The Internet and Egypt's National Development

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BIOGRAPGHY

Naila Nabil Hamdy is a lecturer in Journalism and Mass Communication at the American University in Cairo. She is also a television journalist who has covered numerous news events for a variety of prominent international television stations and continues to freelance as a producer/reporter and consultant for several television and radio stations including CBS, ChN24 (German TV) and SBS (Australian TV).

Hamdy's research interests include Information Communication Technologies, Computer Mediated Communication, Online Journalism, and Development Communication. She has conducted studies on Egyptian news websites, Egyptian Internet users, Islamic websites, and the use of the Internet in development. Hamdy received her BA in Communication Arts (Mass Media studies) from the University of San Francisco, California, and her MA from the American University in Cairo, and is currently a Ph.D. candidate at the Faculty of Mass Communication, Cairo Universitty.

She is a member of several professional associations including the Broadcast Educators Association (BEA) and is a member of the board of the Arab-United States Association for Communication Educators (AUSACE). She is a contributing editor to the electronic journal Transnational Broadcasting Studies (TBS).

ABSTRACT

The information revolution is expected to have beneficial impacts on economies and society worldwide. It is further expected to stimulate economic growth, productivity provide new job opportunities and chances as well as offering social benefits that can potentially develop through an information society.

The basis of this information revolution centers around technological advancements and at the forefront of this revolution is the explosive growth of computer networks and in particular the Internet.

By the mid 1990's much of the developed world's leadership had begun to embrace the information society and lay down the infrastructure, rules and policies to help transform existing economic and social structures to implement a global information highway. Soon after by the turn of the century governments of less developed nations around the world were racing to harness the potentials offered by advanced technologies in national development.

Following the analysis of the specific implications for the developing world, literature shows that there exists a consensus on the tremendous opportunity and potential contribution of information communication technologies to economic, social and political development and their potential to: transform developing countries into knowledge based societies.

This paper reports the results of a study that was conducted to examine the use of the Internet as a medium in the national development of Egypt. This examination identified the basic principles that have guided the use of the Internet in development as revealed in an extensive review of the available literature on the use of the Information Communication Technologies in development. These principles were then presented for validation through the judgments of scholars and experts in the field of communication and development in Egypt. The validations and perceptions of the experts can then be considered of significance when developing a national agenda in Egypt for the successful use of the Internet as a tool for development. It can also be a useful guide to development agencies currently involved in projects that utilize the Internet in development for Egypt.

INTRODUCTION

Many of nations of the Middle East are quickly embracing the information revolution realizing the importance of the role that technology and the adoption of the Internet play in the social and economic development of their countries.

However the diffusion of the Internet throughout the Arab region is still at a pace that does not put it on equal footing with the developed world. Penetration in even the most technologically sophisticated countries in the region is scant in comparison to global leaders.

As in many parts of the world, the Internet in Egypt was developed outside the formal telecommunication sector. What makes the history of the Internet in Egypt unique, as stated by the most recent ITU report on Egypt's Internet status, is the extent of government support from its inception. The Egyptian Cabinet's Information and Decision Support Center (IDSC) has played a key role in raising awareness of the Internet and encouraging its diffusion. [1]

The Internet was first introduced to Egypt in 1993, by the establishment of a small university network. Commercial Internet use began three years later when connectivity was introduced to private Internet Service Providers causing an explosion in the number of users at home, at business and at cyber cafes. By 1999 a total of some 440, 000 Egyptian users were online.[2]

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[1] Internet Society of Egypt, History. March 28,2000. Retrieved on November 15,2001 from http://www.ise.org.eg/history

[2] Nua surveys. How many online Retrieved on June 8,2002 from http://www.nua.ie/surveys

The Egyptian Government continued to put emphasis on the importance of information and communication technologies and by September 1999 declared that the development of the industry was a national priority. It was this new importance that was the chief instigator behind the government's decision to create a separate ministry for ICT in October 1999. Following the 1999 presidential referendum in Egypt, and the subsequent separation of the Transportation and Telecommunications into two distinct ministries, a decree was passed to create the new Ministry of Communications and Information Technology (MCIT).

Realizing how strong a communication and information technology sector could contribute to high and sustainable economic growth for the Egyptian economy, the MCIT has set the long-term of objective of creating an export driven, private sector-led ICT market.

The MCIT, in co-ordination with the private sector and industry experts, designed a three-year national plan for the development of the country's ICT industry.

At the end of two years some of the accomplishments have included the liberalization of the telecommunications sector by providing the private sector with new phones, payphones, Internet, data networks and portal services. The establishment of a new technology business park known as IT Smart Village to provide high tech working environment for IT and communications for which agreements have been signed with Compaq, Cisco, Microsoft, Oracle and Qualcomm. The establishment of 300 IT clubs

(government subsidized Internet cafes) aiming to reach deprived and low-income communities with plans to create another 200 by the end of 2002. [1]

There have also been several other projects in this context such as Government Online, the Tele medicine Network Project and the E payment center.

Furthermore, in September 2001, a new Telecommunications Act was approved by the cabinet. This act proposed the gradual phasing out of the state's control over the provision of the communications services, by allowing more liberalized private-sector participation in the telecommunications services.

One of the most important initiatives taken by the MCIT to broaden the Internet user base in Egypt was to expand broadband capacity and establish a reliable fast Internet back- bone. The MCIT granted several Internet Service Providers (ISP's) licenses to expand their broadband capacity and allowing them to have their own international gateways.

