

**UNDERSTANDING THE DETERMINANTS OF ICTS DIFFUSION IN  
ECOWAS REGION: A CROSS-COUNTRY INVESTIGATION**

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## **ABSTRACT**

The Information and communication technology (ICT) environment in the Economic Community of West African States (ECOWAS) has changed sufficiently to warrant re-conceptualization of the earlier initiatives. Notably, many new technologies have emerged, especially in the area of wireless communication. Thus, ECOWAS ability to participate in and enhance its international competitiveness in the new global economy and hence make progress in poverty reduction depends in large part on its ability to use and adapt new information and technological innovations. This project therefore, sets out to enhance understanding and knowledge of the innovative effects of ICT poverty reduction and human development; and to improve ECOWAS capacities to formulate and implement national ICT policies that promote equitable access to ICT and information for socio-economic development.

## 1.0 **BACKGROUND AND RESEARCH PROBLEM**

Readiness is the degree to which a community is prepared to participate in the network world. It is gauged by assessing a community's advancement in the area that is critical to the adoption of information and communication technologies. An assessment of community's readiness can be used to help the community identify its strategies for diffusion. Indeed, the technological gains of the last several decades lie across the staggering new surges of wealth and well being within the countries of the world. Electronic commerce and related information and communication technologies (ICTs) have tremendously engines for economic growth and productivity changing the shape of the world in which we live. Yet, the world is reaping the vast majority of these gains. It is our view that the appropriate use of information and communication technologies can also improve the lives of the world's population that lives in the developing world. The great divide between the rich and poor countries, bring observed with regard to economic wealth and social conditions, is equally prevalent and worsen in the realm of information and communication technologies. While the growth of the Internet and the continuing "digitalization of society" are much-heralded events in more developed countries, many leaders in developing nations are left wondering how they can participate in the rapid changes going on around them. In other words, how can ICTs help their business, governments and communities become more productive and how do they get ready for the networked world we believe that there now exists a unique opportunity for many of these community to join global information networks to propel them to greater property. Without a concentration effort by the developing world to get ready for networked economy, however, the gaps in living standards between developed and developing countries will only grow wider, and the productive use of these technology retain a phenomenon that is largely confined to the richest parts of the world.

Ever eroding and increasingly powerful information and communication technologies have fundamentally changed the nature of global and relationships, sources of contact advantage and opportunities for economic and social development. Technology, the Internet, personal computers and wireless telephony have fumed the globe into increasingly interconnected network of individuals, firms schools and government communicating and infracting with each other through variety of channels. The explosion of this technological mediated global network has resulted in a scare in which virtually every one ever has the potential to reap the benefits of the network. Again success in the information Age depends upon the widespread integration of information and communication technologies into society-at-large. New value propositions based facts emerge as individuals begin to accept and understand their usefulness. This behaviour leads to creative solution and new models that can radically reshape business, hospital, schools and government work. In the more developed nations, the deployment of ICTs is more widespread and is supported not only by better infrastructure, but also by more fundamentally sound societal building blocks such as health care and education. However, the developing countries suffer from serious deficits and profoundly uneven distributions within these areas. Rapid increases in computing power, plunging prices for silicon chips and electronics, and advances in wireless communications have made powerful technologies historically lagged far behind in technology adoption. Suddenly, this accessibility allows developing nations to achieve significant, shared and sustained gains from joining networked world. If information and communication technologies are used effectively, they can help to create a trained, educated workforce that can build a vibrant and successful economy.

The value of a network increases as its number of users grows. By participating in the information network, developing nations benefits from of creation new opportunities by increasing convenience and choice for consumers; extends market reach

for business and supports fair return on goods and services; allow new business models to develop; provide access to information to all on the network; overcome physical and virtual solutions; and permits individuals to become better informed of government policies and processes. These countries also benefit from efficiency promotion by streamlining product and service delivery; increasing transparency of operations and reduction in transaction costs.

The size of the internet infrastructure is a good indication of a country's progress towards an information - used economy - Africa's internet infrastructure is the least developed in the world, with an average less than 1 in 100 people having access. However, averages obscure the great diversity of the African continent, which is reflected in wide variation in levels of internet - use - But measuring the numbers of users is not easy in developing countries because many people share accounts, use corporate and accessing networks, or visit the rapidly growing number of Cyber Cafés telecentres and business services. Furthermore, simply measuring the number of users does not take into account the extent of use from those who just write a couple of emails a week, to people who spend many hours a day on the net browsing, transacting, streaming, or downloading. As a result new measuring of Internet activity are needed to take those factors into account. One indicator that is becoming increasingly popular is to measure the amount of international internet bandwidth used by a country the size of the pipe, most often measured in kilobits per seconds (kbps), or megabits per seconds (mbps). Most of the Internet traffic in a developing country is international (75% - 90%), so the size of its international traffic compared to population links may only be as big as the circuit used by a small or medium sized business, or even a broad home user in a developed country - about 128kps or about 34lines standard modern dialup speeds. In most cases, these are confined to very small and poor Africa countries, but there are many other regulatory, historic and social factors that also influence the extent of Internet use.

In particular, the authority of Heads of State and Government, on the recommendation of the council of ministers, approved the community telecommunications programmes known as INTECOM I at its May 1979 session held in Dakar. The objective of the program was to improve and expand the sub-regional telecommunication network. The principal of the INTELCOM I Program were to open-up the member states which did not have reliable links with the outsider world; to complete the missing links in the panafel network in West Africa; to establish microwave links between the capital cities of member states; and to increase telecommunication traffic ECOWAS. From 1983 to 1992, the community, through the ECOWAS fund, made significant efforts to finance the first program that attains 95% of its initial objectives as confirmed by the evaluation undertaken by the International Telecommunications Union (ITU). The Authority therefore directed the executive secretariat to elaborate and implement a second telecommunications program to be known as INTECOM II. The main objective of the INTELCOM II program is to provide the community with a regional telecommunications network that is modern, reliable, and capable of offering a wider variety of services, including multimedia and wide band services. This will reduce transits through countries outside Africa and improve direct links between member states.

Furthermore, the ECOWAS ministers of information and communication, meeting in Bamako in October 2001 and adopted a new information and communication policy. The objective of this new policy was to involve all sectors of the least Africa public in the integration process, with a view to heightening their sense of belonging to the communication policy comprises actions to be executed by the member states at the national level, and by executive secretariat at the regional level. The actions are organized, as follows. Enlightenment and training seminars; publications individual productions,

publicity, setting up of information centers, publication of office journals, acquisition of works, creation of photographic and under library and establishment of an ECOWAS radio and television broadcasting station.

