pejabat Kebajikan Masyarakat Daerah Kuala Langat

**Partners:** Origin Technology (M) Sdn Bhd

**Launch Date:** N/A

**Objective:** *JuvaNet* was designed to promote the use of ICT to assist in the managerial and operational functions of the Pejabat Kebajikan Kuala Langat (welfare office). Among the objectives are to provide a conduit for the dissemination of information between the *Pegawai Akhlak* (Counsellor) and the parents and youth. *JuvaNet* will also function as a channel for the community to discuss and contribute ideas for youth formation.

**Description:** Through *JuvaNet*, youths will be able to communicate freely with their *Pegawai Akhlak* and members of the community. They will also learn of their rights, career opportunities and be able to share their problems or interests via an online forum.

**Target:** Youth in Kuala Langat

**Location:** Kuala Langat (Selangor)

**URL:** Website under construction

**Comment:** *JuvaNet* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *E-Jariah*

**Partners:** Islamic Economic Development Foundation of Malaysia (YPEIM – Prime Minister's Department)

**Launch Date:** December 2002

**Objective:** To provide a web-based information portal for individuals or corporate bodies to search information on various programmes administered by YPEIM.

**Description:** *E-Jariah* provides an alternative information source on various schemes offered by YPEIM such as Micro-Credit Scheme, Ikthiar Scheme, Urban Poor Scheme, Community Excellence Scheme and Education Excellence Scheme. *E-Jariah* provides information and an online secured payment system whereby members of the public may donate to various funds managed by the Foundation.

**Target:** Individuals or corporate bodies seeking information on available schemes for them to finance.

**Location:** Putrajaya (project management base)

**URL:** <http://www.e-jariah.com.my/>

**Comment:** Website in Bahasa Malaysia. Current project status is unknown.

**Programme:** *e-Keluarga*

**Promoter:** ieverything Sdn Bhd

**Partners:** National Population and Family Development Board NPFDB and UMMI Foundation (NGO)

**Launch Date:** 2002

- Objective:** To support the nation's objective towards developing quality population through the strengthening and promoting of family well-being through a portal for families to access knowledge, information, support and services on family development. Through its selective and relevant contents in addressing the needs of Malaysian families, e-Keluarga will help enhance its people's national identity, integrity and societal stability.
- Description:** *e-Keluarga* is a family development portal specially designed for Malaysian families. It acts as a virtual one-stop knowledge centre providing advice and guidance on family matters and is linked to and supported by physical programmes and activities. The portal will also disseminate information services provided by the National Population and Family Development Board (NPFDB) for the pilot community of Shah Alam and Klang Valley area. The Kompleks KASIH Keluarga Shah Alam, Selangor will be the model centre for all e-Keluarga's physical training and activities. *e-Keluarga* is a smart partnership project between its tri-sector founding partners: National Population and Family Development Board NPFDB (government), UMMI Foundation (NGO) and iEverything Sdn. Bhd (commercial).
- Target:** Fathers, Mothers, Adolescents and Children
- Location:** Shah Alam and Klang Valley area
- URL:** <http://www.e-keluarga.com.my/>
- Comment:** *e-Keluarga* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project is under development.

## Environment & Sustainable Resource Management

### **Programme:** *The ASEAN Review of Biodiversity and Environment Conservation (ARBEC)*

**Promoter:** Mr Lim Kooi Fong, MIMCED Sdn Bhd

**Partners:** Institute of Biodiversity (IBEC) and Universiti Malaysia Sarawak

**Launch Date:** January 1999

**Objective:** To create an online platform for the effective dissemination of critical research amongst members of the Biodiversity community in the ASEAN region, as well as internationally.

**Description:** *ARBEC* has built an online portal that gives researchers access to databases and permits them to critically discuss Biodiversity issues.

**Target:** Researchers of biodiversity and environmental conservation

**Location:** Selangor (project management base)

**URL:** <http://www.arbec.com.my>

**Comment:** *ARBEC* has become South East Asia's only virtual museum of natural history with strong affiliations with major museums of natural history in Europe and USA and the first online journal in Biodiversity for institutional subscription. *ARBEC* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

### **Programme:** *e-NVIRONMENT MALAYSIA*

**Promoter:** Dr Loh Chi Leong, Malaysian Nature Society

**Partners:** MIMCED Sdn Bhd

**Launch Date:** N/A

**Objective:** Using ICT as an interactive and communicative medium, the Malaysian Nature Society (MNS) aims to (1) promote an appreciation of nature and the natural beauty of Malaysia and the surrounding regions (2) to formulate new strategies and become more active in positive conservation and (3) to educate the public on the wise use of natural resources based upon principles of sustainability and respect for the natural world.

