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Egypt's Information Society Strategy: A Critical Lexicography

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ABSTRACT

The development of ICT policies within developing countries in the past ten years has opened up a new area for study. These documents chart the ambitions of the countries for the use of ICT to promote rapid development. As such they are intercultural documents, developing at the interface between the culture of the country and western economic culture. This paper develops a critical approach to understanding these documents and studying their message. The approach involves the preparation of a critical dictionary which identifies relevant terms within the ICT policy document and reflects on their multiple meanings. The approach was applied to an Egyptian ICT policy document, Building Digital Bridges. A dictionary of thirty seven entries was developed. The dictionary, presented in full in an appendix, was used to identify critical themes in the document.

INTRODUCTION

Developing countries place a high premium on the potential of ICT to enable their development. National ICT policies, information and communication ministry websites, and speeches by presidents, ministers, and western institutions (Thompson, 2005) all extol the value of ICT in triggering markets, empowering citizens and moving their countries away from poverty towards the knowledge-based economies they see modeled in the West.

However, such lofty visions of an ICT-enabled economy seem far removed from the situation-on-the-ground, where a majority of the population may live in rural poverty, dependent on subsistence agriculture and without the basic infrastructure of roads, electricity and telecommunications. In Mozambique, for example, 71% live rurally with no infrastructure, in a country devastated by years of independence war and civil war, crippled by floods and droughts, and inhibited by bureaucratic structures from its socialist past. Despite of this, Mozambican ICT policy aims to guarantee citizens access to the benefits of global knowledge and make Mozambique a competitive partner in the global information society (Eesselar et al., 2001). The Zimbabwean National ICT Policy Framework calls for the use of ICT to support sustainable socio-economic growth (Zimbabwe, 2005) in a country with soaring inflation and basic food shortages.

Indeed, for a majority of African states, there is a significant gap between the ideals of the policy makers and the reality of everyday life and communication. The same may be true for western industrialized countries.

However, the rhetoric of ICT in developing countries, as expressed in ICT policy documents, may be written with the help of Western IT consultants, or at least with an eye on a Western audience. As such, ICT policy documents are intercultural, expressing the western-oriented aspirations of the country under the influence of a developing country's social, economic and political landscape.

Studies are needed which expose the intercultural elements of such key ICT policy documents, to bring into relief the contrast between the meaning of such documents to the developing country and the implied or explicit western-oriented meaning.

This paper seeks to do that for one key document, an information society strategy document for Egypt, published in 2003. To achieve this, we apply a critical approach which seeks to tease out underlying meaning and reflect on themes within a critical framework which considers issues of empowerment, emancipation and control, and references ideas enunciated by Habermas (1987).

The authors evolve a critical approach which involves extracting key terms and phrases in the document and investigating the meaning which can be derived internally from the document and comparing this meaning with ones which are generally accepted. We call this approach critical lexicography because the output is a dictionary of terms which can be used to sensitize the reader to the possible meanings and implications of the studied document and can provide a means of interpreting other documents.

The authors make no attempt to examine any changes that might have occurred on-the-ground in the country as a result of the strategy, although we do reflect on the relationship of the studied document to the current (2007-2010) ICT strategy for the country. Rather we provide a critically interpreted reading of the document which could be used in studying changes in the field as well as being applied to other documents.

The paper is structured in four sections. Firstly, we focus on the target document, '*Bridging the Digital Divide, Egypt's Information Society Strategy*'. The reasons for selecting this document are discussed. Egypt was selected because its policies are quite advanced and Egypt's ICT policy is used as a model by other countries such as Mozambique and Rwanda. There is a small but significant IS literature concerning Egypt (Shoib & Jones, 2003), and an implementation of an information system derived from government policy has been studied over a number of years (Nidumolu et al., 1996; Elbeltagi et al., 2005). The discussion requires an overview of relevance of national ICT policies, a focus on Egypt's ICT history, which sets the context for the document and an overview of the structure of the document. Next, the process of developing a critical dictionary is discussed. That process is set in the context of the critical research paradigm. Thirdly, the resulting critical dictionary is examined. Some sample entries are discussed, and the entire dictionary of 39 terms is presented as an appendix. Finally, themes and conclusions are drawn from the dictionary and the process of creating the dictionary.

NATIONAL ICT POLICIES

National ICT policies are developed by a majority of developing countries. According to the Economic Commission for Africa, in September 2005, 30 African countries had national ICT policies, 11 were developing them and only 6 countries had not started a development process (Economic Commission for Africa, 2005). The production of ICT policies is a recent initiative. Zambia's draft policy was launched in December 2003, Tanzania's dates from March 2003, Madagascar's dates from January 2004 and Zimbabwe's appeared in December 2005.

ICT Policy is seen as a key initiative at the highest level of many African governments. Coming out of science and technology or communications and transport ministries, the policies represent the country's ambitions in using ICT to catalyze development. They indicate, at least, a knowledge of concepts such as digital divides and some understanding of the barriers to ICT spread represented by large rural populations living in dire poverty. They express the vision that the usage and spread of ICT will enable a shift from a predominately agricultural economy to a knowledge intensive economy. The Rwandan ICT policy, for example, identifies ICT as an engine for accelerated development and economic growth, national prosperity and global competitiveness (Rwanda, 2006)

These documents are targeted at a wide audience. Although often focused on informing the higher ministers of government, they are generally made available through the Internet and sometimes publicized at a national level.

THE BUILDING DIGITAL BRIDGES DOCUMENT

The Egyptian ICT manifesto, '*Building Digital Bridges: Egypt's Vision of the Information Society*' (MCIT, 2003), which is the subject of analysis in this paper, is one of many African ICT policies documents. Containing 90 pages, it was produced by the Egyptian Ministry of Communications and Information Technology in 2003 and is the central document for analysis in this study.

Following a brief introduction, which sets the scene and justifies the document's approach through statements concerning the critical nature of ICT, the document seeks to connect the information society and goals of Egyptian development through a listing of the strategic challenges. These lead to seven sections, one on each of seven bridges. In each bridge, the objectives are stated and the challenges explored. A statement of the current position regarding each bridge, with examples, leads to a statement of the way forward. The strategy ends with a statement of Egypt's position in relation to the global information society.

As such, the document provides a rich source of ideas and comments which highlight significant areas of concern in ICT usage in developing countries, and are reflected across Africa. The document provides a snapshot in time. It represents not only the views of the politicians and external consultants, but also the view expected to be promulgated at an international level. It is Egypt's ambition as to what the international view should be. As such it should not be taken as an objective reality, but a text which should be subjected to hermeneutical analysis which takes into account the context and history.

It stands out because of its influence on the ICT policy of other African countries and its role in the development of the World Summits on the Information Society. The document highlights the digital divide and then charts seven bridges Egypt is building to cross the digital divide. The bridges are:

- E-Readiness   Equal access for all;
- E-Learning   Nurturing Human Capital;
- E-Government   Government Now Delivers;
- E-Business   A New Way of Doing Business;
- E-Health   Increasing Health Services Availability;
- E-Culture   Promoting Egyptian Culture;
- ICT Export Initiative Industry Development.

These are documented with policy guidelines, challenges, proposed solutions, current position (where we are today) and future plans (the way ahead). For example, E-readiness highlights the need for awareness of ICT and affordability. It charts a free Internet initiative, started in 2002, the provision of PCs at low cost (A Computer for Every Home), describes the formation of ICT clubs and discusses the activities of the National Telecommunications Regulatory Authority. The discussion of each of the six bridges is preceded by a one page introduction which sets the context for the rest of the document. A second preceding section relates the information society to national economic development. It highlights the perceived importance of ICT for economic development, education, employment and the quality of life. It comments on the digital divide and lays out the strategic challenges for Egypt for which the six bridges provide the way ahead.

A focus on one document will provide a coherent set of critical constructs which may be used in taking a critical approach to other countries documents

THE PROGRESSION OF EGYPTIAN NATIONAL ICT POLICY

The publication of Building Digital Divides needs to be set in the context of a developing ICT policy in Egypt which has progressed over more than two decades. The formation of the Information and Decision Support Centre (IDSC) by the Egyptian cabinet in 1985 marked the start of a progression of government initiatives which would lead to a National ICT Policy (Kamel, 1997).