However, the ICT environment in West Africa has changed sufficiently to warrant re-conceptualization of the above initiatives. Notably, many new technologies have emerged, especially in the area of wireless communication. At the same time, telephone and Internet access West Africa has increased, largely due to private sector intervention. All sixteen West Africa countries are now online, and there is at least one Private - sector telecommunications provider in every country. Many monopolistic policy regimes have been liberalized to create more market competition, better access and lower prices. There have also been renewed efforts, both global and regional, to bridge the digital divide. West African's ability to participate in and enhance its international competitiveness in the new global economy, and hence make progress in poverty reduction, depends in large part on its ability to use and adopt new information and technological innovations.

It is against this background that this project presents a comprehensive framework for describing and diffusion of ICTs in the West Africa region. The framework characterizes diffusion using various dimensions, defining and examining how the various dimensions relate to underlying bodies of theory from the national systems of innovation and diffusion of innovation approaches (as well as determinants of ICT diffusion). We strongly believe that our framework is useful for business stakeholders wanting to make use of and invest in the ICT; for policy makers debating how to positively (or restively) influence its use and development; and for researchers studying the large scale diffusion of complex (interrelated) technologies in the West Africa region.

## **2.0 OBJECTIVE OF RESEARCH**

The broad objective of this project is to systematically organize the assessment of numerous factors that determine the networked readiness and diffusion of countries in the economic community of West African states. Specifically, the following objectives shall be explored.

1. To determine the availability, cost and quality of ICT networks, services and equipments
2. To determine the extent at which business and governments are using information and communication to internet with the public and with each other
3. To enhance understanding and knowledge of the innovative, transformation or Dysfunctional effects of ICTs in poverty reduction and human development in West Africa
4. To improve West African countries capacities to formulate and implement national ICT policies that promotes equitable access to ICTs and information for socio-economic development.
5. And to contribute to research in appropriate ICTs that support development and adoption of affordable and functionally relevant technical solution for West Africa.

## **3.0 METHODOLOGY**

Traditional diffusion studies typically stop at the point at which a user has chosen to adopt a single innovation and thus have a single dependent variable (Rogers, 1995). For the Internet, this variable has often been "number of hosts" or users. This project however, argues that the Internet is not a single innovation but is a cluster of related technologies that must be present together to support adoption decisions by the users. Indeed, the Internet cannot work unless there are servers, communication links, and

software. End users devices, content to transmit, etc. for interactive technologies such as the internet, network externalities influence the critical mass needed for widespread adoption (Mahler and Rogers, 1999).

Following Kiishi and Pohjola (2001), the Gompertz model of technology diffusion can be used to study ICT dissemination. The model can be expressed in equation form as follows

$$I_n T_{t+1} > I_n T_t = \mathbf{a}b_0 + \mathbf{a}b_1 I_n INCOME_t + I^1 >_t > d \ln T + > \quad (1)$$

Where  $\epsilon$  is a white noise.

As in Pohjola and Kiiski, equation (1) is based on the following assumptions. The spread between the value of the ICT indication in t+1 and its value in t is a function of the spread between a target value (or post-diffusion level)  $T^*$  and the value in t. this can be written as

$$\ln T_{t+1} > \ln T_t = \delta (\ln T^* > \ln T_t) \quad (2)$$

Where  $\delta$  represents the speed of diffusion

Here, the post-diffusion level is a function of income and a vector  $\mathbf{a}$ , which includes the variables described in the appendix. The expenditure on ICT as a ratio of GDP or population could be a good indicator of ICT adoption, though it may not reflect diffusion. In this case, one would expect percentage of ICT expenditure in GDP to be higher in countries that have low ICT access cost. However, in the absence of an adequate ICT price, this project assumes that per capita income is the main determinant of the equilibrium (target level of ICT. This can be expressed as

$$\ln T^* = \mathbf{b}_0 + B_1 \ln INCOME_t + I^1 >_t \quad (3)$$

Equation (1) represents the model to be estimated and is derived by substituting the RHS of equation (3) into (2). The assumption that per capita income is a major determinant of ICT diffusion is fairly standard and valid on both theoretical and empirical grounds. Historical data from developed nations indicate that adopted and diffusion of ICT is highly correlated with income. Countries with higher per capita income invest more in research and development, and hence are more able to, discover and use advanced information technologies.

In addition to performing individual country estimation, our empirical analysis will take into account differences among the countries and changes overtime. In doing so, we will combine our data (cross-section and overtime) in one single model. Such procedure increases the variation of the data improves available degrees of freedom to achieve efficient parameter estimates. While there are appealing reasons to pool the data, it is critical to properly account for country effects because there are likely to be systematic differences attributable to country differences not accounted for in our model (e.g., geography, political structure, social institutions). Two types of models are generally used to capture cross sectional heterogeneity; fixed effects models where country - specific effects are captured by dummy variables in the regression, and random effects model where country - specific effects are characterized by a time invariant components.

#### 4.0 EXPECTED OUTPUT AND DISSEMINATION

Economic and social indicators are increasingly bleak in West African, and major efforts must be made to reverse the continent's economic marginalization. This project is founded on the idea that, if the transformational power of information and communication technologies can be brought to bear, the ECOWAS sub region can participate in the information Economy. To that end, this project focuses mainly on "people". Rather than on technical connectivity alone. Again, partnership and networks are vehicles for achieving reduction through people development. This project will therefore engage in inter-agency, public-private and North-south partnership. It will work with regional post secondary institutions, early adopters of technologies and partner institutions to develop the sustainable research capacity.

Indeed, this project intends to work with partners to identify new information based social and economic opportunities for people, communication, and nations. As well, opportunities, offered by ICT-induced changes are expected to open up new avenues for study and research. The project will also continue to stimulate learning for a broad spectrum of people, project, ideas, products and technologies in the West of the continent. Furthermore, dissemination, closing the loop and the utilization of research result are seen as dynamically inter-linked processes that need to be integrated into all major stages of the research activity. This perspective gives rise to an approach that ought to expand the number of boundary partners and significantly shorten the time between traditionally conducted research and its utilization by an elite. This approach will broaden the appeal, availability and accessibility of ICT research, knowledge and information strategies and methods will be deployed, specifically: formal publications. Conferences and workshops; the Internet; and multi-media and promotional materials.

## **5.0 EVALUATION**

It is hoped that this project will add value to the progress of change, particularly by linking what is learned from research to the development outcomes, the methodology for learning developed for the project involves interaction and participation among stakeholders at all levels and ensures that issues, problems and lessons are shared, adopted and fed back into program and project implementation. This project will treat evaluation as a planning and management tool, and learning and evaluation will be embedded at every level of the initiative. This will allow for assessment of the program's impact on community lives. It will also increase our understanding of the role and effects of ICTs in terms of development.

Project monitoring and evaluation are means to assess and improve the capacities of partner institutions. They may also provide guidance for the development of follow-up projects, training plans and external evaluation. Self-assessment of individual and team performance will be conducted according to pre-established roles and responsibilities.