**Description:** *E-NVIRONMENT MALAYSIA* is a virtual community dedicated to promoting the study, appreciation, conservation and protection of Malaysia's natural heritage. In collaboration with 12 schools nationwide, MNS will build Nature camps and IT-enabled nature clubs through projects called 'Wira Diri', 'Wira Alam' and 'Wira Komuniti'. Online information kiosks will also be set up in various locations such as the Kuala Selangor Nature Park, Boh Tea Estate and Rimba Ilmu Universiti Malaya.

**Target:** General public, researchers and conservationists

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.mns.org.my/>

**Comment:** *E-NVIRONMENT MALAYSIA* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *Alamku (My Environment)***Promoter:** Azizul Basri, Into IT Sdn Bhd**Partners:** Universiti Kebangsaan Malaysia and Asia Green Sdn Bhd**Launch Date:** N/A**Objective:** *Alamku* aims to create environmental awareness among the public and private sectors, manufacturing companies and members of the community.**Description:** Drawing awareness to issues on air pollution, water pollution and the proper disposal of solid waste, *Alamku* will provide education on environmental issues online. Training on solid waste management techniques as well as zero-waste strategies such as 'reduce, reuse and recycle' will also be made available on *Alamku*.**Target:** Public and private sectors, manufacturing companies and members of the community.**Location:** Selangor (project management base)**URL:** <http://www.alamku.com>**Comment:** *Alamku* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.**Programme:** *Cyber Plant Conservation Project (CPCP)***Promoter:** Dr Lee Jin, Environmental Management & Research Association of Malaysia (ENSEARCH)**Partners:** International Plant Genetic Resources Institute (IPGRI), Malaysian Agricultural Research & Development Institute (MARDI), Rakan Muda Team Malaysia, Pusat Sumber Pendidikan (Wilayah Persekutuan), Jabatan Pendidikan Negeri Selangor, Kuala Lumpur Library and Parent-Teacher Associations of 20 schools**Launch Date:** N/A**Objective:** To create an electronic community of students and interested who are committed to environmental conservation and plant genetic resources.**Description:** With the help of ENSEARCH and the Demonstrator Application Grant Scheme, students from twenty secondary schools in Selangor and Wilayah Persekutuan will be taught the importance of conserving the environment, in particular, the conservation of rare Malaysian plant genetic resources and the harnessing of traditional knowledge on their use. As a virtual learning platform, students are able to acquire basic ICT knowledge, participate in independent learning projects and be trained in scientific thinking and research skills.**Target:** Students and general public**Location:** Klang Valley (Kuala Lumpur and Selangor)**URL:** <http://www.cpcp.ensearch.org/cpcp>**Comment:** *CPCP* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.**Programme:** *HerbaMalaysia.Net***Promoter:** Malaysian Herbal Corporation & Malaysian Industry**Partners:** Total Health Concept Sdn Bhd**Launch Date:** N/A

- Objective:** *HerbaMalaysia.Net* aims to demonstrate the use of ICT to develop the herbal industry through the creation of an online community and information database to promote industry awareness.
- Description:** *HerbaMalaysia.Net* is a dedicated web site portal solely on providing information and inputs on herbs and herbal products with scientific data, market and trade data, monographs, policy and conservation. As a resource centre for local herbs it will focus on Natural Products / Traditional Medicines, Health Foods and Drinks, and Cosmetics and Toiletries.
- Target:** Industry professionals and general public
- Location:** Putrajaya (project management base)
- URL:** [www.herbamalaysia.net](http://www.herbamalaysia.net)
- Comment:** This project received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *e-Nature Education*

**Promoter:** Forest Research Institute Malaysia (FRIM)

**Partners:**

**Launch Date:** 2002

**Objective:** To promote and deliver FRIM's Electronic Nature Education Programme through the incorporation of IT and multimedia tools.

**Description:** N/A

**Target:** Malaysian general public

**Location:** Kuala Lumpur (project management base)

**URL:** Under construction

**Comment:** *e-Nature Education* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project is under development with funding of RM0.5 million.