The principle project of the IDSC was the central development of a decision support system, the Governorates Project. This was implemented between 1987 and 1990 in 27 governorates (Nidumolu et al., 1996).

The growth of interest in ICT, and the establishing of the IDSC coincided with a shift from a state-controlled economy towards a more liberal entrepreneurial one in the early eighties. The collapse of the oil market in the late 1980s led to foreign debt totaling $50 billion and an economic crisis influenced by low productivity and poor economic management.

More recently the role of the IDSC has developed. Since 1993, it has led in the effort to bring the Internet to Egypt and spread it through Egyptian cities. It now provides an information portal for

economic and business indicators. However, it should be noted that, according to the Building Digital Bridges document, its role in promoting public access to information has largely given way to a focus the provision of decision support for the cabinet. Its aim is to draw information to the centre to enable better control.

In 1999, a Ministry for Communications and Information Technology (MCIT) was formed (El Sayed & Westrup, 2003). Its mandate was to develop an information society and to improve the information infrastructure. (Hassanin, 2003). Shortly after its creation, in late 1999, the ministry announced the Egyptian National Communications and Information Technology Plan (NCITP) (Hashem, 2002).

In 2003, Egypt hosted the Pan-Arab regional conference on the World Summit on the Information Society (WSIS), organized by the MCIT. This was preparation for the 2003 WSIS. A subsequent conference was held in May 2005 in preparation for the 2005 WSIS. MCIT prepared the document, *Building Digital Bridg*es for the 2003 Pan-Arab conference and as a submission to WSIS.

In 2000, the Government of Egypt was in talks with the United States Aid Programme which led to an agreement, set out in September 2000, for a "results package" defining two focus areas: improving the ICT legal and regulatory framework and expanding the adoption and delivery of ICTs within Egypt. This agreement led to a USAID ICT project, in association with the MCIT. The principal component was a four year project, awarded in February 2002, to General Dynamics Government Systems Corporation (GD) for $28.2 million. The project followed some $700 million infrastructure investment and aligned with newly defined USAID goals in assisting with the creation of legal and regulatory structures for telecoms.

At the time of a mid-term project evaluation report (Marchese et al., 2005) in January 2005, significant progress had been made. The project envisaged significant interaction with MCIT, not only providing technical advice but also driving forward legislation. Reform of the telecommunications law was achieved in 2003 and an Information Technology Industry Development Authority (ITIDA) was formed in 2004 to catalyze the development of e-business services in Egypt, control e-signature law and help support an export-oriented IT sector. Technical advice and training was provided by USAID under the GD contract. Interestingly, the contract allowed for 'institute-building and process-oriented advice' which was not taken up by MCIT. The mid-term report suggested some distancing and friction between the USAID contractor and MCIT.

The activity of the IDSC and MCIT in Egypt has provided a rich source of documentation from a variety of initiatives. Of this documentation the '*Vision of an Information Society*' stands out as key document whose philosophy for bridging the digital divide has been influenced by the World Summit on the Information Society and is itself an influence on ICT policies across Africa. It is this document, also found as a series of MCIT web pages which forms the raw material for part of our analysis.

THE RESEARCH APPROACH

The aim of this paper is to apply a critical research approach to IT policy in Egypt using discourse analysis of a major national Egyptian policy document which is available on the Internet. By using critical research methods this study identifies and comments on the claims made in the document.

By using discourse analysis and examining the language of the document, the underlying discourse can be broken open so that the obscured assumptions of the document and the horizons of the authors of the document are open to critical study.   Claims about the empowering effect of ICT can also be examined. By using an approach which concentrates on the principle terms used in the document, we can highlight the various meanings of those terms and hence raise questions about the actual policy intent of the document which may underpin its rhetoric. By this means issues concerning the intercultural nature of the document can be raised.

The Nature of Critical Research

Critical research may be characterized by its themes, scope and ambitions. Critical researchers tackle power relations within society and organizations. Traditional topics include issues of gender, race, and class (Harvey, 1990). In the areas of ICT and IS, themes of empowerment, technological determinism and control structures are frequently pursued. Its ambition is to cause change, to break or realign power structures to the benefit of the oppressed or disadvantaged. Critical research is motivated by ethical considerations of justice and equality (Stahl, 2008). It particularly questions assumptions about and statements made to justify power structures and the distribution of wealth. In terms of technology usage, critical researchers take the view that the role of technology is socially constructed (Howcroft, Mitev & Wilson, 2004).

There is often a concentration on the word as the focus of research and hence a focus on the text as the instrument and catalyst of power relations as well as the expression of power relations. This leads to a concentration on critique and the selection of techniques which will highlight contradictions, and hidden messages. Hence, one recognized aim of critical research is to demonstrate the contrast between what is apparently said and a number of alternative messages which can be drawn out of the text. While there is no unanimity concerning appropriate methodologies of critical research (McGrath, 2005), there is a general recognition that methodologies that are sensitive to language, its use and shaping are central to the critical enterprise (Howcroft & Trauth, 2005).

This process leads the critical researcher to draw on analytical frameworks, theories and philosophies which will help make the contrasts clear and offer some external validity to the critical interpretation of the texts. Furthermore, it is important that the researcher is clear about her motivation, her philosophical positions, the assumptions and opinion held which are driving the research, her historical background and the actual agenda. These need to be reflected upon and presented up-front. Such reflexivity and openness is important to prevent CRIS from turning into the dictatorship of the intellectual (Stahl, 2006).

Critical Lexicography

Since much critical analysis revolves around the meaning of words and phrases and their relationship to concepts and the underlying ideology, a method was developed which explores the underlying meanings within the document by developing a critical dictionary to support our analysis of the document. The meaning of words and phrases, representing concepts and arguments is explored by documenting them, deriving their meaning from the document and contrasting their meaning with other possible meanings. Other possible meanings may be obtained by considering multiple realities, looking for internal contradictions, external sources, and parallel discourses and hence critically interpreting the document. This leads to an increased understanding of intercultural issues.

The result of this analysis is a dictionary of key words, concepts and ideas derived from the document which can then be used to critically analyze the document and expose key issues which need to be questioned. The dictionary forms the basis for critical debate as to the philosophy and purpose of the document from which it has been derived. It is also a basis for referring back to the document and drawing out key themes from which lessons can be learnt and social theory developed or applied. The dictionary is not the end point of the research but a research tool for continuing the critical research process, particularly in dialogue with researchers and practitioners.

Indeed, as a result of the continuing research process, the dictionary itself may be expanded as reflection on the document suggests other words and phrases may be of key importance. Lexicography involves the exploration of the meaning of words and terms in a language. Critical lexicography reflects on the specific terms in a context of a critical researcher's mindset. Each definition will explore the critical issues behind the term and question the assumptions and use of the term within the document.

THE PROCESS OF CRITICAL LEXICOGRAPHY

The method adopted to produce a critical dictionary is essentially iterative. A close reading of the document leads to the identification of words and phrases which are used to gain further understanding of the document. The development of the dictionary then leads to the identification of themes to be explored.

The selection of the document for study is a key step, since the derivation of the dictionary is driven solely by what is suggested in the document. The resulting dictionary is not representative of any general usage of the terms, but is specific to the study of the usage in the document. Furthermore, the study of a key document and the development of a corresponding dictionary will shed light on, and support, the study of other documents which are influenced by or derived from the key document.

As discussed in the historical background section, a study of Egypt's IT policy history suggested that the '*Vision of the Information Society*' was a key document in defining Egypt's policy and its relation to developed nations and to other African nations. The vision drove Egypt's

presentations to the World Summit, and reading of other African countries IT Strategy documents suggested that Egypt's vision had significance in the development of IT strategies for other African countries. Concepts such as 'Bridges', 'Pivots' and 'Pillars' appear in several National IT strategy documents.

Once selected, a close reading of the document was conducted in which identified statements which highlight concepts, validity claims, frameworks, rhetoric, and historical and contextual connections. Such statements emerge from a consideration of the critical framework in which the analysis is occurring, that is the concerns and concepts derived from previous studies and the critical concerns of the researcher. The resulting output is a list of numbered statements circled in the text and accompanied by handwritten notes in a research notebook. For this project, the handwriting of notes provided an opportunity for adding further notes, comments and criticism which occurred in the reading process. This process is similar to the note taking which is part of grounded theory.