## **REFERENCES**

- Avgerou, Chrisathi (1998) "How can IT enable economic Growth in developing countries?" *Information Technology for Development* 8:15-28
- Balianoune, M. N. (2002) ;The New Economy and Developing countries, "A Paper Presented at the wider conference on the New Economy in Development, May 10-11
- Bresnahan, T. and M. Trajtenberg (1995) "General Purpose Technologies: Engines of Growth" *Journal of Econometrics* 65:83-108
- Caselli, F. and W. J. Coleman (2001) "cross-country Technology diffusion: The case of Computers, *The American Economic Review*, 91 (2): 328-335.
- ECOWAS (2001), *Annual Report* Abuja: ECOWAS
- Kenny, Charles J. (2000) "Expanding Internet Access to the rural poor in Africa", *Information Technology for Development* 9:25-31
- Kiiski, S. K. Pohjola (2001) "Cross country Diffusion of the Internet", *UNU/WIDER Discussion paper WDP2001/11*
- Mahler, A., and Rogers, E (1999) The Diffusion of Interactive Communication innovations And the critical mass: The Adoption of Telecommunications services by German Banks", *Telecommunications Policy* (23) pp 719-740
- Morales-Gomez, D and M. Melesse (1998) "Utilizing information and communication Technologies for development: The Social Dimensions", *Information Technology for Development'* 8:3-13
- Norton, J. A and F. M. Bass (1987) "A Diffusion Theory model of Adoption and substitution for successive Generations of High Technology products", *Management Science*, 33 (9): 1069 - 1086.
- Nwaobi, G. C. (1998) "*Computing Technology and Behaviour Research: An Integrated Approach*", Capecoast: Quanterb/NYAKOD PRESS
- Nwaobi, G. C. (1999) "Information Technology in Africa: Structure and Diffusion", A Paper presented at the Twelfth WorldCongress of International Economics Association, Buenos Aires, Argentina, South America. <http://www.aaep.orgar/12worldcongress/congress/papers/abstracts/nwaobi.html>
- Pohjola, M. (2000) "Information technology and economic growth: A cross-country Analysis, *UNU/INDER Discussion Paper 173*
- Robertson, T. S. and H. Gatignon (1986) "Competitive Effects on Technology Diffusion", *Journal of Marketing*, Jul 50(3): 1-12
- Romer, P. M. (1990) "Endogenous Technological Change", *Journal of Political Economy*, s71-s102

- Solow, R. M. (1956) "A contribution to the Theory of Economic Growth, *Quarterly Journal of Economics*, 70:65-94
- Stiglitz, J. (1989) "Economic organisation, Information and development", in J. Behrman and T. N. Srinivasan (eds) *Handbook of Development Economics, voll* Amsterdam: North Holland
- UNDP (2001) "Marketing New Technologies work for Human Development". *Human Development Report*, New York: Oxford University Press.
- Wolcott, P. et al, (2001) "A framework for Assessing the Global Diffusion of the Internet", *Journal of the Association for Information Systems*, Vol. 2 (6) Nov. World Bank (2002) ICT at a Glance Tables, [http://world bank.org/data/country data/ictglance.html](http://worldbank.org/data/countrydata/ictglance.html).

# APPENDIX

# RESEARCH QUESTIONNAIRE

Date.....

Dear Respondent,

The information and communication technologies (ICT) environment in Africa has changed sufficiently to warrant re-conceptualization of the sector and investigation into its diffusion. Indeed, Africa's ability to participate in and enhance its international competitiveness in the new global economy, and hence mane process in poverty reduction, depends in large part on its ability to use and adapt new information and technological innovations. The poverty that ICTs address goes far beyond the material impoverishment that preoccupies so much of the international development discussion. Africa will actively contribute to and benefit from the global knowledge economy, and ICTs will appear on the policy agenda of all African countries as a means to raise and improve living standards for all (including rural as well as urban dwellers, women, men, children, youth and disabled populations). It is against this background, that this survey is being conducted.

The survey should take about 45 minutes to complete.

Thank you in advance for your participation and your response is highly appreciated. Be rest assured that your responses will be treated with the highest confidentiality.

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## META DATA [GENERAL INFORMATION]

1. FULL NAME OF THE RESPONDENT .....
2. IN WHICH SUB REGION AND COUNTRY ARE YOU LOCATED
  1. BENIN [ ]
  2. BURKINA FASO [ ]
  3. CAPE VERDE [ ]
  4. COTE D'IVOIRE [ ]
  5. GAMBIA [ ]
  6. GHANA [ ]
  7. GUINEA [ ]
  8. GUINEA BISSAU [ ]
  9. LIBERIA [ ]
  10. MALI [ ]
  11. MAURITANIA [ ]
  12. NIGER [ ]
  13. NIGERIA [ ]
  14. SENEGAL [ ]
  15. SIERRA LEONE [ ]
  16. TOGO [ ]
3. In which town are you located?.....
4. What is the last level of education you completed?
  - None [ ]
  - Certification [ ]
  - Diploma [ ]
  - Bachelor's Degree [ ]
  - Some graduate studies [ ]
  - Master's Degree [ ]
  - Doctorate Degree [ ]
5. Select your main field of occupation (select all that apply):
  - A. AGRICULTURE FORESTRY AND FISHING**
    1. Agriculture production (crops) [ ]
    2. Agriculture production (livestock) [ ]
    3. Agricultural services [ ]
    4. Forestry [ ]
    5. Fishing, Hunting and Trapping [ ]
  - B. MINING**
    6. Metal mining [ ]
    7. Coal mining [ ]
    8. Oil and gas Extraction [ ]
    9. Non metallic minerals, except fuels [ ]
  - C. CONSTRUCTION**
    10. General building contractors [ ]
    11. Heavy construction, except building [ ]
    12. Special trade contractors [ ]
  - D. MANUFACTURING**
    13. Food and Kindred products [ ]
    14. Tobacco products [ ]
    15. Textile mills [ ]