A further boost to the diffusion of the Internet has been the launch in the beginning of 2002 of the Free Internet Model. The Ministry of Communications and Information Technology (MCIT) affiliated with Telecom Egypt to set-up an estimated 15,000 ports, capable of serving 2 million users: with users accessing the Internet with no charge and paying only for the local dial-up phone tariff. The number of Internet Users in Egypt by March 2001 was an estimated at 560, 000. The number was expected to rise significantly by the end of 2002 after the introduction of the Free Internet Model. Today

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[1] American Chamber of Commerce Business studies and Analysis Center." Information Technology in Egypt" April 2002

it is estimated that there 1.8 million users, a figure given by the MCIT, to perhaps 2 to 4 million a figure given by industry analysts. [1]

Among the Arab countries, Egypt accounts for 16 % of the 3.54 million total Arab Internet users population. However due to Egypt's massive total population of nearly 70 million in comparison to the rest of the region as well as the large span between its highest and lowest socio-economic groups the country has one of the lowest penetration rates in the Middle East.

Literature Review

1. Development Communication Paradigms

During the last several decades, the role of communication in national development has been extensively explored, emphasized and analyzed by mass communication scholars and adopted in national development policies by many nations.

Since the beginning of the post-World War II period, the role of communication in national development has been conceptualized within three major paradigms: 1) dominant/ modernization, 2) dependency, and 3) alternative/pluralist paradigms.[2]

In the dominant or modernization paradigm, which emerged after World War II, development was viewed as a type of social change resulted by new ideas introduced into

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[1] American Chamber of Commerce in Egypt retreived on Febuary 20, 2004 from http://www.amcham.org.eg/Publications/BusinessMonthly/June%2003/reports(internetnumbersunclearpcsa lesplummet).asp

[2] Singhal, A., & Sthapitanonda, P. (1996, June). The role of communication in development: Lessons learned from a critique of the dominant, dependency and alternative paradigms. The Journal of Development Communication, 1, (7), 10-25

a social system. The desired outcome of development in this paradigm principally includes higher per capita incomes and higher standards of living through modern (industrial) methods of production and improved social organization.[1]

The thrust of the argument of this paradigm is that there is a desirable modern state of affairs to be attained by all societies. The modernization paradigm was born from the pioneering studies of scholars such as Daniel Lerner (The Passing of Traditional Society 1958), and Wilbur Schram (Mass Media and National Development 1964) who sought to provide a model with which the developing world could be assisted. This was invariably the attempt to transfer Western conditions to these societies.

However, in the 1960s the modernization paradigm came under severe criticisms by developing countries, primarily criticized for the western bias in modernization [2]

As a response to some failures of development programs espousing the modernization perspective the dependency paradigm--or what later became known as the media/cultural imperialism paradigm—emerged in the 1960s in Latin America.[1]

Strongly criticizing the modernization paradigm as new Western colonialism, development in this perspective is defined as "self-reliance, non-alignment and the building of a New World Economic and Information Order [NWICO]".[2]

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[1]Rogers & Sevenning, 1969 cited in Singhal & Sthapitanonda, 1996, June, p. 11.

[2] ibid

However, with its heavy focus on challenging the modernization paradigm, the dependency school received the opposite kind of criticisms of the modernization approach; the dependency approach overemphasized external factors of underdevelopment while ignoring internal factors.[3]

Failures in the modernization paradigm also gave rise to the alternative or pluralist paradigm. Amidst the growth of the humanistic/interpretive and cultural approach to social sciences and the awakening of problems of earlier development projects, scholars began to reconsider the role of communication in development in the mid-1970s.

Development in this most recent paradigm is generally defined as "a widely participatory process of social change in a society, intended to bring about social and material advancement...for the majority of the people through their gaining control over their environment".[4]

In this approach, development problems are analyzed at different levels--from international to local, and development is perceived to be need-oriented, endogenous, participatory, self-reliant, equitable, and promoting of local cultures.

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[1] ibid
[2] Kumar, 1988/89, quoted in ibid, p. 15
[3] ibid
[4] Rogers, 1976 quoted in Singhal & Sthapitanonda, 1996, June, p. 18.

As a result of the diversity of the development concept, this alternative/pluralistic perspective envisions the diverse role of communications, too. It emphasizes the multiplicity, smallness of scale, localization, de-institutionalization, and interaction at all levels, and interchange of sender-receiver roles.[1]

In essence the alternative paradigm recognizes the interdependence of societies. It therefore does not advocate the exclusion of Western technologies as the Dependency paradigm suggests, rather it advocates that each society select which technology is most appropriate in their own circumstances, and use these to its own advantage. Therefore it suggests that active participation of the members of the society is required and that social change must occur on several levels.

Communication is perceived to "empower" the public to think and develop programs that respond to their specific needs. Typical development projects using this approach are community development projects that emphasize two-way, interpersonal, interactive and participatory communication.[2]

Nonetheless, despite its seeming popularity this new approach has neither escaped criticisms. This pluralistic approach has been criticized particularly for its "utopian ideology" and it's being of little relevance to policymakers and planners. In addition, since the perspective promotes a rather liberal and democratic ideology in development,

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[1]McQuail, 1983, cited in ibid, p.20.
[2]Jacobson, 1989, cited in Singhal & Sthapitanonda, p.20.

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which also espouses the concept of individualism and participatory democracy, its applicability of such approach for the developing context is also questioned.[1]

2. A new communication medium for use in development

Since its popularity in the last decade, the view towards the Internet as a developmental tool has reflected the currently popular alternative/pluralistic paradigm, which emphasizes social equity and participatory democracy. The Internet has been much heralded for its potential benefits for socioeconomic improvement and greater democratization of the society. The interactive and decentralized nature of the Internet led technological optimists to promote the new medium as a "democratic," "liberating" and "equalizing" medium--that it can potentially change the inherently unequal power relations in current societies. Anyone with access to the Internet (e.g., a computer, a connection to the network/a modem, and a telephone line) has equal opportunity to participate in democratic process. [2]

Thus the alternative paradigm also makes it possible to extend the concept of development to bring in the non-material notions of social equality, liberty, revenue distribution, and grass roots participation into the formulae.