The analysis of the whole document produced 180 handwritten entries. The statements can be considered to be reflective statements which combine the characterization of the document with the researchers' reflections on their engagement with the material.

This detailed reading involves a qualitative interpretation of the document by the researchers. In the case of E-Readiness, for example, it may be initially suggested that there is an emphasis on individuals and empowering individuals across the country to use IT to gain autonomy and better themselves. A critical reading suggests that e-readiness is seen at a national level, is related to Egypt's ability to compete on an international, global economic stage and is not so relevant to individuals beyond their roles as servants of a national economic strategy.

Following this close reading, terms are selected from each section for development into dictionary entries. The selection of the terms is a critical process for the researchers, based on a developed understanding of the document, an understanding of the specific and information systems context and an exploration of critical themes.

Terms and concepts are selected which characterize the meaning, direction and strategy of the document. This may involve a focus on specific terms. Additionally, terms with ambiguous meanings, or where there are contradictions, paradoxes and conflicts are selected for further analysis. Such terms may involve a contradiction between the surface meaning and a hidden, obscured, assumed meaning. The term may involve a contradiction between the meaning in the document, which reflects the worldview of the authors, and the meaning in the outside world, in actual practice. Terms may also be selected because of their research relevance to themes of interest in critical research including power relations, empowerment and emancipation.

Appendix A lists all the dictionary developed from the Building Digital Bridges document.

BUILDING DIGITAL BRIDGES: A CRITICAL DICTIONARY

Overview of Dictionary

The dictionary for 'Building Digital Bridges, Egypt's Vision of an Information Society' is structured to correspond to the sections of the document, particularly focusing on the seven digital bridges which are at the heart of the document. Thirty seven entries were created. Further entries could be added, but the current dictionary is sufficient to characterize the document and support a critical reading.

Each entry begins with an example quote from the document. This is followed by a general definition of what is meant by the term in the context of the document. The critical element of the dictionary is created by reflecting on the meaning of the term and critically deconstructing it.

These entries have multiple purposes. They provide a narrative in themselves and can be read entirely independently of the document. They also provide a commentary on the document. They provide a basis for further debate and clarification. Concepts defined in the critical dictionary can be expanded by other researchers. They can be refuted or redefined or evolved according to findings from other document studies or case studies. Dictionary entries can also illustrate the connectivity of concepts within the document through cross referencing.

The critical dictionary contains a limited number of core concepts and is not exhaustive. Indeed, the selection of entries was itself a critical exercise. Entries were selected that characterize the document, that highlight contradictions and conflicts, that provide platforms for critical analysis of the philosophy of the document and that highlight key issues which may have more general application.

A critical dictionary goes beyond the raw definition to question the interpretation offered by the source document, to examine the conclusions that document comes to as a result of its interpretation. For example, the term 'ICT revolution' refers to the industrial and social revolution triggered by the wide availability of information technology and particularly the Internet. There is an assumed comparison with the industrial revolution which emphasizes the magnitude and significance of this shift. Underlying the definition is a series of assumptions which drive the agenda of the Information Society Strategy and should be drawn out. The industrial revolution is assumed to be a 'good thing' and of benefit to society and individuals. This reading is transferred to the ICT revolution; ignoring the societal upheaval and the deleterious effects of individuals that followed. Such underlying assumptions are teased out and questioned in a critical definition. Furthermore, the philosophy and assumptions underlying the use of the term 'ICT revolution' lead to behavioral expectations which then drive the strategy. The economic growth of Egypt may be seen as dependent on the ICT revolution and hence the population should become servants of the revolution.

The highlighting of the assumptions in the documents and the behavioral expectations surrounding the use of a term leads to a critical definition which is not only a basis for debate, but also a starting point for action that could result in change. A questioning of what might almost be described as the dictatorship of the ICT revolution may lead to changes in the way

technological, social and economic change is handled to bring about empowerment such that the ICT revolution becomes a servant and an opportunity for individuals and the population, not a god to be slavishly served.

Themes

The critical examination of the document, the development of the dictionary and reflection on the content of that dictionary, leads to the development of major themes, which may themselves be illuminated by the literature and by critical social theory. The process of developing the critical dictionary will give rise to recurring themes, to major concepts that appear again and again in the document, and that the dictionary entries highlight and point to. These themes, when explored, give rise to further criticisms of both the document and the underlying activities generated by or which will be generated by the document. The themes further give rise to research agendas which can be pursued. Five themes arising from the critical dictionary are briefly discussed below.

The Digital Divide

The digital divide generally refers to the gap between those who have access to ICT and those who do not. Lack of access to ICT can be a result of poverty in developed country, lack of resources in a developing country and, for example, exclusion due to age (McMurtrey et al., 2008; Nath & Vasudeva Murthy, 2003).

Solutions are then proposed which include digital cafes, the importation of used computers into African schools, and the distribution of $100 computers. It is seen almost as an individual matter where the provision of a computer enables the individual to cross the digital divide.

There are many reports about the digital divide and many discrepant interpretations of what the reports indicate. This pattern of competing analyses, often in relation to identical data sets, has endured for a good part of the last decade (Hacker & Mason, 2005; Parayil, 2005). The digital divide can be considered at the individual, organizational and global level. It also extends beyond the lack of adoption to include more about usage (Devan & Riggins, 2006). Indeed we would suggest that digital divide should be plural to reflect the wide range of occurrences.

In the context of Egypt's strategy for an information society, while there is discussion concerning computer ownership in households, the use of graduates to take IT caravans to rural areas and the need for ICT accessibility, this talk is not framed in terms of the digital divide as affecting the poor but as the digital divide affecting Egypt's ability to compete in global markets. In developing the critical dictionary, our study of the '*Building Digital Bridges'* document suggests that the digital divide the document really addresses operates at a country level. It is related to the global market in ICT, both its usage and production, but we would suggest here, primarily its production. References to market-based solutions, the global economy, techno-economic shift and export-oriented ICT are cast in the context of an economic divide between developing countries such as Egypt and western democracies. Hence in addressing this global economic divide there is a need to have a skilled workforce to service global economic needs, and to have a legislative environment and the right infrastructure to attract the large

multinationals which drive global ICT markets. Smart Villages are then designed to be attractive to multinationals, investor-friendly legislation is pursued, supported by a telecommunications master plan.

Citizens then become servants of Egypt's goal to cross a global economic divide in ICT. The training of graduates in basic ICT skills results in a workforce suitable for supporting a business process outsourcing industry which meets the offshore outsourcing needs of western countries. As individuals become resources in the service of global competition, the digital divide at a local level is amplified rather than removed. ICT jobs are not only restricted to urban situations, but located in Smart Villages which may be difficult to access from rural areas. In addition, the ICT training is aimed at graduates and computer ownership is aimed at households which already have access to telecommunications infrastructure and are paying telephone bills. This strategy may only result in a deepening of the digital divide, further accentuated as a conflict between the global commercial ambitions of Egypt and the ambitions of multinationals and western donor countries emerges.

The Knowledge-Based Economy

The development of a critical dictionary from the Building Digital Bridges document provides an opportunity to reflect on commonly used terms as well as terms specific to the document. As far as the digital divide is concerned, the commonly held view of the digital divide as relating to poverty and individual use of ICT is quickly challenged. A critical approach helps question assumptions. Often these assumptions about the use of ICT and the role of information management arise from intercultural clashes.

The ICT revolution can be seen as leading to a knowledge-based economy where information-intensive industries replace manufacturing industry and organizations compete more on a basis of the knowledge they generate, rather than the goods they manufacture. In developed countries, the knowledge-based economy is represented as an evolutionary step. The agricultural economy evolved to a manufacturing economy through the industrial revolution and then a knowledge economy through the information revolution. For many developing countries their ambition is to become a knowledge-based economy and compete on an equal basis with western economies. However, in many developing countries, subsistence farming dominates. The emerging ambition is one of leapfrogging.

For many developing countries, leapfrogging may be an unachievable dream since the information economy may require an underlying manufacturing base or history on which innovation can be promoted, resulting in knowledge creation. Leaving aside other barriers to a knowledge based economy, such as immature education systems which take a long time to develop, a focus on leapfrogging leads to the developing countries competing on an unequal basis. Perhaps developing countries should be seeking alternative paradigms and the equivalent of niche market strategies.