## Women & Development

**Programme:** *Networking Women*

**Promoter:** Professor Farida Habib Shah, Pusat BioSains & BioTeknologi, Universiti Kebangsaan Malaysia

**Partners:** MIMOS Bhd and Internexia Sdn Bhd

**Launch Date:** N/A

**Objective:** To create awareness among women about the benefits of using ICT.

**Description:** The *newwomen.net* is a portal of the National Council of Women's Organisations to address the low level of ICT resources and the lack of knowledge and skills on ICT applications among women. This project will also form the hub of communication for different women's organisations, tabling reliable quantitative and qualitative information about their work. It will also be the platform to conduct research on 'The Impact of ICT on Malaysian Women'.

**Target:** Malaysian women

**Location:** Selangor (project management base)

**URL:** <http://www.newwomen.net>

**Comment:** *Networking Women* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

**Programme:** *TCenter*

**Promoter:** Dato' Dr. M. Thambirajah

**Partners:** Perantara Jalinan Enterprise, the Residents Association of Desa Tun Razak, Dewan Bandaraya Kuala Lumpur, Jabatan Perpaduan Negara, Wilayah Persekutuan and Northern Technologies

**Launch Date:** June 2002

**Objective:** *Tcenter* is a pilot telecenter project with the following aims:

- (1) To produce independent freelance teleworkers as well as telecommuters for selected private enterprises
- (2) To equip lower income earning communities living in urban low cost flats with ICT skills and knowledge to earn income
- (3) To bridge the social digital divide
- (4) To empower women, youth and pensioners as an important economic factor in the family, community and the nation

**Description:** The *TCenter* is designed as a virtual office comprising 15 Pentium IV computers linked to a server. The centre is connected via ADSL and broadband lines to facilitate an efficient operating environment.

**Target:** Women, youth and pensioners

**Location:** Desa Tun Razak, Cheras (Kuala Lumpur)

**URL:** <http://www.tcenter.com.my>

**Comment:** *Tcenter* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.

- Programme:** *e-Homemakers*
- Promoter:** Chong Sheau Ching, Corpcom Services Sdn Bhd
- Partners:** DC One Technology Sdn Bhd
- Launch Date:** November 2001
- Objective:** Among many objectives, *e-Homemakers* is an online portal that aims to use ICT to build cyber communities and networking opportunities for homemakers, homeworkers and teleworkers by (1) educating women on ICT (2) encouraging men and women to work from home (3) providing a cyber platform for networking activities and (4) providing disadvantaged women with a channel for self-help.
- Description:** The website serves as a one-stop information centre for busy homemakers who want quick up-to-date information to manage home businesses and their social lives. *e-Homemakers* can also assist in the development of home-based businesses and provide a host of e-community services such as bulletin boards, chat rooms, message boards and e-counselling sessions.
- Target:** Homemakers
- Location:** Kuala Lumpur (project management base)
- URL:** <http://www.mom4mom.com>
- Comment:** *e-Homemakers* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project status is unknown.
- Report:** *The Global Knowledge II Women's Forum - Asian Women in the Digital Economy: Policies for Participation*
- Date:** 2001
- Author:** Swasti Mitter
- Sponsors:** United Nations Development Programme
- Summary:** As a follow-up to the Global Knowledge II Conference held in Kuala Lumpur during March 2000 which resulted in the final forum report entitled *Transcending the Gender Digital Divide*, this monograph documents the impact of the digital economy on women's lives in Malaysia and other Asian countries. The monograph highlights the opportunities and threats that ICT presents to women and how new technologies themselves can be used to transcend the digital divide around gender. The monograph emphasises the importance of participation of all three stakeholders – the state, private sector and NGOs in a policy framework that explores the use of ICT for women's empowerment.
- Research:** *The Global Knowledge Women's Forum: Transcending the Gender Transformation Divide*
- Date:** 2000
- Author:** Karl Marilee (editor)
- Sponsors:** National Council of Women's Organisations  
United Nations Development Programme  
Asia Pacific Gender Equality Network
- Summary:** This brief report documents the discussions and recommendations based on proceedings from the GKII Women's Forum held in Kuala Lumpur in March 2000. The report summarises the Women's Forum Action Plan and the presentations delivered during the forum. As a brief read, the report presents a good starting point to understand the importance of furthering

development policies and programmes aimed to improve the participation of women in the emerging knowledge economy.