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[1] ibid

[2] Busakorn Suriyasarn, Internet and national development, May 1998. Retrieved on June 7,2002 from Http://www.busakorn.addr.com/thaitcom/internet-nationaldevelopment.html

Today it can be said that use of communication in development does not revolve around the dissemination of an innovation such as the Internet but also emphasizes the grass roots expression of it.

Methodology

The design of the study involved the following stages:

1. An examination of the literature dealing with the use of internet in development.

. This involved using books concerning these areas, and the examination of reports and papers from international agencies such as the International Telecommunication Union, The World Bank and UNESCO and others which have produced relevant reports and statistical data; and reviewing appropriate articles in publications such as The Journal of Development Communication and the Information Technology for Development publication. Other relevant sources used particularly for Internet diffusion figures and User profiles came from credible web pages of academic institutions, prominent companies and consultancy firms involved in the global ICT industry, government and non government organizations.

2. The selection of available models that appear to represent successful use.

Studies which represent successful use of the medium were selected. These studies in the literature represented the use of the Internet in development in both developing countries

and developed countries. Since the Internet is still a new medium successful use is only judged in the short term. Data is at this stage not available for the long-term success of the Internet in development.

<u>3. An analysis of these models so as to identify the guiding principles that appear to have been instrumental in the successful use of the Internet to foster development</u>

The analysis of these models and cases and the examination of how the medium is being used effectively to achieve success made it possible to identify the guiding principles in making use of the Internet for fostering development This analysis led to the identification of thirty eight principles. These principles can be categorized into the following areas:

1. Education 2. Health Care 3. Environment 4. Civil Society, Community participation 5. Governance 6. Economic benefits 7. Social benefits 8. Urban and Rural Development

<u>4. The validation of the principles by a jury of experts presented in the form of survey.</u>

After identifying the guiding principles from the literature, these principles were submitted to a jury of experts in the field of development in Egypt. The jury of experts was selected on the basis of their knowledge of development and the use of information communication technologies, with an emphasis on whether they were consultants on projects or designs; and/or they were leaders in the ICT industry in Egypt.

The principles were arranged in a scaled five point form using the Likert scale and presented as a survey. The survey asked the experts for two judgments for each principle; the relative validity and the relative importance. The surveys were then emailed to some of the experts. In other cases the survey was completed during a one on one interview with the more senior participants. The names of the experts were collected from and suggested by the following key institutions:

1. The Egyptian Cabinet and Information & Decision & Support Center

2. The American Chamber of Commerce in Egypt.

3. The German Chamber of Commerce in Egypt

4. The Egypt Economic Forum

5. US Egypt President's Council

The original list included sixty three experts. Thirty two indicated their willingness to assist in this project.

The following is the list of experts:

1. Dr. Maher Amin Wally
Dean of Faculty of Agriculture
Al Azhar University
Field of Expertise: Horticulture

2. Prof. Dr. Adel M. Mostafa
Professor of Agricultural Economics
Al Azhar University
Senior consultant to Monitoring Verification and Evaluation Unit MVE, Agricultural
Policy Reform Program USAID
Field of Expertise: Policy Reform, Economic Analysis

3. Dr. Ahmed Abdul Kadr Hussein
Senior Research Analyst
The Cabinet Information & Decision Support Center
The Government of Egypt
Field of Expertise: Economic and Marketing Research

4. Dr. Nagwa Elshenawi
Executive Manager
The Cabinet Information & Decision Support Center
The Government of Egypt
Field of Expertise: Management, Economics and Business Administration

5. Mr. Walid Samir Aly
Economic Researcher
The Cabinet Information & Decision Support Center
The Government of Egypt
Field of Expertise: Economics

6. Mr. Hany Farouk Seif
Economic Researcher
The Cabinet Information & Decision Support Center
The Government of Egypt
Field of Expertise: Economic Research

7. Dr. Medhat Fakhry
I T Department Manager
Maritime Research and Consultation Center (MRCC) Affiliated
to the Arab Academy for Science, Technology and Maritime Transport (AAST),
Field of Expertise: Information Technology

8. Dr. Mohamed Abdel Kader Tawfik
Head of Transport Research dept.
Maritime Research and Consultation Center (MRCC) Affiliated
to the Arab Academy for Science, Technology and Maritime Transport (AAST),
Field of Expertise: Maritime Management & Economics

9. Dr. Bayoumi B. Attia
Undersecretary and Advisor to the Ministry of Water Resources and Irrigation
The government of Egypt
Field of Expertise: Water resources Management, Agricultural Sector Modeling

10.Dr. Ahmed O. El-Kholei
Professor of Urban Planning
Department of Architecture, Menofia University
Field of Expertise: Urban and Regional Planning, Environmental Management

11. Dr. Hesham Sadek
Academic Dean for New York Institute of Technology in the Middle East
NYIT in New York
Field of Expertise: Information Technology

12. Mr. Sameh Monatasser

Managing Director
Ciranet (a subsidiary of Raya holding)
Field of Expertise: Information Technology and related services)

13. Mahmoud Rashwan
Lecturer of Statistics
Faculty Economics & Political Science Cairo University
Field of Expertise: Econometrics and Statistics

14. Ms. Inas el Gamal
Project Manager
The World Bank
Field of Expertise: Development

15. Mr. Tarek Sabasi
Project Manager/Private Sector
ICON INSTITUT GmbH
Field of Expertise: SME Development, Export and Trade Promotion, Business
Cooperation

16. Mr. Abdel Aziz Ismail
General Manager
International Data Corporation, Egypt
Field of Expertise: Market Research in the IT field