The focus on a knowledge-based economy may leave large sections of the population behind. While a certain elite group of experts and graduates benefit, the knowledge-based economy may isolate those outside the urban centers of prosperity. The knowledge-based economy is an

intercultural issue. Egypt's 2007-2010 ICT strategy, which continues the themes of '*Building Digital Bridges*', sees the development of Egypt as a knowledge economy in a global market. Such terms may be questioned in a critical dictionary. They carry cultural baggage which may lead to intercultural clashes and the exclusion of large cultural sections of the developing country.

The Colonisation of the Lifeworld

Habermas (1987) critiqued the moving of many aspects of private life into the public sphere. Areas of life which were once private are taken up by the market and turned into commodities. Thus leisure activities become organized industries, commoditized and commercialized. This phenomenon, by which aspects of one's life become part of the public sphere Habermas calls the colonization of the lifeworld (Klein & Huynh, 2004). Habermas considers that the balance between what is in the public sphere, influenced by state and commerce, and the private life is under threat. As more of the private becomes public, individual autonomy and rights are eroded. Decisions and activities which were not the concern of the state become subject to state organization and influence.

Intercultural concerns emerge when the activities of political system, ICT strategy and e-government systems encounter the everyday activities of citizen's lifeworld. When the system's concerned are driven by western-oriented agenda, a cultural clash may be experienced.

While the '*Building Digital Bridges*' document represents only one side of a discourse, we would suggest that it involves an attempt to colonize the Egyptian citizens' lifeworld and draw more activities into the public sphere. Here, the use of ICT within households becomes not only a statistical concern of the state, but also something to be managed as part of an information society strategy. Hence, the concern of the strategy is to get computers in every household as a way of improving education and extending e-government. As such this would involve not only what is in people's homes, in their private sphere, but how artifacts in the home are used. In the same way as entertainment becomes a matter of economics, so what happens with ICT in people's homes becomes a matter of economic interest. Indeed, not only is the lifeworld colonized through involvement with ICT adoption in households, but also the presence of ICT, particularly government-sponsored ICT provides an opportunity for further surveillance.

Technological Determinism

Many state initiatives in the use of ICT, in schools, in hospitals, carry the underlying assumption that the adoption of ICT will result in economic improvements and changes in society and organizations. The philosophy of technological determinism that underpins much ICT policy results in the placing of ICT in schools without addressing the needed teaching skills, and placing computers in hospitals without changes in management and organization. Such belief in technological determinism often turns out to be false: ICT put in schools may remain unused or wheeled out for special occasions.

In the '*Building Digital Bridges'* document, we would suggest there is an underlying philosophy of technological determinism. Although the need for ICT usage and skills above simple

computer ownership is stated several times, the strategy and language of the document focus on the value of the implementation of technology. The discussion of the telecommunications master plan, multiple modalities of learning, and computer ownership all point to a dominant role for the technology. The presence or absence of the technology is seen as the main determinant of the digital divide.

Control and Autonomy

Of the many contradictions generated by ICT, one that particularly stands out in reflections on this information society document is the conflict between the use of ICT for autonomy and for control. This tension becomes apparent in the document and is expressed in the dictionary. The clash between control and autonomy relates to the critical theme of empowerment.

The distribution of ICT could involve giving users autonomy over their use of it to improve their lives and increase economic activity. Terms such as autonomy and citizen-driven information are used in the document to point to a use of ICT which is driven by the user and where information flows to the user, to help in finding markets and getting the best prices, for example.

However, there is a clash here with the need for centralized control, for governments to draw in information to increase control and management. This is particularly apparent in Egypt where the civil services retain a militaristic culture. The IDSC is concerned with the provision of information to the centre. The decision support system enables information to be gathered in Governates for use centrally.

The individual, described as a customer, is a passive customer, submitting to some control from the centre through e-government sites. The universal service policy portrays the citizen as the passive recipient. E-learning is preparing the citizen to be the servant of the state. Also the attempt to elicit citizen-driven information still leaves the centre in control of what is delivered and how it is delivered.

In the end, an emancipatory agenda must be one that provides the frameworks, but relinquishes control and trusts the citizens for outcomes. Central control reveals a lack of trust that the citizen would use ICT effectively to improve their lot.

This contradiction between control and autonomy is never resolved in the document, which while paying lip-service to autonomy, provides a strategy that is essentially controlling and centralized. The critical dictionary identifies many terms relevant to the theme of control and autonomy. The process of developing the critical definitions serves to emphasize the importance of addressing the empowerment agenda in what is an intercultural document.

THE VALUE OF CRITICAL LEXICOGRAPHY

The construction of a critical dictionary from a document provides a tool for deconstructing the document and understanding its underlying assumptions, goals and motivations.

For the researcher, critical lexicography provides a way to organize a critical understanding of a document and leads to the identification of wider linking themes. It helps the researcher consider what the important and revealing terms in the document are. While a critical dictionary is very document-specific, it may be nevertheless used as a basis for developing critical standards for comparing one document with another. Does, for example, the critical definition of digital divide lead one to question the way the term is used as a basis for rhetoric in another document?

For the audience, the critical dictionary provides a basis for readers to develop their own critical understanding of a document. It helps the reader considers the assumptions and does not take rhetoric, historical terms or technical terms at face value. The dictionary provides a basis for unraveling and debating the wider issues raised by the document. For example, what actually is the nature of the digital divide? Who really benefits from an IT export initiative? What actually is the value of installing large ICT infrastructures?

This is not to suggest that the audience for the research should only be passive recipient of a critical dictionary developed by researchers to color their thinking. Rather the example of the critical dictionary and the presentation of the process should lead them to develop their own dictionaries as a basis for new critical readings of the ICT strategy document. As such, critical lexicography may be seen as a pedagogical tool to help students develop their own critical faculties and not take technical, social or political documents at face value.

CONCLUSIONS

The emergence of ICT policies in developing countries in recent years provides an interesting area of study. It is clear that these documents are intercultural. They highlight the boundary between the outward facing ambitions of the country and the internal challenges of poverty, deprivation and decline. Furthermore, they have an intercultural dimension because they may be written with the help of western consultants and may be, as is the case in Egypt's 2007 – 2010 ICT strategy document, financed by western aid organizations.

However, a possible consequence is that, while the issues of economic deprivation and poverty are identified, the resulting strategy, filtered through a western cultural lens, does not address the real issues of the country at an individual level, but rather emulates western business methods. This may further accentuate the technical and economic divides within the country.

A critical means is needed to tease out the assumptions of the document so that they can be questioned and the value of the strategy in relation to the problems faced by the country can be improved.

This paper describes such an approach in which a close reading of a document is used to generate a dictionary of terms specific to the document. We call this approach critical lexicography because it combines the technique of defining terms with the application of the reflective approach of critical research which applies particular concepts and strands of thought to analyze a discourse and question the power relationships it generates or supports.

Dictionary entries are created which explore the meaning of terms within the document and compare it with other generally accepted meanings in order to create a critical reading of the document. Such dictionary entries can then be used to highlight issues within the document, to support other readers of the document and to help in the reading of subsequent documents.

The intercultural focus of '*Building Digital Bridges'* is towards the demands of global ICT markets. The terminology extracted into the dictionary illustrates a controlling philosophy which intends to marshal technical and human resources to establishing a place for Egypt in a global ICT market. It is not an ICT policy which promotes emancipation and autonomy for the citizen.

Since completing the critical dictionary for the '*Building Digital Bridges*' document, a new 2007- 2010 ICT strategy has been issued by Egypt. This new document picks up many of the themes of '*Building Digital Bridges*' – Export-oriented ICT, information society, households. Its focus and themes are very similar to '*Building Digital Bridges*'. Hence the critical dictionary is just as useful in analyzing the 2007-2010 strategy.

This paper does not intend to address how the situation-on-the-ground has changed since the publication of the '*Building Digital Bridges*' paper. The 2007-2010 ICT strategy, which describes the PC 2010 – Nation Online Strategy as a successor to the PC for every home suggests that the number of Internet users has risen to 5 million. However, this needs to be seen in the context of a population of 72.8 million in 2002 (UN, 2006), estimated to reach 86 million by 2015. This suggests limited progress in which Internet expansion is not keeping up with population growth. However, a detailed understanding of the effect of '*Building Digital Bridges*' would require fieldwork which is outside the scope of this study.