**Programme:** Website of *Women's Aid Organisation of Malaysia (WAO)*

**Partners:** WAO

**Launch Date:** November 2002 (website)

**Objective:** To provide online support and information services to women and children on domestic violence.

**Description:** WAO was established in 1982 as a non-sectarian NGO to provide support to women of domestic violence. WAO has also increased volunteer involvement through the inception of a volunteer management system based on an email group. With funding from MIMOS Bhd, WAO established their website as an alternative and anonymous channel for women to seek support. Counselling is also provided via email in addition to face-to-face counselling. In terms of ICT per se, the Association of the Computer and Multimedia Industry Malaysia (PIKOM) has provided training and hardware for WAO.

**Target:** Women and children who are victims of domestic violence

**Location:** Two locations in Klang Valley

**URL:** <http://www.wao.org.my>

**Comment:** The high degree of anonymity on the Internet has provided a level of security and safety for women to freely discuss and explore issues relating to domestic violence. Anecdotal evidence suggests that the website has been very effective. ICT has also facilitated communications between victims on the local, regional and international front.

## Youth in Development

**Programme:** *K-DOT Force*

**Partners:** MIMOS Bhd

**Launch Date:** 2002

**Objective:** The main objective of the Malaysian Knowledge Digital Opportunity Task Force (K-DOT Force) is to harness the strength of ICT-empowered youths to create a 'knowledge force' that can reach out to help marginalised youth. Other objectives include (1) equipping youth with ICT and knowledge for sustainable development (2) cultivating the spirit of volunteerism and partnership amongst youth (3) providing a platform for youth to capacity build other marginalised youth (4) building youth capacity as partners in nation building and development and (5) strengthening regional relationships through information and knowledge sharing amongst Asia Pacific youth

**Description:** Through a Youth Volunteer Corps programme, the *K-DOT Force* involves the work of Malaysian youth to engage in community-based outreach programmes to address the digital divide. Based on the concept of Youth for Youth for Development (Y4Y4D), volunteers are involved with training of youth and trainers, skill-building workshops, country-wide promotions and ICT projects.

**Target:** Malaysian youth aged 13 to 30 years old

**Location:** Nationwide coverage

**URL:** <http://www.kdotforce.net.my/index.php>

**Comment:** *K-DOT Force* was recently involved with the *K-Youth* project in Kerpan (Kedah) which aims to equip local youth with ICT literacy skills. The project was a recipient of the Samsung DigitAll Hope 2003 award.

**Programme:** *K-Youth*

**Partners:** Farmer's Organisation Area C-2 Kerpan and K-DOT Force

**Launch Date:** July 2003

**Objective:** The *K-Youth* project aims to equip local youth in the paddy farming area of Kerpan (Kedah) with ICT and knowledge for sustainable community development.

**Description:** Divided into several phases, the project will introduce students to the basic world of computing, covering areas like the Windows operating system, open source applications and the Internet. To date, the project's lab has eight PCs and a Jaring connection donated by MIMOS Bhd. The Farmer's Organisation Area C-2 Kerpan hopes to cultivate their youth's spirit of volunteerism, partnership and technopreneurship by focusing on three areas of info-structure, community development and content / application development.

**Target:** Youth in Kerpan (Kedah)

**Location:** Kerpan (Kedah)

**URL:** <http://www.samsung.com.au/hope/winners/malaysia01.htm>  
[http://www.worldvolunteerweb.org/dynamic/cfapps/news/news2\\_print.cfm?ArticlesID=242](http://www.worldvolunteerweb.org/dynamic/cfapps/news/news2_print.cfm?ArticlesID=242)  
<http://www.kdotforce.net.my/welcome.htm>

**Comment:** *K-Youth* was one of 15 organisations who won the Samsung DigitAll Hope 2003 award which aims to bridge the digital divide and raise awareness of youth and technology development.

**Programme:** *kAYNet (Knowledge-Asian Youth Network)*

**Partners:** National IT Council (NITC), Asian Youth Council, Asian Training Network, State Libraries and Majlis Belia Malaysia.