17. Mr. Tarek Amin
Chief Marketing Officer
Career Mid east. Com
Field of expertise: Online marketing and .com management

18. Ms. Sharon Cook
Project co-ordinator, Editor
TAPR, Technical Assistance for Policy Reform. A USAID project.
Field of Expertise: Management

19. Ms. Nimet Naguib
Cultural Affairs Specialist
American Embassy in Cairo, Egypt
Field of Expertise: Information and Cultural Affairs

20. Mr. Amin Shousha
General Manager
Daico for chemical industries
Field Expertise: Textile chemicals

21. Mr. Amr Seliet

CEO
Global Application Providers
Field Expertise: Telecommunications & Information Technology

22. Ms. Rajia Omar
General Manager
DDB Advertising Agency
Field of Expertise: advertising

23 Mr. Mohamed El Tohamy
Managing Director
Visa International (CEMA) Smarts Cards Processing Operations
Field of Expertise: Information & Communications Technology, Payment Systems
Technological Advancements (Smart cards, e-pay, m-commerce)

24. Mr. Karim Habashi
Managing Director/owner
Ittatours
Field of Expertise: Tourism

25. Mr. Hisham Fahmy
Executive Director
American Chamber of Commerce in Egypt AMCHAM

26. Mr. Hisham Kassem
Publisher
Cairo Times
Field of Expertise: Media

27. Mr. Tarek Sherif Khalifa
Computing Technologies Manager
Tarek Nour Communications
Field of Expertise: Information technology

28. Mr. Mohamed Fahmy
Consulting Manager
Global Application Providers
Field of Expertise: Information Technology

29. Mr.Mohamed Azzam
Regional Marketing Manager
Global Application Providers
Field of Expertise: Telecommunications and Information Technology

30. Ms. Hala Hammad
Assistant Vice President/Representative

Credit Suisse Representative office – Cairo, Egypt
Field of Expertise: Banking

31. Mr. Ayman Shoukry
Vice President
Good News 4me (Internet site)
Field of Expertise: IT, Management, Strategic Development

32. Mr. Dahlia Sobhy Philip
Assistant General Manager
Elias Modern Press
Field of Expertise: Print production, Marketing

5.The Data was then collected, treated and analyzed.

The data was collected, treated and analyzed in order to identify the prevailing

perceptions amongst the experts towards the uses of the Internet in the development of

Egypt.

Treatment of Data:

After determining the experts who were willing to help, the instrument was

emailed or filled out during a one-one interview during the period between June 28 and

July 28, 2002. The expert's responses were received during that period but generally after

several reminders and follow-up phone calls.

There were 38 principles in the instrument.(see tables) Each of these principles

was to be rated for its relative validity and relative importance. A Likert type scale was

drawn up to secure the experts' judgments. Respondents could either strongly disagree,

disagree, agree, strongly agree, or be neutral with the principles. Each response option

was weighted, and each subject's responses were totaled to produce a single score on the

principles.

In the case of the relative importance, the same technique was applied: i.e.

respondents could judge each principle to be of great importance, moderate importance,

little importance, no importance, or be neutral. Each response option was then weighted,

and each subject's responses were totaled to provide a single score on the importance of

principles.

Treatment of Data1

Table 1

RESPONSE OF PANELISTS TO THE RELATIVE VALIDIY

Key: 2 = Strongly Disagree   3= Agree

         1= Disagree   4= Strongly Agree

                   0= Don't Know

Principle	Validity				
	4	3	0	1	2
1.The Internet can be used for Educating more people and supporting life long learning	17	12	1	1	1
2. The Internet can be used to provide distance education as an option for developing countries.	18	7	2	2	1
3. The Internet can be utilized by the research community in the developing countries.	19	10	2	0	0
4. The Internet can be utilized as a tool for training professionals	10	17		5	
5.The Internet can help in making Governments more efficient, accountable and transparent:	13	14	1	3	1
	13	12	4	2	1

6.The Internet can be used to facilitate public administration by providing information and assistance to the citizens on social security, pensions, and unemployment payments.					
7.The Internet can be used by citizens for involvement with public administration, soliciting feedback	9	14	4	1	4
8.The Internet can help Increase effectiveness of economic reforms	8	15	3	6	0
9.The Internet can be used to monitor and protect the environment	4	10	2	6	
10.The Internet can be used in the environment field by facilitating access to environmental information for citizens, local, regional and national authorities and businesses.	14	15	1	2	0
11.The Internet can benefit environment conservation initiatives in all parts of the developing world	7	17	3	5	0
12.The Internet can be used to reduce information and income inequalities	8	18	2	2	3
13.The Internet can be used to overcome natural disadvantages	3	8	9	7	6
14. The Internet can be used by developing nations to diversify into information-intensive industries	10	12	2	4	4
15.The Internet can be used to promote small and medium enterprises	9	18	1	3	1
16.The Internet's potential for making public information available can assist small and medium enterprises in administrative procedures for import and export.	11	16	3	1	1
17.The Internet's potential for making public information available can assist small and medium enterprises in administrative procedures for tax filing.	9	10	6	4	3
18.The Internet's potential for making public information available can assist small and medium enterprises by promoting business opportunities.	13	15	2	2	

19.The Internet can allow developing countries to participate in global trade	14	12	3	2	1
20.Internet applications such as e-commerce can produce major changes in the economies of developing countries.	10	17	1	3	1
21.The Internet can be used to in the Tourism and the travel industries in the developing world.	15	14	2	1	
22. The Internet can be use to build broadly based capabilities for participating in civil society.	9	17	3	1	2
23. The Internet will contribute to the development process by leapfrogging developing nations toward to greater democracy.	6	8	7	7	4
24.The Internet can be used for open government; a wide variety of government documents can be made available through electronic means.	13	12	3	3	1
25.The Internet can be used for community networking as application that holds promise for linking ICT's to governance.	10	16	2	2	2
26.The Internet can be used in both urban and rural development projects by providing data sets on health which can be captured, collated, manipulated and presented.	15	14	2	1	
27.The Internet can be used in both urban and rural development projects by providing data sets on education which can be captured, collated, manipulated and presented.	11	13	3	2	2
28.The Internet can be used in both urban and rural development projects by providing data sets on water supplies which can be captured, collated, manipulated and presented	10	10	5	6	2