ICT is a political instrument. The role of information systems as catalysts of progression in the developing world cannot be studied without attention to the political dimension. Local initiatives may be limited both spatially and temporally in their effect. Part of the limitation in effectiveness may be traced back to national strategy and national political agendas. Further ICT policy documents from developing countries should be exposed to the same treatment we have given Egypt's, so that a better picture of the political intent can be built.

The reading of '*Building Digital Bridges*' suggests that an alternative policy is needed which has a different focus. Instead of drawing out resources towards an export-oriented ICT market, it should draw resources in, making the ICT industry the servant of the people. An alternative ICT policy should promote autonomy in the use of ICT, trusting the emergence of applications which will be sensitive to local culture. An intercultural document should not be one-sided, but look both ways, connecting global ICT with local needs. The critical dictionary helps identify the cultural leanings of the '*Building Digital Bridges*' document. More work is needed to develop further ICT policy documents which result in a cultural reorientation. Such documents would then be truly intercultural.

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APPENDIX A

THE CRITICAL DICTIONARY

This dictionary has been built up from an analysis of the Egyptian vision for an information society and is presented in the order of the sections in the document analysed. There are no page numbers associated with the available versions of the document. Hence section references are given, assuming that quotes could be found by searching.

INTRODUCTION

The one page introduction to the Building Digital Bridges (BDB) document sets the context for the rest of the document.

ICT Revolution

"The ICT revolution has had an impact perhaps even more profound that that of the industrial revolution so many years ago."

A period of rapid industrial and societal change catalyzed by the maturing of computer technology. Treated as analogous to the industrial revolution of the nineteenth century with a similar level of economic and societal effects. It is viewed as a cataclysmic shift rather than an evolutionary process. As such it gives rise to a 'critical turning point'. The use of this term offers a simplifying mechanism, which reduces a complex set of interactions to a simple economic truth. The ICT revolution is considered a driver for economic development and for setting the country's strategy.

The ICT revolution is generally seen as a good development, taking a positive view of the industrial revolution as reflecting a positive view of the ICT revolution. The ICT revolution is seen as a source of essential economic growth and new jobs. Issues around the disenfranchisement of elements of the population, the potential for de-skilling and nature of the resulting jobs is not considered. The ICT revolution is considered as a phenomenon that is happening outside our control. An inevitability, it must be responded to without questioning its effect on the individual.

Hence questions should be asked as to how the characteristics of the ICT revolution can be debated and the many phenomena of the ICT revolution used to empower individuals within the population.

Digital Divide(s)

"Egypt remains firmly committed to its goal of bridging the digital divide"

The gap between those that have access to ICT and those that are excluded. Access to ICT is taken to carry with it access to economic and political power. Additionally, those with access to the technology are seen to have greater autonomy and control over their life situations. It may be seen as an electronic manifestation of other poverty divides, for example, it may be analogous to the North-South divide which was of concern at a global level in the 1970s.The gap may parallel that between the poor or economically destitute and the wealthy middle and upper class. The gap is one between the more developed countries with access to the technology and less developed countries. Here the gap is viewed at the country level. Hence the digital divide affects Egypt's ability to compete in the global economy. In BDB the digital divide is considered as a political phenomenon, acting at a country level, and inhibiting Egypt's ability to compete internationally. Hence, efforts to increase the ICT base, whether at a citizen or company level are interpreted as contributions to move Egypt up the international competitive league. Individuals and companies become servants of a higher goal in bridging the digital divide between Egypt and, for example the US. Crossing the digital divide is interpreted as a key to economic growth and improved productivity, rather than social betterment and the overcoming of poverty. Additionally, the digital divide is related to the absence of technical infrastructure rather than social awareness. A technical determinist view of the digital gap suggests that the provision of infrastructure will automatically lead to ICT usages and the development of ICT skills.

Such a view leaves aside the social exclusion within the country, and the way in which the ICT revolution accentuates the divide between a well-educated middle class and rural workers. Here a social divide is strengthened by the use of ICT.

Since ICT can cause divisions at a number of levels - nationally, individually, socially – it may be more appropriate to talk about divides in the plural.

In the Building Digital Bridges, there is a clear emphasis on the digital divide at a global economic level which ignores the disempowerment of individuals.

Market-Based Solutions

Private sector involvement is of strategic importance …. to take the lead in devising market-based solutions that are socially responsible..

Technological, innovative and economic ways of increasing the ICT base of the country, and hence bridging the *digital divide* which are carried out by players operating in a global competitive market. Such solutions are developed by Egypt seeking partnerships with organizations and companies; and in particular encouraging the involvement of ICT related multinational companies. Such multinationals in the technological sector are seen as the prime target for *investor-friendly legislation*, which may create barriers to the involvement of smaller, local companies. Furthermore, at a national level, the goals and objectives of multinationals may start to have inappropriate influence on national strategy which should ideally be aimed at serving the needs of local populations rather than bowing to global strategies.

Hence those involved in the development of an information society are already part of powerful groupings. Individuals not connected at an organizational or institutional level – companies, government and technical institutes – remain outside the process and are still disenfranchised.

Global Economy

To compete, to remain relevant in a rapidly changing technological landscape and an increasingly global economy,..

Exchange of goods and services at a worldwide level which transcends national boundaries. This is enabled by fast international communication mediated by ICT, fast transport networks and multinational companies working across and amongst nations and continents. Economic forces include the cost of raw resources and particularly the cost of human labor. Developing countries can compete by supplying pools of cheap labor, which encourage outsourcing. In Egypt a large population of young people under 20 provides a potential competitive resource. However, human resources, technological capital and legislative infrastructure tend to become the servants of the global economy, rather than of the citizens of the country. It is implicitly assumed that the benefits of participation will trickle down to disenfranchised citizens of the country. It should be noted that the needs of the global economy, itself an abstract concept, may transcend national needs such that national policy is driven by perceived external demands, to the possible detriment of the needs of the country's population.

Socially Responsible

 …market-based solutions that are socially responsible.

Addressing the rights, needs and concerns of society and individuals in society. Avoiding exploitation of individuals whether economically or in the violation of rights to autonomy and free speech. Egypt has to a certain extent restricted free speech and is one of the countries that retains a strong grip on Internet communications. This may conflict with social responsibility. Moreover, the demands of the global economy, involving cheap labor and competition, may directly clash with the demands of social responsibility. Social responsibility may be extended to encompass environmental responsibility and responses to the effects of climate change. Here a more complex dynamic is observed where the essential economic needs of the individual clash with the requirements of environmental responsibility. It should be noted that the document offers no definition of social responsibility. Indeed while *market-based solutions* and *social responsibility* are not mutually exclusive, putting them together in one phrase highlights the economic, technical and social tensions which the *ICT revolution* creates.

APPENDIX B

THE INFORMATION SOCIETY AND NATIONAL DEVELOPMENT

Section two of BDB relates the information society to national development in three pages. It provides commentary on the effects of the information society on economic development, education and employment and quality of life; it comments on the digital divide and examine the strategic challenges for Egypt.

Information Society

The emergence of an Information Society will impact relationships between individuals, organizations and countries.

A society where social cohesion, economic activity and social identity are mediated by the exchange of electronic information using generally available information technology. In the information society, technology is the basis of everyday communication and the availability of technology, for example, mobile phones and email, changes the nature of social communication, and creates new social networks. This clearly involves changes in relationships. Within BDB, the information society is related to the information-driven industries which *'provide more than half of the gross domestic product in the economies of wealthy nations'*. Thus the information society represents an economic ambition; a state to be pursued because of the perceived economic advantage that may be derived.

In an information society, where relationships, both economic and social, are mediated by ICT, lack of access to the technology will amplify social inclusion.

Techno-economic Shift

ICT has changed the structures of production and activities, breaking down barriers between market players and causing a historical shift known as the 'techno-economic shift.'