**Launch Date:** April 2002

**Objective:** *kAYNet* aims to bridge the digital divide through information and knowledge sharing among Asian youth.

**Description:** *kAYNet* was established to strengthen regional unity in the culturally, socially and digitally diversified Asian region through the work of youth. Asian youth and other demographic groups such as senior citizens are invited to participate in and contribute to *kAYNet*. Activities include a k-pals network, e-counselling services, Technopreneur Incubation, a Regional Exchange-Internship programme and a Youth Conference.

**Target:** Asian Youth between the ages of 13 and 30

**Location:** Kuala Lumpur (project management base)

**URL:** <http://www.kaynet.nitc.org.my/page.cfm?name=k-Press>  
<http://www.hrdgateway.org/kaynet/>

**Comment:** *kAYNet*'s background began in February 2002, when the then Deputy Prime Minister of Malaysia, Dato' Seri Abdullah Ahmad Badawi, discussed the establishment of a Youth Network between the two countries during a visit to Singapore. The Malaysia National Information Technology Council (NITC) decided to adopt this project under its Social Digital Inclusion (SDI) initiative which was soft-launched in April 2002 in conjunction with a workshop organised by the Asia-Europe Foundation, Asian Youth Council, National IT Council and the Malaysian Youth Council on the 'Use of Infocomm Technology by Youth Organisations in Asia and Europe'. *kAYNet*, however, has gone a step further by adding other Asian countries in its program.

## Development through International Cooperation

N/A

## Administrative Improvements for Development

**Programme:** *E-Government Project*

**Partners:** Prime Minister's Department (Malaysian Administrative Modernisation and Management Planning Unit - MAMPU)

**Launch Date:** 1997 to present

**Objective:** To enhance the use of ICTs to facilitate greater communications between government agencies and services provided to the public.

**Description:** The E-Government project is one of seven Flagship Applications under Malaysia's Multimedia Super Corridor initiative. There are 7 pilot projects under the *EG* project: (1) Project Monitoring System (PMS) (2) Human Resource Management Information System (HRIMS) (3) Generic Office Environment (GOE) (4) Electronic Procurement (EP) (5) Electronic Delivery Services (E-Services++) (6) Electronic Labour Exchange (ELX) and (7) EG-Accountant General (AG) Integration. The incumbent carrier, Telekom Malaysia and the Malaysian Civil Service Link, which contains links to most government agencies, are at the centre of the country's *EG* initiative.

**Target:** All Malaysians

**Location:** Putrajaya (project management base)

**URL:** <http://www.mampu.gov.my>

<http://www.mampu.gov.my/mampueng/Ict/flagship.htm>

<http://mcs1.mampu.gov.my/>

**Comment:** The *EG* project is on track in terms of delivery although delays have been experienced for these pilot projects. The Project Monitoring System (PMS) currently has a 50% usage level, the Generic Office Environment (GOE) is ready to be implemented in MAMPU and rolled out to other agencies while the Human Resource Management Information System (HRIMS) has just been completed. All pilot projects are currently ongoing and will continue into the Ninth Malaysia Plan period from 2006-2010. The current status of *EG* pilot projects can be found at <http://www.mampu.gov.my/mampueng/Ict/0305BusinessComputing.htm>

**Programme:** *Penang i-land*

**Partners:** Penang State Government

**Launch Date:** 2001

**Objective:** To develop a competitive knowledge-economy and society to support the goal of a fully-developed state by 2010 by linking government departments, schools, private sector, non-government organisations and the people.

**Description:** Penang has formulated a framework labelled the K-ICT Blueprint to support the *Penang i-land* strategy. To achieve this the Penang State Government has adopted a three-pronged strategy consisting of (1) ECC (Electronic, Computer and Communications) / ICT Industry (2) K-ICT Working Groups and (3) Cyber Penang. The K-ICT Working Group will focus on e-service (online government services and information retrieval – see Penang and Seberang Prai Municipal Councils' websites), e-economy, e-learning and e-community initiatives. The Cyber Penang strategy will

build the necessary infrastructure and infostructure (information infrastructure) to develop e-towns and *e-kampungs*.