- 16. Apparel and other textile product [ ]
- 17. Lumber and wood products [ ]
- 18. Furniture and fixtures [ ]
- 19. Paper and Allied products [ ]
- 20. Printing and publishing [ ]
- 21. Chemicals and Allied products [ ]
- 22. Petroleum and coal products [ ]
- 23. Rubber and misc plastics products [ ]
- 24. Leather and leather products [ ]
- 25. Stone, clay and Glass products [ ]
- 26. Primary metal industries [ ]
- 27. Fabricated metal products [ ]
- 28. Industrial machinery [ ]
- 29. Electronic and other Electric Equipment [ ]
- 30. Transportation Equipment [ ]
- 31. Instrument and related products [ ]
- 32. Miscellaneous manufacturing industries [ ]
- E. TRANSPORTATION AND PUBLIC UTILITIES**
- 33. Rail road transportation [ ]
- 34. Local and inter urban passenger transit [ ]
- 35. Trucking and warehousing [ ]
- 36. POSTAL SERVICE [ ]
- 37. Water transportation [ ]
- 38. Air transportation [ ]
- 39. Pipelines except natural gas [ ]
- 40. Transportation services [ ]
- 41. Electric, gas and sanitary services [ ]
- F. WHOLESALE TRADE**
- 42. Wholesale trade-durable goods [ ]
- 43. Wholesale trade-non durable goods [ ]
- G. RETAIL TRADE**
- 44. Building material and garden supplies [ ]
- 45. General Merchandise stores [ ]
- 46. Food store [ ]
- 47. Automotive dealers and service station [ ]
- 48. Apparel and Accessory store [ ]
- 49. Furniture and Home furnishing stores [ ]
- 50. Eating and Drinking places [ ]
- 51. Miscellaneous retail [ ]
- H. FINANCE. INSURANCE AND REAL ESTATE**
- 52. Depository institutions [ ]
- 53. Non depository institutions [ ]
- 54. Security and commodity brokers [ ]
- 55. Insurance carriers [ ]
- 56. Insurance Agents, brokers and services [ ]
- 57. Real estate [ ]
- 58. Holding and other investment offices [ ]
- I. SERVICES**
- 59. Hotels and other lodging places [ ]
- 60. Personal services [ ]
- 61. Business services [ ]

- 62. Auto repairs, services and parking [ ]
- 63. Miscellaneous repair services [ ]
- 64. Motion pictures [ ]
- 65. Amusement and recreation services [ ]
- 66. Health services [ ]
- 67. Social services [ ]
- 68. Museum, Botanical, Zoological Gardens [ ]
- 69. Membership organisation [ ]
- 70. Engineering and management services [ ]
- 71. Other services [ ]

**J. PUBLIC ADMINISTRATION**

- 72. Executives, Legislature and General [ ]
- 73. Justice, Public order and safety [ ]
- 74. Finance, taxation and monetary policy [ ]
- 75. Administration of Human Resources [ ]
- 76. Environmental Quality and Housing [ ]
- 77. Administration of Economic programs [ ]
- 78. National Security and International Affairs [ ]

6. Your Gender  
Male [ ]  
Female [ ]

7. Your E-Mail Address:

8. Your Contact Address:

9. Your Website;

10. Your Age:

# QUESTIONNAIRE ADMINISTRATION

VARIABLES	SCALING (CIRCLE CHOICE)	DECISION COMPONENTS
SPEED AND QUALITY	1 (worst)	<ul style="list-style-type: none"> <li>• Fewer than half of all domestic telephone calls are successful.</li> </ul>
		<ul style="list-style-type: none"> <li>• For voice telephony, sound quality is often not acceptable regular conversation</li> </ul>
		<ul style="list-style-type: none"> <li>• More than 100 faults are reported per year for each 100 telephone mainlines</li> </ul>
		<ul style="list-style-type: none"> <li>• No services beyond limited electronic mail capabilities supported by the local telecommunication infrastructure.</li> </ul>
		<ul style="list-style-type: none"> <li>• Large business, which wants access, must link their numbers directly to infrastructure backbone outside their community.</li> </ul>
	2	<ul style="list-style-type: none"> <li>• 50-70% of domestic telephone calls are successful.</li> </ul>
	(Bad)	<ul style="list-style-type: none"> <li>• dropped conations are frequent and extremely disrupted.</li> </ul>
		<ul style="list-style-type: none"> <li>• For voice telephony, sound quality is acceptable for reconversation</li> </ul>
		<ul style="list-style-type: none"> <li>• Between 50 and 100 faults are reported per year for telephone mainlines.</li> </ul>
		<ul style="list-style-type: none"> <li>• The telecommunications community supports dial-up modern transfer speeds of more or less. Some areas may support speeds of 14.4kbps.</li> </ul>
		<ul style="list-style-type: none"> <li>• Large business and 15Ps can link their networks to an infrastructure backbone, out inadequate to support user demands.</li> </ul>
		<ul style="list-style-type: none"> <li>• Packet less is significant and regularly disruptive.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>• 70-90% of domestic telephone calls are successful</li> </ul>
		<ul style="list-style-type: none"> <li>• compactions are dropped with</li> </ul>

		noticeable frequency and are somewhat disruptive.
		<ul style="list-style-type: none"> <li>Fewer than 50 faults are reported per year for each 100 mainlines.</li> </ul>
		<ul style="list-style-type: none"> <li>User have access to dial-up modern transfer speeds 28.8kps.</li> </ul>
		<ul style="list-style-type: none"> <li>Leased lines with transfer with transfer speeds of up to 64 kbps are available for business and ISPs limited higher speeds are available in some areas.</li> </ul>
		<ul style="list-style-type: none"> <li>Backbone facilities serving the community are usually down although regular peak demand periods result in slower response times.</li> </ul>
		<ul style="list-style-type: none"> <li>Packet loss by the network may occur but is not generally disruptive.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>Dropped connections are fairly infrequent and not a main disruption</li> </ul>
		<ul style="list-style-type: none"> <li>Over 90% of domestic telephone calls placed are successful.</li> </ul>
		<ul style="list-style-type: none"> <li>Fewer than 10 faults are reported per year for each 100 mainlines</li> </ul>
		<ul style="list-style-type: none"> <li>There is widespread access to dial - up modem transfer up to 56 kbps, with some access to high-speed solution as DSL, cable modems and wireless solutions.</li> </ul>
		<ul style="list-style-type: none"> <li>High-speed services of 1.5 mbps are common, with high speed available in some areas</li> </ul>
		<ul style="list-style-type: none"> <li>Adequate backbone capacity exists to support common needs without significant transmission delays except on infrequent period of high demand.</li> </ul>
		<ul style="list-style-type: none"> <li>Packet loss by the network is below 10%</li> </ul>
SERVICE, SUPPORT	1	<ul style="list-style-type: none"> <li>Telephone main lines take at</li> </ul>