29.The Internet can be used in both urban and rural development projects by providing data sets on sanitation which can be captured, collated, manipulated and presented	8	10	4	7	3
30.The Internet can be used in both urban and rural development projects by providing data sets on population growth which can be captured, collated, manipulated and presented	6	10	7	6	3
31.The Internet can be used as a tool to improve the quality of health in developing countries.	11	12	3	4	2
32.The Internet can be used to help citizens with special needs.	12	10	5	4	1
33.The Internet can be used in Agricultural development.	10	14	4	3	1
34.The Internet can help women's contribution to social and economic development	16	13	2	1	
35. The Internet can contribute to culture promotion and preservation.	13	10	4	3	2
36. The Internet can help developing countries promote cultural and linguistic diversity internationally.	12	11	5	2	1
37.The Internet can help create opportunities in the Multimedia Content market.	12	16	3	1	
38. The Internet can help solve excessive rural to urban migration of young workers in the developing countries.	9	12	4	4	3

Treatment of Data 2:

TABLE 2

RESPONSE OF PANELISTS TO THE RELATIVE IMPORTANCE

Key: 2 = No importance   3=Moderate importance
       1 = Little importance   4=Great importance
       0 = Don't know

Principle	Importance				
	4	3	0	1	2
1.The Internet can be used for Educating more people and supporting life long learning	14	15	1	2	
2. The Internet can be used to provide distance education as an option for developing countries.	12	13	4	3	
3. The Internet can be utilized by the research community in the developing countries.	17	10	1	3	1
4. The Internet can be utilized as a tool for training professionals	14	13	2		
5.The Internet can help in making Governments more efficient, accountable and transparent:	15	12	1	4	
6.The Internet can be used to facilitate public administration by providing information and assistance to the citizens on social security, pensions, and unemployment payments.	14	13	1	4	
7.The Internet can be used by citizens for involvement with public administration, soliciting feedback	12	15	3		1
8.The Internet can help Increase effectiveness of economic reforms	13	13	2	3	1
9.The Internet can be used to monitor and protect the environment	12	12	1	6	1
10.The Internet can be used in the environment field by facilitating access to environmental information for citizens, local, regional and national authorities and businesses.	12	13	2	3	2
11.The Internet can benefit environment conservation initiatives in all parts of the developing world	13	17	1	1	
12.The Internet can be used to reduce	12	16	2	2	

information and income inequalities					
13.The Internet can be used to overcome natural disadvantages	12	15	2	3	
14. The Internet can be used by developing nations to diversify into information-intensive industries	12	9	1	10	
15.The Internet can be used to promote small and medium enterprises	13	12	5	1	1
16.The Internet's potential for making public information available can assist small and medium enterprises in administrative procedures for import and export.	13	14	1	4	
17.The Internet's potential for making public information available can assist small and medium enterprises in administrative procedures for tax filing.	14	14	2	1	1
18.The Internet's potential for making public information available can assist small and medium enterprises by promoting business opportunities.	12	10	5	5	
19.The Internet can allow developing countries to participate in global trade	13	14	2	3	
20.Internet applications such as e-commerce can produce major changes in the economies of developing countries.	12	10	5	3	2
21.The Internet can be used to in the Tourism and the travel industries in the developing world.	12	14	4	1	1
22. The Internet can be use to build broadly based capabilities for participating in civil society.	10	9	3	6	4
23. The Internet will contribute to the development process by leapfrogging developing nations toward to greater democracy.	12	8	2	3	7
24.The Internet can be used for open government; a wide variety of	12	15	1	1	3

government documents can be made available through electronic means.				
25.The Internet can be used for community networking as application that holds promise for linking ICT's to governance.	11	12	3	3	2
26.The Internet can be used in both urban and rural development projects by providing data sets on health which can be captured, collated, manipulated and presented.	13	15	2	1	1
27.The Internet can be used in both urban and rural development projects by providing data sets on education which can be captured, collated, manipulated and presented.	14	15	1	1	1
28.The Internet can be used in both urban and rural development projects by providing data sets on water supplies which can be captured, collated, manipulated and presented	12	12	4	2	1
29.The Internet can be used in both urban and rural development projects by providing data sets on sanitation which can be captured, collated, manipulated and presented	10	13	2	4	2
30.The Internet can be used in both urban and rural development projects by providing data sets on population growth which can be captured, collated, manipulated and presented	14	10	2	4	2
31.The Internet can be used as a tool to improve the quality of health in developing countries.	10	8	4	5	5
32.The Internet can be used to help citizens with special needs.	12	12	5	1	2
33.The Internet can be used in Agricultural development.	12	8	5	5	2

34.The Internet can help women's contribution to social and economic development	5	10	6	7	4
35. The Internet can contribute to culture promotion and preservation.	13	13	6	1	1
36. The Internet can help developing countries promote cultural and linguistic diversity internationally.	12	15	3	1	1
37.The Internet can help create opportunities in the Multimedia Content market.	13	13	3	1	2
38. The Internet can help solve excessive rural to urban migration of young workers in the developing countries.	12	18	0	4	0

Treatment of Data 3:

Rated validity of each principle. In this process, a weighing system, was developed, giving strongly disagree = -2, disagree = - 1, agree = 1, strongly agree = 2, and don't know = 0. Therefore 0 weight was a midpoint after having the expert scores from table (3) "Response of panelists to relative validity". – this score was multiplied by the weighting, then divided by the number of panelists (32) to provide average mean of each principle regarding the validity. The principles were arranged in descending order according to their average ratings as shown in the following table 3.