- Target:** Residents of Penang  
**Location:** Penang  
**URL:** Penang State Government: <http://www.sukpp.gov.my/>  
 Penang Municipal Council: <http://www.mppp.gov.my/english/home.htm>  
 Seberang Prai Municipal Council: <http://www.mpsp.gov.my/english/index.asp>  
 e-Service Portal: <http://www.sukpp.gov.my/portal.html>  
 K-ICT Blueprint: <http://www.sukpp.gov.my/bp-PKICT.pdf>  
**Comment:** Current project status is unknown

**Programme:** *SJ2005 Smart Community Program*

**Partners:** NITC/MIMOS Bhd, Subang Jaya Municipal Council (MPSJ) and the Ministry of Housing and Local Government

**Launch Date:** April 2000

**Objective:** *SJ2005 Smart Community Program* envisions growing and evolving Subang Jaya into a Smart and Knowledge-based Community through tri-sectoral participation between Government, private and community sectors.

**Description:** *SJ2005* adopts a holistic approach to cover the following four areas: (1) e-Community (2) e-Learning (3) e-Business and (4) e-Public Services. The e-Community program will focus on promoting the growth of strong community within a physical and virtual space through comprehensive access, uptake and diffusion of ICT. The e-Learning program will focus on boosting ICT literacy through various programs for school children and teachers. Under the *SJ2005* e-Business program, the focus will be on promoting SME/SMI to adopt the e-initiatives in their business practices. Meanwhile, the e-public services programme has implemented 30 ICT-based services such as online bill enquiries, payments and a public complaints response system.

**Target:** Residents of all ages living in the Subang Jaya Municipal

**Location:** Subang Jaya (Selangor)

**URL:** <http://www.sj2005.net.my/index.cfm>

**Comment:** A brief overview of *SJ2005*'s milestones can be found at <http://www.sj2005.net.my/article.cfm?id=136>

**Programme:** *SJ2005 e-BizX*

**Partners:** SMI Association of Malaysia

**Launch Date:** 2003

**Objective:** *SJ2005 e-BizX* aims to promote B2C, C2C and B2G e-Commerce adoption among residents in living in Subang Jaya.

**Description:** *SJ2005 e-BizX* is one of the initiatives from the *SJ2005* e-Business Working Group that consists of various industries, communities and government partners. Currently there are about 30,000 business entities within the Subang Jaya Municipal that will be involved or affected by *SJ2005 e-BizX*. This project is unique to existing initiatives in the country due to its emphasis on community involvement instead of technology and its small-scale rollout to businesses in the Subang Jaya Municipal area only.

**Target:** 5000 business entities with a pilot target of 1000

Residents of all ages living in the Subang Jaya Municipal

**Location:** Subang Jaya (Selangor)

**URL:** <http://www.sj2005.net.my/index.cfm>

**Comment:** *SJ2005 e-BizX* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Other non-DAGS funded initiatives under the project will also be initiated. Project is currently under construction.

**Programme:** *Ipoh Virtual City (IVC)*

**Partners:** Ipoh City Council (MBI)

**Launch Date:** March 2000

**Objective:** To complement the smart cities concept of the Malaysian Multimedia Super Corridor by providing enhanced Electronic Government Services to residents of Ipoh, Perak to promote better services to the public.

**Description:** Based on the tripartite relationship between community, business and government, *IVC* is claimed as the first of its kind in Asia by providing its residents with a range of electronic services and links to the council. The first phase (RM2 million) has involved the establishment of online, telephone (IVR) and kiosk-based services while the second phase (RM4 million) is on the automation of core council services.

**Target:** Residents of Ipoh

**Location:** Ipoh, Perak

**URL:** <http://www.mbi.gov.my>

<http://www.microsoft.com/malaysia/business/casestudies/linkpage4157.htm>

**Comment:** Under the third phase by 2003, it is hoped the residents of Ipoh will be able to embrace the concept of a 'smart community' by utilising the range of services offered under the *IVC*.

**Programme:** *e-Public Services*

**Promoters:** Malaysian Administrative Modernisation and Management Planning Unit (MAMPU)

**Partners:** Worldview Foundation Malaysia and the Kampung Raja Musa community

**Launch Date:** N/A

**Objective:** *e-Public Services (e-PS)* presents a directory of public services to simplify and assist people in obtaining the relevant information and forms online.

**Description:** *e-PS* will enable the public to download application forms and access a range of government services online.