AND ELECTRICITY	(Worst)	least four years tube installed at the time their orders are placed.
		<ul style="list-style-type: none"> <li>• It takes over six months for reported mainline problem resolved, if ever.</li> </ul>
		<ul style="list-style-type: none"> <li>• Very few or no software developers, programmers or technicians are present in the community.</li> <li>• Worst electricity supply.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• Mainlines takes at least six months for installation.</li> </ul>
		<ul style="list-style-type: none"> <li>• It takes over one month for reported mainline problem resolved, providers pay no explicit attention to custom.</li> </ul>
		<ul style="list-style-type: none"> <li>• A small community of software developers, web design network administrators and other technical personal.</li> <li>• Bad electricity supply.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>• Mainlines take at least one month to be installed.</li> </ul>
		<ul style="list-style-type: none"> <li>• It takes over one week for reported mainlines problems resolved. there is growing customer service ethic and senesce and support providers although it is not a priority at most. Some ITC maintenance and technical support are available.</li> </ul>
		<ul style="list-style-type: none"> <li>• A nascent software industry is present in community and there are a growing number of hardware technician's administrators.</li> <li>• Fair electricity supply.</li> </ul>
	4 (Good)	<ul style="list-style-type: none"> <li>• Mainlines installation is usually completed within a few weeks.</li> </ul>
		<ul style="list-style-type: none"> <li>• Service providers can be contacted in a number of ways/telephone, mail/reported problems are usually resolved with 48 hours. Online help in available and may allow for in house resolution customer</li> </ul>

		service is considered a source of competitive advantage for the service provider. ICT management and technical support are widely available.
		<ul style="list-style-type: none"> <li>• A competitive and sophisticated web design market incorporating the latest development technology.</li> <li>• Good electricity supply</li> </ul>
INTERNET AVAILABILITY	1 (Worst)	<ul style="list-style-type: none"> <li>• There are no internet service providers (ISPs) offering dial-up access</li> </ul>
		<ul style="list-style-type: none"> <li>• Business is unable to lease dedicated lines from the telephone operator wait or there is a multi-year wait to the same.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• A limited number of Internet service providers offer dial-up access. There are more than 1,000,000 inhabitants ISP. Some providers offer only e-mail services.</li> </ul>
		<ul style="list-style-type: none"> <li>• There are limited opportunities for public internet access</li> </ul>
		<ul style="list-style-type: none"> <li>• Users often have difficulty establishing a dial-up connection with local ISP</li> </ul>
		<ul style="list-style-type: none"> <li>• There is no competition in commercial leased line provider Business may only lease lines from a single telephone operator.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>• There are between 500,000 and 1,000,000 inhabitants per ISP. Provide full Internet access.</li> </ul>
		<ul style="list-style-type: none"> <li>• Subscribers may have some options between various service packages.</li> </ul>
		<ul style="list-style-type: none"> <li>• There are some opportunities for public Internet access.</li> </ul>
		<ul style="list-style-type: none"> <li>• It is normally possible for users to establish a dial-up access to a local ISP, except during peak hours.</li> </ul>

		<ul style="list-style-type: none"> <li>• One or two private providers leased lines to businesses.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>• There are more than two local ISPs per 1,000,000 inhabitants</li> </ul>
		<ul style="list-style-type: none"> <li>• Higher bandwidth solutions such as DSL (digital subscribers) and cable modem access are available. Most customers tailor service to meet different demands for speed security, quality and cost.</li> </ul>
		<ul style="list-style-type: none"> <li>• ISPs provide web-hosting services to their subscribers.</li> </ul>
		<ul style="list-style-type: none"> <li>• There are adequate opportunities for public Internet and those without access at home, school or work.</li> </ul>
		<ul style="list-style-type: none"> <li>• Users are able to establish a dial-up connection to a reliable basis.</li> </ul>
		<ul style="list-style-type: none"> <li>• Multiple private providers leased lines to business. Your solutions may be available in addition to fixed line solution</li> </ul>
HARDWARE AND SOFTWARE	1 (Worst)	<ul style="list-style-type: none"> <li>• There is no distribution/sales point for ISP hardware within the community.</li> </ul>
		<ul style="list-style-type: none"> <li>• ICT hardware and software are too expensive for all big business and a small minority of citizens and small and medium-sized businesses.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• Some off the-shelf hardware and software solutions are gotten locally, but there are more or very few in the nature language of the community.</li> </ul>
		<ul style="list-style-type: none"> <li>• Basic hardware and software are affordable for some big and small and medium-sized businesses.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>• Most ICT products are sourced from abroad, but there are growing localization industry to adapt products to local needs.</li> </ul>

		<ul style="list-style-type: none"> <li>Some software appropriate to local needs and language</li> </ul>
		<ul style="list-style-type: none"> <li>A variety of hardware and software solutions are available and affordable to most small and medium-sized businesses as many individuals.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>A vibrant market place exists for software and hardware competitive. Retail and wholesale market for these products.</li> </ul>
		<ul style="list-style-type: none"> <li>Hardware and software appropriate to local needs and are widely available and affordable.</li> </ul>
INFORMATION INFRASTRUCTURE	1 (worst)	<ul style="list-style-type: none"> <li>Access to telecommunication infrastructure is very poor. There are few shared facilities for telecommunications access. Telephone penetration is low with teledensity of less than 2 mainline per 100 people, mobile wireless penetration is below 0.5% of the population and cable service are available.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>A small minority in the community has good access to telecommunications network, but most of community is not.</li> </ul>
		<ul style="list-style-type: none"> <li>Teledensity is between 2 and 8 mainlines per 100 people. Mobile wireless penetration is between 0.5% and cable penetration below 5% of all households in the community.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>A sizable position of the community has good access to telephone services. Growth in mobile wireless telephone accelerating. Telephone is between 8 and 40 mainlines per people. Mobile wireless penetration is between 30% and cable penetration is between 5% of all households</li> </ul>

		in the community.
	4 (good)	<ul style="list-style-type: none"> <li>• There is wireless access to telecommunication services</li> </ul>
		<ul style="list-style-type: none"> <li>• There is high teledensity of 40 mainlines on 100 people. Penetration of mobile wireless telephony is growing, with at least 14% of the community subscribing and penetration is high at 10% of households or higher.</li> </ul>
INTERNET AFFORDABILITY	1 (worst)	<ul style="list-style-type: none"> <li>• Most users are charged long distance of international dial-up access.</li> </ul>
		<ul style="list-style-type: none"> <li>• ISP rates are so high that few individuals can afford Internet access.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• Rates of local telephone calls are high enough to discourage extensive Internet use via local ISPs even among most can afford Internet access.</li> </ul>
		<ul style="list-style-type: none"> <li>• Local Access Solutions Exists But Rates For ISP Services Are Enough To Discourage Extensive Internet use.</li> </ul>
		<ul style="list-style-type: none"> <li>• The lack of competition in the provision of commercial lines in reflected in prohibitively or very high leasing fees.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>• Telephone charges for Internet access reflect emerging competition in the telecom market, yet they are high and discourage extensive use by some users.</li> </ul>
		<ul style="list-style-type: none"> <li>• Internet access is priced within reach of the mayoralty</li> </ul>
		<ul style="list-style-type: none"> <li>• Competition is leased line provision for introduced and prices are falling but are still high.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>• Prices for telephone usage are set competitively and are affordable nearly all citizens.</li> </ul>
		<ul style="list-style-type: none"> <li>• Flat rate pricing may be in effect for local telephone calls</li> </ul>
		<ul style="list-style-type: none"> <li>• Prices for Internet access are set competitively and are</li> </ul>