TABLE 3

RATED VALIDITY OF EACH PRINCIPLE

Rank	Principle	Average
1.	1.The Internet can be used for Educating more people and supporting life long learning	1.34375

2.	3.The Internet can be utilized by the research community in the developing countries.	1.34375
3.	34.The Internet can help women's contribution to social and economic development	1.34375
4.	21.The Internet can be used to in the Tourism and the travel industries in the developing world.	1.34375
5.	26.The Internet can be used in both urban and rural development projects by providing data sets on health which can be captured, collated, manipulated and presented.	1.34375
6.	10.The Internet can be used in the environment field by facilitating access to environmental information for citizens, local, regional and national authorities and businesses.	1.28125
7.	2. The Internet can be used to provide distance education as an option for developing countries.	1.21875
8.	18.The Internet's potential for making public information available can assist small and medium enterprises by promoting business opportunities.	1.21875
9.	37.The Internet can help create opportunities in the Multimedia Content market.	1.21875
10.	19.The Internet can allow developing countries to participate in global trade	1.125
11.	5.The Internet can help in making Governments more efficient, accountable and transparent	1.09375
12.	16.The Internet's potential for making public information available can assist small and medium enterprises in administrative procedures for import and export.	1.09375
13.	6.The Internet can be used to facilitate public administration by providing information and assistance to the citizens on social security, pensions, and unemployment payments.	1.0625
14.	24. The Internet can be used for open government; a wide variety of government documents can be made available through electronic means.	1.03125
15.	4.The Internet can be utilized as a tool for training professionals	1
16.	20.Internet applications such as e-commerce can produce major changes in the economies of developing countries.	1
17.	15.The Internet can be used to promote small and medium enterprises	0.96875
18.	36.The Internet can help developing countries promote cultural and linguistic diversity internationally.	0.96875
19.	22.The Internet can be use to build broadly based capabilities for participating in civil society.	0.9375
20.	25.The Internet can be used for community networking as application that holds promise for linking ICT's to governance.	0.9375
21.	227.The Internet can be used in both urban and rural development projects by providing data sets on education which can be captured, collated, manipulated and presented.	0.90625
22.	33.The Internet can be used in Agricultural development.	0.90625

23.	35.The Internet can contribute to culture promotion and preservation.	0.90625
24.	32.The Internet can be used to help citizens with special needs.	0.875
25.	11.The Internet can benefit environment conservation initiatives in all parts of the developing world	0.8125
26.	12.The Internet can be used to reduce information and income inequalities	0.8125
27.	31.The Internet can be used as a tool to improve the quality of health in developing countries.	0.8125
28.	8.The Internet can help Increase effectiveness of economic reforms	0.78125
29.	7.The Internet can be used by citizens for involvement with public administration, soliciting feedback	0.71875
30.	14.The Internet can be used by developing nations to diversify into information-intensive industries	0.625
31.	28.The Internet can be used in both urban and rural development projects by providing data sets on water supplies which can be captured, collated, manipulated and presented	0.625
32.	38. The Internet can help solve excessive rural to urban migration of young workers in the developing countries.	0.625
33.	17.The Internet's potential for making public information available can assist small and medium enterprises in administrative procedures for tax filing.	0.5625
34.	29.The Internet can be used in both urban and rural development projects by providing data sets on sanitation which can be captured, collated, manipulated and presented	0.40625
35.	9.The Internet can be used to monitor and protect the environment	0.375
36.	30.The Internet can be used in both urban and rural development projects by providing data sets on population growth which can be captured, collated, manipulated and presented	0.3125
37.	23.The Internet will contribute to the development process by leapfrogging developing nations toward to greater democracy.	0.15625
38.	13.The Internet can be used to overcome natural disadvantages	- 0.15625

Treatment of Data 4:

Rated importance of each principle: In this process, the same weighting system was applied to give no importance = -2, little importance = -1, moderate importance =1, great importance = 2, and giving don't know = 0.

After getting the experts score from Table (4) "Response of panelists to Relative Importance", this score was multiplied by the weighting, then divided by the number of

experts (32) to give an average mean of each principle regarding the importance. The principles were arranged in ascending order according to their average rating as shown in table (4).

TABLE 4

RATED IMPORTANCE OF EACH PRINCIPLE

Rank	Principle	Average Rating
1.	11. The Internet can benefit environment conservation initiatives in all parts of the developing world	1.3125
2.	1.. The Internet can be used for Educating more people and supporting life long learning	1.28125
3.	4.The Internet can be utilized as a tool for training professionals	1.28125
4.	27. The Internet can be used in both urban and rural development projects by providing data sets on education which can be captured, collated, manipulated and presented.	1.25
5.	3. The Internet can be utilized by the research community in the developing countries.	1.21875
6.	17. The Internet's potential for making public information available can assist small and medium enterprises in administrative procedures for tax filing.	1.21875
7.	12. The Internet can be used to reduce information and income inequalities	1.1875
8.	5. The Internet can help in making Governments more efficient, accountable and transparent	1.1875
9.	26. The Internet can be used in both urban and rural development projects by providing data sets on health which can be captured, collated, manipulated and presented.	1.1875
10.	38. The Internet can help solve excessive rural to urban migration of young workers in the developing countries.	1.1875
11.	6. The Internet can be used to facilitate public administration by providing information and assistance to the citizens on social security, pensions, and unemployment payments.	1.15625
12.	7.The Internet can be used by citizens for involvement with public administration, soliciting feedback	1.15625
13.	19. The Internet can allow developing countries to participate in global trade	1.15625
14.	.16. The Internet's potential for making public information available can assist small and medium enterprises in administrative procedures for import and export.	1.125
15.	13. The Internet can be used to overcome natural disadvantages	1.125
16.	35.The Internet can contribute to culture promotion and preservation.	1.125