**Target:** Communities of Kampung Raja Musa, Kuala Selangor and Subang Jaya

**Location:** Putrajaya (project management base)

**URL:** <http://eps.mampu.gov.my/>

**Comment:** Currently, this pilot project provides over 80 services from 19 government agencies at Federal, State and District levels which are of relevance to the target communities of Kampung Raja Musa, Kuala Selangor and Subang Jaya. *e-PS* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

**Programme:** *Gerbang Mesra Selangor*

**Promoter:** Global Target (M) Sdn Bhd

**Partners:** State Government of Selangor Darul Ehsan

**Launch Date:** 2003

**Objective:** To provide a comprehensive one-stop portal for residents in the state of Selangor to access government information and services.

**Description:** *Gerbang Mesra Selangor* is a one-stop portal run by the State Government of Selangor to provide Electronic Public Services (EPS) with information and services in the area of housing, public facilities, education and training, payments, job vacancies and public complaints.

**Target:** Residents in Selangor

**Location:** Selangor (project management base)

**URL:** <http://gerbang.selangor.gov.my/>

**Comment:** *Gerbang Mesra Selangor* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS).

**Programme:** *e-Submission*

**Promoter:** Kulim Technology Management Sdn Bhd

**Partners:**

**Launch Date:** 2002

**Objective:** To streamline the submission approval system process for businesses located in Kulim Hi-Tech Park.

**Description:** *e-Submission* is an electronic submission approval system and community portal for the Kulim Hi-Tech Park community undertaken by Kulim Technology Management Sdn Bhd.

**Target:** Kulim Hi-Tech Park community

**Location:** Kulim Hi-Tech Park (Kedah)

**URL:** Under construction

**Comment:** *e-Submission* received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project is under development.

**Programme:** *Processing and Approval Environment for Building Projects*

**Promoter:** Asiabuild Online Sdn Bhd

**Partners:**

**Launch Date:** 2002

**Objective:** To provide a streamlined and electronic process of approval for building projects to enhance efficiency and transparency across both public and private sectors in the construction industry

**Description:** N/A

**Target:** Construction industry

**Location:** Kuala Lumpur (project management base)

**URL:** Under construction

**Comment:** This project received funding under the Malaysian Government's Demonstrator Application Grant Scheme (DAGS). Current project is under development.

**Malaysian ICT4D Matrix:  
Malaysian ICT4D Programmes and the Eighth Malaysia Plan (2001-2005)**

**FEDERAL GOVERNMENT LEVEL**

Programme	8MP Development Areas	Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
e-Learning for Life (Coca Cola pilot project and consequent Apple Malaysia project)		•	•	•												•					
Malaysian Smart School Project		•																			
Computer in Education			•																		
Computerisation Programme in Schools			•																		
Community Communications Development Programme			•	•												•					
KTKM-Maxis Cyberkids Camp			•	•												•					
Internet Desa			•	•												•					

**FEDERAL GOVERNMENT LEVEL cont...**

8MP Development Areas	Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
<b>Programme</b>																				
Telehealth Flagship Application		•												•				•		
PROSTARNET														•	•					
E-Government Project																				•
E-Jariah																				
e-Kundasang		•																		
Internet Desa		•	•																	
Infodesa Programme		•	•																	
Online Poverty Database	•		•																	•
@learning programme		•	•																	
Desa Digital (Digital Village)		•	•																	
CikguNet		•																		
Mobile Internet Unit		•	•																	
Cybercomm SSS3		•																		
MIU@Tunjang		•																		
Rural@Sarawak		•	•																	

**STATE & LOCAL GOVERNMENT LEVEL**

8MP Development Areas	Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
<b>Programme</b>																				
Penang i-land		•	•				•	•							•					•
Penang e-Learning Community		•													•					
Des@Net		•	•												•					
Highland Business Community Station (Hibiscus)		•	•			•									•					
e-Sematan		•	•			•									•					
Selangor Government's Initiative in Bridging the Digital Divide		•	•												•					
Pusat Latihan ICT - Klang		•													•					•
SJ2005 Smart Community Program		•					•						•		•					
Ipoh Virtual City																				•

**OTHERS: Demonstrator Application Grant Scheme (DAGS)**

8MP Development Areas	Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
<b>Programme</b>																				
<b>DAGS</b>																				
AkisNet	•	•	•			•	•					•	•	•	•			•		
TamiNet	•	•	•			•							•		•					
Majuikan FAMA Online	•		•			•							•							
E-Koop	•												•							
MyBiz							•						•							
TradeNex							•						•							
E-pek@k	•												•							
Cybercare	•																			
The Masjid as a Neighbourhood Centre	•																			
FamilyPlace	•																			
Veteran Wira.com																				
Neighbourhood Watch																				
Multipurpose Cybercafe e-Community Hub (MCCH)	•																			
JuvaNet																				
MyKedah.com	•																			
Malaysian Grid for Learning (MyGfL)	•																			