		affordable for nearly all citizens. Flat rate pricing may be available. Free ISP servicing be available, particularly communities with time metered pricing of local phone.
		<ul style="list-style-type: none"> <li>Higher bandwidth solutions such as DSL services and modern access are priced competitively, which may alter pricing based on speed of access or usage based on total volume. "Always-on" contentions are available without time metered pricing.</li> </ul>
		<ul style="list-style-type: none"> <li>Pricing for leased business lines is set in a competitive environment featuring multiple vendors.</li> </ul>
SCHOOL'S ACCESS TO ICTS	1 (worst)	<ul style="list-style-type: none"> <li>There are no computers in schools</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>Where there are ICTs in schools, it is primarily at the high level, and there are generally fewer than five computers per school or faculty.</li> </ul>
		<ul style="list-style-type: none"> <li>Access to the computer (s) is limited to computer teaching administrators</li> </ul>
		<ul style="list-style-type: none"> <li>Computer few to be order generation models such as alone 486 pcs or the equivalent.</li> </ul>
		<ul style="list-style-type: none"> <li>Where there are multiple computers installed, they are networked.</li> </ul>
		<ul style="list-style-type: none"> <li>Use of the computer(s) is limited to electronic documents which are available on the hard drive or diskettes</li> </ul>
		<ul style="list-style-type: none"> <li>There may be connectivity for store-and-forward e-mail</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>Computers can be found at the university level as well as primary and secondary schools.</li> </ul>
		<ul style="list-style-type: none"> <li>Up to 10 to 15 computers can</li> </ul>

		be found in laboratories and classroom group work, with about four students per computer.
		<ul style="list-style-type: none"> <li>• Computer labs are generally only open for computer sessions during the day and closed after school, or may be opened to teachers for class preparation but closed to students.</li> </ul>
		<ul style="list-style-type: none"> <li>• Computer tends to be older generation models such as 486 pcs or higher and they may be networked with a file and server.</li> </ul>
		<ul style="list-style-type: none"> <li>• There may be an internal local Area Network (LAN) in which there are multiple computer labs, they may be connected through the school network.</li> </ul>
		<ul style="list-style-type: none"> <li>• Where there are stand-alone PCs, they may have a CD-ROM library.</li> </ul>
		<ul style="list-style-type: none"> <li>• The networked lab achieves connectivity through a dial-up connection to the Internet, which supports limited web access.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>• Most school at all educational level have access to computer</li> </ul>
		<ul style="list-style-type: none"> <li>• There may be a number of computer labs in each school and computers may be found in the classroom. In some cases, students and teachers may have individual laptop computer.</li> </ul>
		<ul style="list-style-type: none"> <li>• Computer labs are open to students and reserved for computer matter classes to use and are open after school hours and may be open to the community and other weekends.</li> </ul>
		<ul style="list-style-type: none"> <li>• There may be an internal web server on the school networking computers as well as other devices are connected</li> </ul>

		to the network.
		<ul style="list-style-type: none"> <li>Classrooms may be wired and connected to the school wide Area Network (WAN). Clusters of schools may be connected to a regional WAN to share electronic resources. A national network may be in place.</li> </ul>
		<ul style="list-style-type: none"> <li>Connectivity may be obtained through a leased line or connection with at least 64 to 128kbps of dedicated access.</li> </ul>
	1 (worst)	<ul style="list-style-type: none"> <li>Computer are not used by any teachers or students</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>Only few teachers use computer in a very limited way. teacher's basic computer literacy involves skills such as the keyboard and mouse, a basic understanding of the computers operating system, manipulation of files and typing and pasting.</li> </ul>
		<ul style="list-style-type: none"> <li>Computers are mainly used to the university level.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>Teachers and students use computers to support trade, work and study.</li> </ul>
		<ul style="list-style-type: none"> <li>Teachers who use computers are generally proficient in processing applications and may access information CD-ROMs.</li> </ul>
		<ul style="list-style-type: none"> <li>They may employ computers in some basic practice lessons.</li> </ul>
		<ul style="list-style-type: none"> <li>In some cases, teachers access and organize information from the world wide web in their work, share information through mail, and create information in electronic format to share with others both inside and outside the school.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>In formation and communication are fully into the classroom and are enabling the learning process.</li> </ul>

		The curricula may feature collaborative project based learning activities that enable students to access Internet and advanced software skills to work with other students and teachers in their school, outside internationally.
		<ul style="list-style-type: none"> <li>Teachers are well trained in methods for incorporating computers and ICTs into their instruction and curricula</li> </ul>
DEVELOPING THE ICT WORK FORCE	1 (worst)	<ul style="list-style-type: none"> <li>Training opportunities for programming maintenance, web design and other ICT professions are virtually non-existent.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>There are limited opportunities for training in ICT skills and development.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>Technical classes and programs on ICT - related subject are available from a variety of public and private centers</li> </ul>
		<ul style="list-style-type: none"> <li>Some limited online access to training is available</li> </ul>
		<ul style="list-style-type: none"> <li>Some employers offer training in the use of information and communication technologies to their employees.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>There are many technical school with specialized curriculum on information and communication technologies and computer science</li> </ul>
		<ul style="list-style-type: none"> <li>There are a variety of training opportunities relating to the information and communication technologies available to render certification programs, employer's educational institutions, private training centers and distance learning courses.</li> </ul>
		<ul style="list-style-type: none"> <li>Online resources and course are available for development</li> </ul>

		of technical skills.
PEOPLE AND ORGANIZATIONS ONLINE	1 (worst)	<ul style="list-style-type: none"> <li>• Most of the population has never heard of the internet</li> </ul>
		<ul style="list-style-type: none"> <li>• Less than 0.05% of the population has used the internet time during the past three months</li> </ul>
		<ul style="list-style-type: none"> <li>• No business entity in the community has a registered domain name</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• Much of the population has never heard of the Internet and most people do not know anyone who has ever used Internet.</li> </ul>
		<ul style="list-style-type: none"> <li>• Less than 0.5% of the population has used the Internet and few are regular users.</li> </ul>
		<ul style="list-style-type: none"> <li>• Some local business and institutions have registered names. There is no fewer than two of these domains per inhabitants</li> </ul>
		<ul style="list-style-type: none"> <li>• There is no advertising in traditional media for online resources.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>• Most of the population has heard of the Internet although few are using it.</li> </ul>
		<ul style="list-style-type: none"> <li>• Less than 10% of the population use the internet regularly</li> </ul>
		<ul style="list-style-type: none"> <li>• The overwhelming majority of Internet users are males between the ages of 10 and 35.</li> </ul>
		<ul style="list-style-type: none"> <li>• The number of registered domains locally is at least 2 per 100 people</li> </ul>
		<ul style="list-style-type: none"> <li>• Advertising in traditional media for online companies and resources is infrequent</li> </ul>
		<ul style="list-style-type: none"> <li>• Most of the population is interested in using the internet and knows others who do</li> </ul>
		<ul style="list-style-type: none"> <li>• At least 10% of the population accesses the</li> </ul>