17.	36.. The Internet can help developing countries promote cultural and linguistic diversity internationally.	1.125
18.	21. The Internet can be used to in the Tourism and the travel industries in the developing world.	1.09375
19.	15. The Internet can be used to promote small and medium enterprises	1.09375
20.	37.The Internet can help create opportunities in the Multimedia Content market.	1.0625
21.	8. The Internet can help Increase effectiveness of economic reforms	1.0625
22.	2.The Internet can be used to provide distance education as an option for developing countries.	1.0625
23.	24.The Internet can be used for open government; a wide variety of government documents can be made available through electronic means.	1
24.	28.The Internet can be used in both urban and rural development projects by providing data sets on water supplies which can be captured, collated, manipulated and presented	1
25.	32.The Internet can be used to help citizens with special needs.	0.96875
26.	10. The Internet can be used in the environment field by facilitating access to environmental information for citizens, local, regional and national authorities and businesses.	0.9375
27.	30. The Internet can be used in both urban and rural development projects by providing data sets on population growth which can be captured, collated, manipulated and presented	0.9375
28.	18. The Internet's potential for making public information available can assist small and medium enterprises by promoting business opportunities.	0.90625
29.	9. The Internet can be used to monitor and protect the environment	0.875
30.	25. The Internet can be used for community networking as application that [1]holds promise for linking ICT's to governance.	0.84375
31.	20. Internet applications such as e-commerce can produce major changes in the economies of developing countries.	0.84375
32.	29. The Internet can be used in both urban and rural development projects by providing data sets on sanitation which can be captured, collated, manipulated and presented	0.78125
33.	33. The Internet can be used in Agricultural development.	0.71875
34.	14. The Internet can be used by developing nations to diversify into information-intensive industries	0.71875
35.	23. The Internet will contribute to the development process by leapfrogging developing nations toward to greater democracy.	0.46875
36.	22. The Internet can be use to build broadly based capabilities for participating in civil society.	0.46875
37.	31. The Internet can be used as a tool to improve the quality of health in	0.40625

	developing countries.	
38.	34.The Internet can help women's contribution to social and economic development	0.15625

An arbitrary cutoff point was chosen. The cutoff point was 1.00. The reason behind that

was since the item "agree" was given a weight of 1 on the relative validity scale and since

at least the experts had to "agree" to achieve relative validity, it was arbitrary decided that

1.00 would be the cutoff point. Also on the relative importance scale, experts had to at

least give the principle moderate importance to achieve relative importance, and since

moderate importance was presented by a weight of 1, it was therefore arbitrarily decided

that 1.00 would be the cutoff point.

Principles which failed to score sufficiently (1.00 or more) were not considered

completely valid or important.

As a result of the treatment, 22 principles were eliminated on the basis of validity.

Represent 57.8 % of the total principles.

Data Analysis

Following the treatment of the data statistically and based on the elimination of the

principles the panel did not validate principles in the following main areas:

1.Enviroment field/conservation

2. Reduction of information and income inequalities particularly toward the marginalized.

3. Egypt's capacity to joining information industries.

4. Promotion of Small and Medium Business

5. Civil Society participation, Community networking, Democracy.

6..Health Care

7. Cultural and linguistic promotion and preservation.

8. Economic reforms

9. E-commerce

10. Urban and rural development

11. Agricultural development

Discussion:

The information revolution is a massive challenge for governments, politicians and the business sector in the developing world. It is redefining the lines between industries and often revealing the inadequacies of existing political and economic institutional structures.

Many developing countries have formulated and implemented national information strategies that have shown signs of success. Countries such as Bermuda, Singapore, Malta, Taiwan and the Republic of Korea, Malaysia and Thailand have created strategies that are harnessing ICT's in a way that is bringing benefits both to the economy and to society as a whole.

In the case of Egypt; the picture is reasonably promising. The Egyptian government is prioritizing Internet use in development although it the organization of related industries such as the telecommunications industry still represents a traditional structure. The Government of Egypt as most governments in the developing countries needs to lead the private sector and individuals. The creation of the Ministry of

Communications and Information Technology (MCIT) has signaled the government's commitment to building a national information highway. Several efforts are underway to use this technology for the benefit of national development. In the general it can be said that Egypt is on of the more forward-looking nations in the Arab world in terms of using Internet for development.

Existing efforts do include an extensive program involving ICT's in education launched under the Mubarak National Project which involves 150 secondary schools cross nation, the Sharkeya Governate Tele-centers, and the launch of Egypt's Smart Village to encourage Global IT companies to work in Egypt.

Other efforts include the support of development agencies such as the Vercon (Virtual Extension Research Communication Network) project; a model used by the FAO to improve linkages among research and extension systems with the use of the Internet.

The government of Egypt is also beginning to implement some aspects of e-government. A government initiative to deliver the technical infrastructure for improving government services and intra- government collaboration is underway.

Furthermore the Egyptian Cabinet is currently proposing the introduction of new legislation concerning e-signatures in an effort to promote e-commerce.

However all of these initiatives are still at very early stages (some launched a few months ago) and therefore it is not possible yet to evaluate their success.

In the overall analysis of the results of this study involving experts and key leaders both from government and business sectors the main theme that emerges is a lack of belief in the ability of the Internet to seriously transform economic, political, and social relationships in developing nations. Furthermore the results from the survey and personal communications highlight that the level of speed of action to join the information society is generally not deemed a top priority. There is also an underling assumption that the benefits of a networked society is only for the few and would not reach the many within countries of the developing world on the whole and Egypt in particular.