A shift from a hierarchically organized market with vertical integration to a horizontally networked market where production is separated out between different players. This shift is related in BDB to an increased need for knowledge distributed by ICT. While BDB puts this term in quotes, it does not indicate its source. The techno-economic shift has been related to a paradigm shift (for example, Park, 2003) suggesting that it is a major, if not catastrophic change. The techno-economic shift is also equated with a shift to a knowledge-based economy (see for example, Holtzhuasen, 2002) in which economic growth is based on the exchange of knowledge. Such a shift in economy is an ambition of many developing countries, paired with the concept of *leapfrogging*. However, it may be suggested that such a shift creates more instability and reduces employment and security of employment. Hence a shift to an outsourcing market may only create temporary employment opportunities as the market changes. In Egypt, as in many Arabic countries, society operates in on hierarchical basis. Power distance may be high. In the Egyptian government, for example, some ministries are populated by ex-military staff and a chain-of-command culture is prevalent. This clashes with the cultural view of the authors of BDB which seems to value autonomy and equality more than would be natural in Arabic society. Hence the techno-economic shift may not be entirely positive if not culturally aligned. Additionally, the techno-economic shift involves the use of ICT to attain flexible structures in employment which create casual labor markets and may increase poverty rather than alleviating it. A techno-economic shift usually results in a shift in the labor requirements which requires a new set of skills. This shift may disenfranchise those, particularly in rural communities who do not have the resources to re-skill. In BDB the use of the term 'techno-economic shift' is connected to 'value chains' and a 'technology-based global economy'. The use of ICT is then related to production and consumption rather than citizen autonomy.

Computer Ownership

The real issues in the Information Society revolve more around ICT usage and skills rather than wired access or computer ownership.

Usually considered as a measure of e-readiness. Ownership is considered by BDB at the level of the citizen, centered round a computer-in-every-home initiative as part of *e-readiness.* The focus is on the distribution of hardware and software, providing associated tangible measures of progress towards the information society. The computer-in-every-home initiative seeks to attain a 'level of penetration of 1 PC to every three homes', supported by charging mechanisms attached to telephone bills. BDB notes that ICT usage and skills is more important than the computer ownership and that even low cost PCs are beyond the means of most Egyptians. However, the focus of the report and the information society program is on quantitative measures of computer ownership, born of a *'demand for indicators on access to and use of ICT by policy makers'*, which may not indicate any real value or change obtained from its deployment. A focus on computer ownership may side line issues of IT usage and illiteracy. The deployment of computers into homes, schools and universities without the supporting education and social

incentives for usage may even inhibit the use of ICT. In addition it should be noted that hurdles are associated with computer ownership. Only telephone customers can benefit. Hence a large section of the population remains excluded. Those without access to telecommunications resources cannot attain computer ownership. The numerical focus on computer ownership may be seen as a manifestation of technological determinism. Can the mere presence of technology elicit social change?

Leapfrog

They see the potential for ICT to help developing countries leapfrog and take advantage of new technologies to address their social and economic problems.

To advance technically and socially while avoiding the need for an intermediate step. In the context of developing countries in Africa, it refers to a jump from a rural, subsistence agriculture economy to an information-driven economy without an industrial revolution, that is without having to develop a manufacturing base. At issue is whether such leapfrogging is possible, and is socially and economically appropriate. Several African countries, including Rwanda, view ICT as a key to a knowledge driven economy, modeled on and competing with Western economies. Leapfrogging carries the connotation of leaving someone behind, jumping the queue, leaping over someone's back. It may be suggested that the disempowered are left even more powerless by the leapfrogging to an information society.

Universal Service Policy

It is the role of the universal service policy to ensure that all of its citizens, regardless of the traditional barriers of social class, education, gender, or economic level, have access to the tools they need to function and excel in the new Information Society.

A policy to ensure 'access for all'. All citizens should have access to the tools they need to function and excel in the information society. The use of the word 'services', suggests a viewing of the citizen as the customer, the recipient of services provided from the centre, whether government or a commercial firm. This view of the citizen as customer, as passive recipient of services delivered using ICT can be found elsewhere in the document. The ICT is not seen as providing autonomy but rather as a conduit for the directing of the activities of controlling organizations towards the citizen.

Citizen-Driven Information

Content providers must develop content and provide services that encourage citizens to access the web and use it in their everyday lives.

Information which meets the requirements of the citizen. Such content is still to be provided by content providers, without indication of who the content providers are or how they will determine that the information provided is citizen-driven information.

Citizen-driven information implies that the citizens are autonomous in their selection and consumption of information. However, this contrasts with the viewing of the citizen as a customer whose role is in consumption through which economic growth may be driven. There is no evidence that mechanisms for gathering citizen requirements are in place.

Export-Oriented ICT

to foster the creation of an export-oriented ICT industry. The development of an ICT industry can be a powerful engine for export growth and job creation.

The development of ICT products and services targeted at increasing exports to other countries, particularly in the developed world. Internal and citizens efforts are then directed at supporting the ICT industry. Support and partnerships with global ICT organizations is sought. Export-oriented ICT may become a key plank in a country's ambition to *leapfrog* and compete in the *global economy*. The development of ICT skills in the population and the investment in infrastructure may then be interpreted as activities in support of export-oriented ICT. An export-oriented ICT industry seeks to meet the needs of other countries, predominately developed nations, for cheap technology. If the main producers of the export-oriented ICT are the foreign ICT companies, the foreign investors, then any returns on such investment are themselves exported. Hence the economic benefits of a developing ICT industry do not benefit the host country, which only acts as a servant of the foreign investors, primary through the provision of cheap labor. Hence, critically, the term 'export-oriented ICT' harbors implications of deleterious effects on the local population and directly contradicts the message concerning building digital bridges. BDB provides no indication of a more beneficial strategy based on the internal growth of ICT driven by improved consumption of ICT internally and improved infrastructure (Post & Pfaff, 2007).

Digital Bridges

The bulk the BDB examines each of seven digital bridges. Each section presents overall objectives for the bridge. These are expanded and lead to a description of the challenges associated with the bridge and proposed solutions. A section called 'Where are we today?' explores current progress and is often illustrated by case studies of initiatives already in action. This is followed by a 'Way Forward' section which discussed the implementation of the policies associated with the Bridge.

The following section provides critical dictionary entries associated with each of the bridges, commencing in each case with a definition of the bridge itself. These dictionary entries are selective and not exhaustive.

e-Readiness

E-Readiness is the cornerstone of Egypt's Information Society initiative.

A state of preparedness and qualification for taking up the effective use of ICT within a connected environment. An e-ready country, company or individual must have both the right

available technology and the correct skills to use that technology. E-Readiness in BDB is interpreted at the country level. It is also associated with a set of measurables. By examining the extent of penetration of ICT and the level of infrastructure a quantitative evaluation of e-readiness can be made. However, those measureables must be selected and the resulting e-readiness measure may not align with actual progress (Zhang et al, 2008).

Hence the ambition of attaining e-readiness is to be achieved by technical investment and not by social considerations. The outcome of being e-ready is the ability to compete in a world economy. E-readiness is connected with political aims in changing the regulatory environment and establishing Egypt as the regional ICT hub and as a gateway for ICT development in Africa. E-readiness is seen by BDB as requiring equal access for everyone. However, the underlying economic goals of e-readiness may result in access for a limited subset of the population whose status indicates a possible contribution to the economic goal.

Household

Additionally, the government will expand tele-density and tele-accessibility to reach a planned 18% of the population by 2007 and 80% of households.

A group of people, probably related, living in one location consisting of one or more buildings. The household is likely to be centered around a family or extended family. As part of E-Readiness, the BDB strategy aims to get a 'PC in every home'. Having stated that the current level of ownership of PCs in households is 2.3%, the aim was to reach 80% of households, but only 18% of the population. While households can be rural, it may be suggested that household is primarily presented in BDB as an urban concept. Households have a defined postal location and sufficient telecommunication links to provide a connection for a PC. The requirements for getting a cheap PC into the home through the PC in every home initiative are a phone line, a credit history and the regular payment of phone bills. This excludes most people in rural areas and many poor areas within cities. Hence the use of the word 'household' defines a certain section of the population that can be included. In addition, the household provides a focus for extending the role of the public sphere. In Habermasian terms, the private lifeworld within the household is being colonized. The presence of ICT in the household and its usage become a matter of government concern. ICT usage even in the private house is then part of the public sphere.

Telecommunications Master Plan

Phase II of Egypt's telecommunications master plan calls for the utilization of IP and ATM on the backbone level...

An Egyptian plan to extend and expand infrastructure as an essential for e-readiness. The plan envisages Egypt becoming the telecommunications hub of the Middle East as a result of private sector participation and '*massive foreign investment*'. *E-readiness* is then connected to countrywide infrastructure expansion, both led by and focused on large industrial players. The focus is on the industrial development of commercial services around ICT infrastructure, served by an increasingly ICT literate workforce and targeted at the citizen as customer. The

Telecommunications Master Plan is a plan for technical investment in technical capital whose techno-centricity excludes the considering of social dimensions.