		Internet regularly.
		<ul style="list-style-type: none"> <li>Males between the ages 10 and 35 no longer represents-overwhelming majority of Internets users.</li> </ul>
		<ul style="list-style-type: none"> <li>The number of registered local domain is at least 20% of the population</li> </ul>
		<ul style="list-style-type: none"> <li>Advertising in traditional media for online computers and resources is fairly common.</li> </ul>
LOCALLY RELEVANT CONTENT	1 (worst)	<ul style="list-style-type: none"> <li>No web sites exist providing information on local topics</li> </ul>
		<ul style="list-style-type: none"> <li>Few or no web sites are available in local language or dominant web language spoken locally</li> </ul>
		<ul style="list-style-type: none"> <li>Some web sites are available in local languages or a designed web language spoken locally</li> </ul>
		<ul style="list-style-type: none"> <li>There is little use of line bulletin board systems, user groups, newsletters, and or listeners.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>Some local web sites are available, through most carry content and are updated infrequently web sites carry types of information, relevant to different groups with community</li> </ul>
		<ul style="list-style-type: none"> <li>Many web sites are available in local language spoken locally</li> </ul>
		<ul style="list-style-type: none"> <li>There is some use of online bulletin-board systems, user groups, newsletters, and or listeners</li> </ul>
		<ul style="list-style-type: none"> <li>There are opportunities for web-related training although they may be expensive and accessible only in certain areas</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>Many web sites provide dynamic information on local topics and are updated at least several times per week.</li> </ul>

		<ul style="list-style-type: none"> <li>Local content is generated by citizens at all levels of search including web sites and online bulletins, -board systems, group, newsletters and or listeners</li> </ul>
		<ul style="list-style-type: none"> <li>Many affordable opportunities exist for web-related transactions</li> </ul>
		<ul style="list-style-type: none"> <li>Member of the community do not normally employ information and communication technologies in their daily lives. Most communication is paper based and or oral.</li> </ul>
		<ul style="list-style-type: none"> <li>Information and communication technologies (telephone, machines, pagers, computers) are used to a limited extent by some members.</li> </ul>
		<ul style="list-style-type: none"> <li>Public telephones are available in some parts of the country and are used regularly by many community members</li> </ul>
		<ul style="list-style-type: none"> <li>Personal computers with e-mail capability are made possible available by some business, but most users are from the community (e.g. Tourist and visiting business people.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>Public telephone may be found in most parts of the country and are headily used</li> </ul>
		<ul style="list-style-type: none"> <li>Some members of the community have internet access at home</li> </ul>
		<ul style="list-style-type: none"> <li>Growing members of community members use telecenter cybercasts and other business that offer computer and online services to the public for a fee.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>Many members of the community use information and communication technologies (wireless</li> </ul>

		phones, digital pagers personal computers) to assist in their personal activities
		<ul style="list-style-type: none"> <li>• Many members of the community use information and communication technologies for household commerce, shopping, banking investing and for variety of social commercial interaction with other people (including business to consumer trade, online chat).</li> </ul>
		<ul style="list-style-type: none"> <li>• Citizens without access through home, school or work variety of public and private Internet access options including online cafes and community centers.</li> </ul>
ICTS IN THE WORK PLACE	1 (Worst)	<ul style="list-style-type: none"> <li>• Employees have access to telephones</li> </ul>
		<ul style="list-style-type: none"> <li>• A small minority communication takes place in person and a small number of business use telephone and fax.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• Organisation achieve sporadic efficiency gains through deployment of ICT systems in their internal workings</li> </ul>
		<ul style="list-style-type: none"> <li>• Some employees have access to telephone</li> </ul>
		<ul style="list-style-type: none"> <li>• Few offices have computers that are networked for internet sharing and basic enterprise applications</li> </ul>
		<ul style="list-style-type: none"> <li>• In offices where these are computer, only some employ than for their work, through out or electronic communication</li> </ul>
		<ul style="list-style-type: none"> <li>• Organisation achieve some efficiency gains through some degree of deployment of ICT system in their internal activities</li> </ul>
		<ul style="list-style-type: none"> <li>• Many computers in business offices are internally networked for date processing, management</li> </ul>

		reporting, and other enterprise applications.
		<ul style="list-style-type: none"> <li>Some employees conduct research and business transaction over the web, through most often they use a share web to do so. Some employees use e-mail for internet communications</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>Organisation achieve major efficiency gains through widespread deployment of ICT systems in their internal processes</li> </ul>
		<ul style="list-style-type: none"> <li>Computer in offices are fully networked. Different office location are connected to each other through external networks and these networks may extend nationally or internationally</li> </ul>
		<ul style="list-style-type: none"> <li>Most employees have Internet access from their own workstations.</li> </ul>
		<ul style="list-style-type: none"> <li>Most employees have their own E-mail accounts for internal and external communications.</li> </ul>
		<ul style="list-style-type: none"> <li>Workers commonly list their E-mail and Website address of their business cards.</li> </ul>
Employment Opportunities	1 (worst)	<ul style="list-style-type: none"> <li>Few, if any, local business hire workers on the basis of technical background</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>Although there are some employment opportunities through technical skills, most workers with ICT experience either leave the community to find employment or are unable to work in their field.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>Technical skills in the community are becoming a source of competitive advantage and are beginning to attract investment and employment opportunities by companies from outside community</li> </ul>

	4 (Good)	<ul style="list-style-type: none"> <li>A significant number of employees in the community possess technical skills to perform their jobs.</li> </ul>
		<ul style="list-style-type: none"> <li>A Sizeable portion of the community's economy is based on management of trade in information, employing a number of "Knowledge workers".</li> </ul>
		<ul style="list-style-type: none"> <li>Information and communication technologies are constantly central to the strategies of many organizations.</li> </ul>
BUSINESS TO CONSUMER	1 (worst)	<ul style="list-style-type: none"> <li>No business in the community operates websites.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>Some local business operates websites. The basic input they provide is static and infrequently updates.</li> <li>Some business accepts orders placed by telephone calls.</li> <li>Some business distributes hard-copy catalogs for rental browsing of goods and services.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>Many business post key information on websites whole in others, it is often not kept current and relevant.</li> <li>Websites provide information on goods and services purchased take place primarily in person, by fax or by post through electronic mail may expedite the process. Some business may have introduced online ordering.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>Many businesses in the community have incorporated wide web into their sales, marketing, and customers systems.</li> <li>The total volume of online retails is a noticeable component of community's commercial activity, as may be evidenced in</li> </ul>