Another important theme that emerged from the study was that although the principles were compiled from authoritative resources that were specifically dealing with the developing world the experts tended to feel that these principles were applicable to the developed world and were seen as alien to the social, economic and political environment of Egypt.

The results of the study showed that the experts eliminated principles that are deemed less important to a developing country such as Egypt. They did not think that environmental issues, political reform and civil society participation were of relevance to Egypt.

Other areas such as e-commerce were not validated; this according to many panelists was explained by the fact that there is a lack of legislation and market environment to support much e-commerce in Egypt.

Panel participants perceptions also reflected a lack of optimism which was evident from comments. For e.g. many experts commented about lack of connectivity, price of accesses, poverty, illiteracy and so forth. Exhibiting an unawareness of the possibility of innovative models that focus on shared infrastructure, public access facilities and the use of intermediaries to interact with an illiterate public or the possibilities that accompany the explosion of mobile access to the Internet with the number of wireless subscribers world wide coming from outside developed countries. The experts felt that the Internet can be harnessed for its potentials only in the following areas.

1. E-Education/Learning

All of the principles (principles #1,2,3 &4) that involved any type of e-learning whether regarding elementary/secondary / higher education or continuing education were regarded as highly valid and important by the panel. Innovative uses such as using the Internet for literacy programs were viewed positively.

The principle related to distance education was also reviewed positively. There was also a strong awareness amongst the panelist of the new Internet economy which demand that people's knowledge and skill levels be constantly updated. The panelists are strongly aware that people, companies and countries with the greatest

knowledge skills; and the ability to efficiently create and share knowledge will have the best chance at success in the information society. They therefore validated the use of the Internet to in training professionals.

Using the Internet network to connect the research communities in the developing countries to the developed countries and to each other was a principle that was also considered of high priority by the panelists. The panelists felt that this should be given high priority in a national strategy.

2.E-Government:

Principles regarding the area of e-government were given high validation and importance by the panel. The experts validated a focus on e-government as a priority for Egypt feeling strongly that main benefit of basic e-government would be a more efficient way for the government to deliver services to its citizens.

The experts also validated advanced forms of e-government; which include interaction between government and citizens (G2C); government and business enterprises (G2B) and inter agency relationships (G2G) . The panel viewed that these interactions can be made more convenient, transparent , efficient and inexpensive through the application of an e-government system. The Principles include Principles 5,6,7 and 10.

3.Global Trade

The Principle concerning the Internet's potential in terms of allowing the developing countries better access to global trade was seen as a priority by the panel. Principle # 19. Experts were optimistic towards the idea that the Internet facilitates and creates opportunities for developing countries such as Egypt in Global Trade.

Through personal communication it was evident that the experts could envision that the Internet provides many valuable international services for manufacturers, importers, exporters, business and general opportunity seeking in Egypt. Priority was given to focusing national information strategies on the development of information networks between Egypt and global trade players.

4.Tourism and Travel Industries

Based on the Panelists response to Principle # 21 it can be hypothesized that the Internet is of particular use for the travel and tourism industry. A key industry for Egypt.

The panelists felt that much of the tourism industry in the developing world today consists of many small and medium sized businesses and often tourists buy a holiday product produced by these firms. Thus the Internet has the potential of being a powerful marketing tool that can motivate travelers to become active purchasers. Furthermore the networks can be used within each country to connect the numerous firms. The panelists expressed that even at a very basic level the international traveler has a need for information which he can gather from the Internet, therefore that can only benefit those businesses in Egypt that have an Internet presence.

The Panel prioritized the application of a national strategy in the area of tourism with particular emphasis on the use the Internet as a marketing tool to promote tourism in Egypt. Less emphasis was given to other uses of the Internet in the tourism and travel industry.

5.Multi Media Content

The Panelists viewed Principle # 36 favorably envisioning a strong possibility for Egypt to see a growth in this different application of the information highway. Experts thought that the productions of diverse digitized works in entertainment and information can potentially create significant jobs for Egyptians that did not exist before.

6. Some Health care applications

The Panelists did not view the Internet as a tool that could dramatically effect the quality of health care in Egypt. However one health care principle was validated, indicating that the Internet could potentially help health care workers access better information. This was Principle # 26.

Conclusion

This study suggests that nations generally have their own vision of their future and their own pace to realize those visions. The Panelists in this study had their own perspective of the use of the Internet that has differed vastly from the principles cited from an extensive literature review of a number of authoritative writings.

What was also evident was the fact that the Internet tended to be perceived as intended to "talk to the north" – the developed world. There was little perception of the need for local-to- local networking or in other words the panelists reflected little in the

way of a culture for sharing information locally or of doing business in an impersonal mode

Furthermore the experts reflected the belief that there is an inherent bias to organizations, industries, institutions and individuals that are traditionally the first to receive any valuable technology in the developing world and therefore a de facto bias against those who are usually the last. In other words the Internet was mainly viewed as a tool for the elite. In fact, there was no agreement that there could be a sphere where Internet profits can reach the underprivileged.

It was also clear that the panelist insist that the socio-economic and political environment in Egypt is not ready for many Internet applications that have been successful in other countries.

In sum; the overall view towards the harnessing of the Internet's potential was that it should be done at Egypt's own pace and in view of it's own needs. Technological advancements were not seen as tools that bring immediate social and economic change leapfrogging developing countries into the information society.

Furthermore there was a consensus that since Egypt a developing country that faces fundamental problems such as population increase, shortage in agricultural production, a neglect of small and medium industries and historically contradicting economic polices. Therefore any adoption of technologies with implications as powerful as the Internet that may foster quick changes must be considered carefully in order to progress towards a safe and sustainable development.

Leapfrogging into modernity may lead to greater freedoms, empowerment to the marginalized and so forth but that may not be the approach that is appropriate to this particular country. There is no use for adopting technologies that may cause political, social, and cultural instability and sensitivity.

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