Liberalisation

The New Telecom Act No 10 for 2003 is a main landmark in the Egyptian Telecom sector marking a major step towards the liberalization of the Egyptian Telecom sector and regulation of the market.

The removal of regulatory frameworks by governments in order to enable private sector involvement in markets. This particularly applies to the Egyptian telecommunications market. Liberalization frees up the market and encourages the foreign investment. This liberalization may focus on business and urban markets.

However, a balance of liberalization is difficult to achieve. Liberalization of the market may favor foreign investors at the detriment of the local economy and provide no advantage to citizens. If the appropriate regulatory frameworks are not in place which ensure that the market operates to the benefit of Egyptian citizens, then liberalization may increase exclusivity and widen the digital divide. Contrary to the underlying philosophy of Building Digital Bridges, liberalization may increase social exclusion, and raise economic barriers by favoring, even unintentionally, large global players over small local operators. Hence the liberalization of markets should be pursued in the context of an ensuring state which applies regulatory frameworks to ensure that the market operates to the benefit of all citizens. There is always the possibility that liberalization will inhibit or constrain a *universal service policy*.

Enterprise Environment

WiFi are becoming extremely popular and are starting to penetrate enterprise environments worldwide.

A set of regulatory, geographical and business conditions that support the rapid development of new businesses. BDB clearly sees the development of science and technical parks within urban locations as part of an enterprise environment. *Smart Villages* may form part of the enterprise environment. However, the enterprise environment may also be a closed environment, connected with urban populations and only accessible to a highly educated elite emerging from the universities.

e-Learning

E-learning – Nurturing Human Capital

The support of learning using ICT-based systems to provide knowledge, enhance the learning experience and support both the learner and the teacher in meeting learning objectives. E-learning may be viewed as an additional pedagogic tool to support the interaction between teacher and learner. In BDB, E-learning ICT is viewed as a way of automating teaching such that the need for teachers is reduced by the use of ICT. Hence the problem of the disparity between

the growing number of secondary students and the lack of teachers will be overcome by the automating of the learning process. Indeed, technology-resistant teachers may be replaced by ICT. This automation approach is suggested in the use of ICT to combat illiteracy. Here it is implied that programmes that show letters and letter sounds can replace personal teaching. E-learning is also interpreted in terms of ICT education. For example, as part of the e-learning initiative, an IT university is to be established whose purpose is to '*produce graduates who can compete globally and promote the IT industry locally*' E-learning then serves a utilitarian function of getting the human capital to a level of basic ICT skills at which it can serve the needs of the information society in competing in the global economy. The focus of BDB on e-learning does not address the pedagogic issues, but rather provides a framework for automating a training process. Furthermore, BDB majors on the extending of ICT skills. The BDB document identifies the need for new methodologies to feedback on the quality of education. Hence, e-learning will be part of the feedback of information to the centre for control purposes.

Underlying the concept of e-learning expressed in '*Building Digital Bridges'* is a technological determinism which assumes that the technology itself is sufficient to solve social problems of illiteracy and skills shortages. E-learning becomes a control mechanism for fixing training problems. The mere presence of ICT through the *Smart Schools* network is expected to ensure educational progress.

Basic ICT Skills

..ensuring.. that its population is equipped to master the basic IT skills which the ICT revolution requires.

A set of skills in computer usage of a general nature, including manipulation of office software. This neither involves programming or understanding of the social and technical contexts. Basic ICT skills can be tested in a prescriptive manner and then measured as the number of people passing a given test. This training has focused on government employees and is run from city-based centers supported by multinational companies. As such ICT training, and indeed the ICT itself, becomes a commodity to be delivered into people's household and schools. These basic skills are required by the *ICT revolution*. Hence the citizen becomes the servant of an abstract concept. According to BDB, 82,000 graduates have been trained in basic ICT skills. A limited few gain advanced ICT skills, and can access various grants. It should be noted that there is a wide gap between the basic ICT skills that fit individuals to, for example, work in a call centre, and the complex ICT skills needed to develop an ICT industry.

Accessibility

… remove the three main barriers to access – the lack of awareness, affordability and availability.

The Basic Skills Training Programme is accessible to all Egyptian youth.
Educational access to computers, particularly through schools. ICT is installed in schools with the aim of providing after school access. However, often such technology gets locked away in rooms and only brought out for special occasions when government officials or dignitaries visit.

The ICT is not used because it is considered too valuable to be exposed to daily use and there is a lack of staff who know how to use it. In addition, accessibility of training is limited to a subsection of the population who have attained sufficient economic status to, for example, work in a government department or have graduated from university. Accessibility is limited to those who through privilege can be seen as capable of contributing to a technology-based society. Hence those on the wrong side of the digital divide are less likely to qualify for training or *e-learning*.

Multiple Modalities of Learning

The e-learning initiative will use multiple channels for delivery of educational materials...
BDB uses this term to refer to different ICT delivery channels, ranging from the Internet, computer-based training, and virtual classrooms. As such this has a technical focus and does not consider learning styles. It does not consider the Egyptian educational culture which is quite hierarchical and involves students accepting and learning what the teacher, as a higher authority, tells them, without involving critical analysis, questioning or deductive learning. The term refers to the technical delivery mechanisms and does not necessarily relate to learning which will depend on other mediating factors including the effectiveness of the teacher and the accessibility of the technology. In Islamic culture, there is a reliance on the interaction between the teacher and the student. Often in mosques, classes involve the teacher and the student sitting on the floor and learning from books. The Islamic emphasis on learning the Koran by heart promotes a form of rote learning where texts are given out by the teacher and recited. Such a culture-led approach to learning does not require ICT to be effective.

Education Service Provider

Partnerships. Cooperation between private sector education service providers, network operators……is the cornerstone of this [e-learning] initiative.

A commercial organization, often a multinational such as Cisco or IBM which provides the professional training, usually from centers in major cities. Hence finance for the information society initiative is likely to be going to suppliers external to the country rather than to Egyptian universities and colleges. This may reduce accessibility since such training is likely to be more costly than locally-based education. Additionally, products provided by education service providers may encompass western views of pedagogy which are culturally insensitive and may be less effective in Egypt. Hence both training content and training approach may be determined by the multinational.

Gender Gap

Throughout the world, there has traditionally been a gender gap in computer use and in employment in technological fields.

The gap in levels of usage of ICT between males and females. This may be a social phenomenon arising from the perception of ICT and the way it is taught in schools. It may also arise from psychological differences in which the female tendency is to social interaction rather

than a focus on technology. BDB highlights that 55% of computer literacy training has been provided for women. However, the role of ICT is then highlighted as providing demographic data for policy formers. Additionally, cultural effects may result in a reticence of females within various strands of society to take-up ICT training. The BDB document shows an awareness of a gender issue but pursues a technical solution.

IT Caravan

The ministry has provided …. 25 IT caravans to serve areas that have no access to electricity.
A mobile facility provided by the Ministry of Education for areas that have no electricity. According to BDB, 25 IT caravans are available. This contrasts with the city-based ICT training which includes a massive 58 acre Mubarek Educational City on the outskirts of Cairo. It may be suggested that the IT caravan carries connotations of technology arriving from afar, of rich merchants visiting, of a circus coming to town and then going. It is possible that nothing changes after the IT caravan has left. It is difficult to see how a visiting caravan, other than being a spectacle, can help people in their rural situation. Dropping in and then leaving may retain the power balance and deny rural citizens the autonomy over using ICT which may depend on the provision of mobile services.

Smart Schools Network

The Smart Schools Network will build public-private partnerships to put computers in schools.
A scheme for getting ICT into schools. BDB suggests that placing computers is schools results in 'increase[d] basic skills and computer usage rates for children', but provides no evidence. Indeed, evidence in Egypt, suggests that the placing of ICT in schools does not even guarantee its use (Warschauer, 2003). The computer may be locked in classrooms as only brought out to impress visitors. Lack of technical skills and infrastructure, lack of skilled teachers, curriculum that does not adapt to ICT, and a cultural view of ICT ownership as a symbol of power may inhibit its use.

e-Government

E-Government is a powerful tool to help Egypt bring the benefits of the emerging global information society to the largest possible segment of the population.