		advertisements for commercial activities in traditional and other indicators
BUSINESS TO BUSINESS	1 (worst)	<ul style="list-style-type: none"> <li>• Business has few sources of market information. The efficiency of most B2B information's is hampered by the level of transparency, as are prospects for new business opportunities.</li> <li>• B2B transactions are carried out in person or remotely n paper-based transactions.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• B2B interactions remain inefficient with little transparency.</li> <li>• Faxes and telephones are commonly used to facilitate for remote client support although some paper-based transaction (e.g. signature) is requires.</li> </ul>
	3 (Fair)	<ul style="list-style-type: none"> <li>• The deployment of electronic systems has increased efficiency and transparency and lowered transaction costs in B2 interactions</li> <li>• Some B2B transactions are supported by electronic system (e.g. proprietary systems and databases), but some payment-based transaction (e.g. signature) is usually required at some point.</li> <li>• Electronic B2B transactions are a small percentage of B2B commerce.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>• Much efficiency in B2B transactions is apparent as the deployment of electronic systems. The efficiency changed market structures and redefined industry practice.</li> <li>• Many businesses have incorporated the Web into sales procurement and inventory management. Some transactions occur online over</li> </ul>

		<p>automated, full-integrated systems.</p> <ul style="list-style-type: none"> <li>• Other processing and delivery may be executed electronically and monitored through online tracking systems.</li> <li>• Overall levels of electronic B2B transactions are a noticeable and growing percentage of total B2B transactions within community.</li> </ul>
E-GOVERNMENT	1 (worst)	<ul style="list-style-type: none"> <li>• No government resources are online</li> <li>• There is no awareness of online government, and all transactions between government and citizens or business are in paper-based. There is limited information available by paper-base</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• A few governmental websites exist, providing basic information often directed at parties outside of the community. This information is static and infrequently updated.</li> <li>• Some limited interaction with the government is possible only by telephone or fax.</li> <li>• The government distributes some information about services, procedures, rights and responsibilities in hard copy.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>• Some government agencies post key information on site including direction of services, hours of operation and downloadable forms. Information is often not kept currently relevant. Transactions take place primarily in person by telephone, through electronic mail may expedite the process.</li> <li>• The government manages</li> </ul>

		relationships with some consumers and suppliers online or with other electronic mediation.
	4 (good)	<ul style="list-style-type: none"> <li>• All government agencies post key information on web and some have incorporated the web into their strategy for interaction with public.</li> <li>• Interactive government websites allow the public to conduct transactions (e.g. apply for permits, pay taxes) online.</li> <li>• Much government procurement and many interactions by suppliers take place online or with other electronic means.</li> </ul>
TELECOMMUNICATIONS REGULATIONS	1 (Worst)	<ul style="list-style-type: none"> <li>• There are no plans for the liberalization of the community telecommunication sector.</li> <li>• There are no regulatory provisions, which promote universal access to telecommunications services.</li> <li>• All services are provided a single operator, whether state-owned.</li> <li>• Voice and data services offerings are limited.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• Plans for the liberalization of telecommunications services are in place or are being formulated.</li> <li>• Provisions for universal access to services have been established, though they are ineffective.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>• Plans for the liberalization of the telecommunications services are in place and are being implemented.</li> <li>• Progress is being made in achieve universal access and there are many hurdles in implementation.</li> <li>• Services such as data, paging and mobile telephony are</li> </ul>

		<p>available from competing private providers.</p> <ul style="list-style-type: none"> <li>• Alternative carriers compete for private network services and lines and other telecommunications services for business.</li> <li>• Incumbent provider networks are being opened to consumers through interconnection and/or unbundling obligations.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>• The telecommunications sector has been liberalized with regulatory regime in place to promote open competition.</li> <li>• Regulation is effective in promoting universal access.</li> <li>• An independent regulatory body sets and enforces telecommunications regulators</li> <li>• Citizens and business have at number of options for telecommunications and data servers.</li> <li>• Incumbent networks have been opened to competitors and competing carries are taking advantage of this arrangement to offer services.</li> <li>• There is vibrant competition among mobile wireless providers. Spectrum has been allocated consistently with international standards, and licensing arrangements encourage new entrants.</li> <li>• The provision of value-added services such as broad based Internet is recognized as a source of competitive advantage.</li> </ul>
ICT TRADE POLICY	1 (worst)	<ul style="list-style-type: none"> <li>• Trade in equipment for information and communication technologies is impeded by high tariffs and other restrictions including cumbersome technical</li> </ul>

		<p>standards or licensing requirements.</p> <ul style="list-style-type: none"> <li>• Service sectors are not open to trade, creating a barrier electronic commerce and the building and operation of networks.</li> <li>• Domestic regulations may create de facto trade barriers.</li> <li>• There is a little or no foreign direct investment.</li> </ul>
	2 (bad)	<ul style="list-style-type: none"> <li>• Trade barriers for ICT equipment have been reduced, still relatively high.</li> </ul>
	3 (fair)	<ul style="list-style-type: none"> <li>• Trade in ICT equipment is not restricted through unnecessary standards or licensing requirements, and tariffs are low and uniform.</li> <li>• The community has at least temporarily agreed not to disproportionate tariffs on electronically delivered products.</li> <li>• There has been significant opening in services that related to electronic commerce and building and operations of ICT networks but some restrictions remain.</li> <li>• Foreign direct investment in the ICT sector is encouraged with some restrictions.</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>• If tariffs exist on ICT goods, they are low and uniform.</li> <li>• Trade in services is fully liberalized, including services electronically.</li> <li>• The community has explicitly affirmed that it will not apply disproportionate tariffs on electronically delivered products.</li> <li>• Foreign investment in the ICT sector is encouraged and restricted to few or no restrictions.</li> </ul>
POVERTY STATUS	1 (worst)	<ul style="list-style-type: none"> <li>• Very poor No access to health facilities; no economic provisioning; no access</li> </ul>

		to safe water; no access to knowledge
	2 (Bad)	<ul style="list-style-type: none"> <li>Poor Bas access to health facilities; bad economic provisioning; bad access to safe water; bad access to knowledge</li> </ul>
	3 (Fair)	<ul style="list-style-type: none"> <li>Rich Fair access to health facilities; fair economic provisioning; fair access to safe water; fair access to knowledge;</li> </ul>
	4 (good)	<ul style="list-style-type: none"> <li>Very rich Good access to health facilities good economic provisioning; good access to safe water; good access to knowledge.</li> </ul>
UNHAPPINESS STATUS	1 Worst	<ul style="list-style-type: none"> <li>Very Unhappy</li> </ul>
	2 Bad	<ul style="list-style-type: none"> <li>Unhappy</li> </ul>
	3 Fair	<ul style="list-style-type: none"> <li>Happy</li> </ul>
	4 Good	<ul style="list-style-type: none"> <li>Very Happy</li> </ul>