**OTHERS: Demonstrator Application Grant Scheme (DAGS) cont...**

8MP Development Areas	Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
<b>Programme</b>																				
Pendidikan Perdana		•													•					
Virtual-access.com.my		•													•					
E-Learning in Islamic Schools		•													•					
ICT-LitPro		•													•					
Karyanet		•													•					
Pesaka Ilmu		•													•					
Raja Kita		•													•					
The ASEAN Review of Biodiversity & Environmental Conservation		•													•					
e-NVIRONMENT		•													•					
MALAYSIA		•													•					
Alamku		•													•					
Cyber Plant Conservation Project (CPCP)		•													•					
HerbaMalaysia.Net		•											•		•					
Networking Women		•													•					
Tcenter		•													•					
e-Homemakers		•													•					

**OTHERS: Demonstrator Application Grant Scheme (DAGS) cont...**

8MP Development Areas	Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
<b>Programme</b>																				
e-Public Services																				
NutriWeb Malaysia		•													•					
e-Farmasi		•													•					
e-Thalassaemia		•													•					
Primary Healthcare Network Services		•												•						
Penang e-Doctor		•												•						
ForensikNet.com		•												•						
MIOSHnet		•												•						
SM@SY		•												•						
e-Baro		•												•						
e-Pondok		•												•						
e-Kuantan.net		•												•						
e-RHAM		•												•						
Clinical Pathway and Training Modules in Healthcare (CLIPT)		•												•						
Malayciviliation.com		•												•						
e-Nature Education		•												•						

**OTHERS: Demonstrator Application Grant Scheme (DAGS) cont...**

8MP Development Areas	Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
<b>Programme</b>																				
e-Submission							•													•
TIGeR							•													•
Processing and Approval Environment for Building Projects																				
e-Keluarga		•															•			
Gerbang Mesra Selangor																				•
PDKNet		•																		
EagleNest		•																		
Warga Emas Networks		•												•						
e-Warga Kota		•																		
Persaralaya		•																		
e-Upcom		•																		•
SJ2005 e-BizX	•		•				•													

**OTHERS: UNITED NATIONS DEVELOPMENT PROGRAMME**

8MP Development Areas	Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
<b>Programme</b>																				
E-Learning for Life		•	•												•					
Mobile Internet Unit		•	•												•					
Promoting ICT for Human Development in Asia	•	•	•			•										•	•		•	
Teleworking and Development in Malaysia		•											•				•			
Asian Women in the Digital Economy (GKII Forum)		•															•			
Transcending the Gender Transformation Divide (GKII Forum)		•															•			
Study of Human Resources Requirements		•																		
Forecasting Malaysia's Science & Technology Human Resources		•								•										
Study on Knowledge Contents in the Key Economic Sectors		•																		
Formulation of Human Resource Development Master Plan		•																		

**OTHERS: NGOs**

8MP Development Areas		Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
<b>Programme</b>																					
Website of Women's Aid Organisation of Malaysia																					
K-DOT Force																					
K-Youth																					
kAYNet																					

**OTHERS: Corporate Citizenship Programmes**

8MP Development Areas	Poverty Eradication & Restructuring of Society	Population, Employment & Human Resource	Regional Development	Public Sector Programme & its Financing	Privatization	Agricultural Development	Industrial Development	Infrastructure & Utilities	Energy	Science & Technology	Finance	Tourism	Distributive Trade	Health	Housing & Other Social Services	Environment & Sustainable Resource Management	Women & Development	Youth in Development	Development through International Cooperation	Administrative Improvements for Development
<b>Programme</b>																				
e-Learning for Life (Coca Cola pilot project and consequent Apple Malaysia project)		•	•												•					
Maxis PC Community Project		•	•												•					
KTKM-Maxis Cyberkids Camp		•	•												•					
Internet Desa (Maxis, Shell, POS Malaysia)		•	•												•					
Citibank ICT Smart Lab and Resource Center for Inclusive Students		•	•												•					
Intel Teach to the Future		•																		
Microsoft Foundation Campaign		•													•					
Cisco Networking Academy		•																		