 The development and support of electronic links between the government and citizen. E-government involves the provision of electronic services and information as required by the citizen. BDB interprets e-government in terms of e-services targeted at the citizen as a customer. The E-government initiatives intends to '*create an environment conducive to investors, to provide information for decision makers.. to foster Egypt's global competitiveness and reduce government expenditure*' People *deal* with the government in a customer, provider relationship. The expectation is that e-government will boost demand for ICT. E-government itself becomes a servant of the technology. Hence e-government is about efficiency and cost reduction, focusing on internal government functions and the needs of the powerful decision makers. This driving forward of e-government will involve private partnerships and outsourcing. E-government also focuses on business transactions – booking tickets, telephone bills, electricity bills. For both the

Ministry of Health and the Ministry of Education, a critical role of e-government is in gathering information for the centre. The way forward is seen in terms of further support for internal government services, furnishing data for government ministries and developing central databases.

E-government in the BDB documents is given a wider interpretation than just providing information for citizens. It is about the support of government functions.

Community Participation

The e-government initiative is a project with a nationwide impact, thus community participation is a must.

A democratic exercise whereby citizens reach a consensus as to the required content of e-government websites and the type of services and interaction required. While stated as a guiding policy, no definition is provided in BDB as to what community participation is or how it should be implemented. It should be noted that Egypt exercises strong censorship as to the use of the Internet and, for example, blogging.

e-Payment

The model of developed countries e-payment framework, which is highly dependent on credit cards, is not yet suitable for developing countries ...

The movement of monies electronically to pay for transactions. While e-payment is a significant plank in the e-government strategy described by BDB, it may do little to bridge the digital divide. E-payment requires a bank account, communication links, a PC and most significantly a credit status that the poor may not have. For example, online payment for birth certificates is suggested, which requires a credit card. Hence a shift to e-payment may extend or strengthen the digital divide. E-payment is an essential step in e-commerce. Hence, if an e-commerce model is to be adopted, e-payment mechanisms must be established.

Automation

Several challenges are facing the process of automating workflows in government offices, including a lack of standards and specifications...
Use of computers to reduce human intervention in business processes. Workflows involving government transactions can then progress faster and more efficiently and without pauses for human interaction. Automation is viewed a good, but inhibited by undefined 'miscellaneous cultural factors' which are viewed as bad. There is an inherent contradiction between the positioning of a country such as Egypt, with its growing young population as a source of a cheap, but highly skilled workforce, and the extension of automation which reduces the need for a large workforce.

e-Signature

In a major step towards introducing to the Egyptian legal environment the concepts of the security and privacy of networks, the e-signature law was drafted ...

A legally binding acceptance of a transaction or a contact mediated by a unique electronically encrypted password. E-signatures support reliable auditable business processes and are particularly important in areas such as taxation. BDB places considerable emphasis on the development of legislation to support e-signatures. E-signatures may not be essential for the running of e-government websites, but is related to security, communication and government control in BDB. A government focus on almost military control leads to an ICT focus on e-payment and public key infrastructure.

e-Business

The ability to communicate, search for information, market products and services and conduct transactions online...

Use of Internet-based communications to support transactions and distribution within and between businesses. E-business contrasts with e-government in addressing primarily business-to-business activities. BDB focuses on business efficiency, and highlights e-payments and e-signatures. BDB also considers that the proliferation of information, databases and communication channels will boost economic performance. Hence the value of ICT and the information society derives from a perception of a causal link with economic performance and Egypt effectively competing in a global economy. This link between information proliferation and economic performance provides the driving philosophy behind e-business, although it is neither explained nor validated. New laws supporting e-payment and electronic fund transfer are considered important.

Cashless, Paperless Society

By 2012, the government, with the help of the private sector, hope to implement effective steps towards the establishment of a cashless, paperless society conducive to e-business.

A utopian view of a society in which all business and communication is carried out electronically. Documents concerning transactions or any other commercial activity are then only stored electronically. While this remains a theme of many strategists, there is no evidence that it has been achieved. However, the goal of a paperless, cashless society remains, leading to an emphasis on legislation concerning e-signatures. Also a drive towards a paperless society may amplify social exclusion of those in rural communities who are economically barred.

e-Health

The Ministry of Health is keenly aware of information and communication technology's potential benefits to the healthcare system. As a result, the ministry has established the e-health programs ...

The provision of health information and services electronically to the general public. E-health involves better links to hospitals to enable appointment booking, remote diagnosis and remote treatment, BDB interprets e-health in more centralized terms, addressing the need for electronic patient records and focusing on health informatics implementation in large urban health facilities, on the support of medical conferences in these large facilities. The ambitions for health informatics in many ways parallel those of western countries such as the United Kingdom. Thus initiatives in health informatics tend towards centralization, towards a centrally controlled electronic patient record.

e-Culture

.. the promotion of Egyptian cultural heritage …

The sharing of the knowledge, values and beliefs which constitute cultural identity using electronic means of communication. Such use of the web should involve strengthening community links through the sharing of cultural practice and outputs (such as play, literature, blogs etc.) at a local level. E-culture should involve the production of networks for sharing ideas and communicating local interests. BDB interprets culture as national and historical. Culture then concerns the preservation of the past, of folklore, of the Egyptian brand. E-Culture is then seen economically in terms of increasing the skills and expertise of heritage experts and government employees. The public are then portrayed as the passive recipients of cultural information through, for example new textbooks. E-culture is then connected back to promoting the ICT sector through the involvement of international firms in the documentation of historical artifacts. For example, IBM is producing an 'Eternal Egypt' project which looks at Egyptian history. These, and other links with international governments, also place e-culture in the context of Egypt's competing in global markets, including the tourist market. Underlying E-Culture, is an interpretation of Egyptian culture in classical historical terms. Such an interpretation excludes modern or Islamic culture. For example, music is interpreted in e-culture terms as the preservation and analysis of Arabic masterpieces. E-culture is then not about extending music involvement, but defining and scoping Egyptian musical orthodoxy.

ICT EXPORT INITIATIVE

Smart Village

MCIT is also preparing an aggressive program for the build up of technology incubators for small size companies and new young talents. A private fund has been established for this purpose and the new incubators are being hosted at the Smart Village.

A '*corporate park geared towards high-technology firms that offers incentives to facilitate investments in Egypt's IT sector*.' The smart village also hosts various government organizations including the CultNat centre which runs projects to document Egyptian heritage. The smart village includes a call centre, supporting some European customers and generating a 'clean cut revenue in hard currency'. The smart village offers incentives to foreign companies, including tax breaks and other government support. Such a western-style science park draws on the urban resources and cheap, skilled labour without requiring the cultural or societal involvement of the

foreign company. Smart Villages may be socially closed systems, only accessible by the educated elite and the workers who serve the foreign investors. Hence a smart village may be seen as a physical representation of a digital divide rather than a tool to bridge the digital divide.

Investor-Friendly Legislation

..tax exemptions, immediate overseas trade facilitations…. extend the right of land ownership in Egypt to foreign investors. The investor-friendly legislation has already has a positive impact on the industry.

Incentives including tax exemptions, overseas trade facilitation and free ownership of investment capital which encourage foreign investors to support Egypt's ICT sector which arise from changes in legislation. Such incentives are not available to nationals, resulting in a ring-fencing of capital flow which benefits the foreign companies who can also draw on cheap, skilled labor. Investor Friendly Legislation may be based on a philosophy that benefits given to foreign investors will trickle down to Egyptian citizens. However, it is not clear what the evidence for this is. It may be simply that the foreign investors draw on Egyptian human capital and local resources for their own multinational benefit.

Business Process Outsourcing

Business Process Outsourcing (BPO) has proven to be a therapy for many developing countries economic illness.

Taking internal business processes and using computer support, contracting a third party, to carry out the business processes. Such business processes are often centered around call centers. Business Process Outsourcing (BPO) is described in BDB as 'therapy for many developing countries' illness.''. It is argued that BPO has been the cornerstone in building the economies of India and Philippines, although no evidence of this is given. Call centers in the Smart Village are linked or in close proximity of the city and depend on the large volume of cheap graduate labor available in the cities. This shows no propensity for emancipation, rather makes citizens the servants of the ICT and the global economy.

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