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Pacific Asia Conference on Information Systems (PACIS)

6-18-2013

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AN INTERCOUNTRY ANALYSIS
ON THE FACTORS AND BARRIERS
TO INTERNET ACCESSIBILITY

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Abstract

The world of the Internet is shaping the future of many industries around the world, from the airline industry to the production of music. The Internet is changing how we communicate and exchange ideas and thoughts. Many countries are now eager to setup master plans and policies to develop their Internet infrastructure. This paper examines the essential factors that are affecting the development and usage of the Internet in the developed and the developing world and shed light on the need to view the development and usage of the Internet on a more holistic view than atomistic view. The results show that urbanization, electrical usage, and the usage of mobile cellular have a positive relationship with Internet usage. In case of the least developed countries, GNI per capita has a positive relation of Internet usage.

Keywords: Internet accessibility, Economic development, digital divide, digital inclusion.

1 INTRODUCTION

Most developing countries are struggling to bridge the "digital divide" limiting access to computers and the Internet for low-income citizens according to the AFP press (2013). Several developing countries in Africa, Latin America and Southeast Asia, continue to show low values of connectivity with low level of Internet usage and limited development of e-commerce.

A number of countries' struggle to upgrade digital connectivity means that they are losing out on all the social and economic rewards which go along with better information and communications technology infrastructure. Economies that fail to implement comprehensive national broadband strategies risk losing ground in global competitiveness and may fall behind in the delivery of societal benefits from information and communication technology.

This research examines the factors that help people have or use the Internet in their country. There is an assumption that once we give a user a computer and connect the user to the Internet, the user will be able to use the Internet immediately; however, this assumption may be as wrong as it is attractive. There are many things that should be done by the user or the country before a user can really make use of a computer or in this case the Internet. Factors such as level of education, electricity and population demographics can help in enabling or triggering the usage of the Internet in a host country. This research serves as an exploration for work done in the field of ICT and development. It analyzes the factors that contribute to the increase in Internet access by users in the developing and the developed world. Using data gathered from three international agencies—World Bank, UNDP, and International Telecommunication Union (ITU)—it runs a linear regression on the dependent variable of "fixed (wired) broadband Internet subscription per 100 inhabitants."

The research question here is about the identification of factors that contribute to the increase in Internet access or the usage in a given state. Also investigated is the requisite stage of the development spectrum when a country benefits from its existing Internet access.

2 LITERATURE REVIEW

Before considering bridging the digital divide, there is a need to understand the meaning of the term 'digital divide' and what policies are required to bridge that divide. Does overcoming the digital divide require resolving connection problems? Is it about connecting countries to the Internet by the usage of fiber optic cables or rather is it linking rural areas to the Internet and providing Internet connection for farmers in rural areas? These and many other questions that have been and are discussed in studies of the Internet digital divide but the main question that should be asked is, after connecting the village to the Internet or the farm house to the world of e-commerce and trade, what happens afterward and is this process of just connecting to the Internet an effective means to reduce the digital divide? The definition of digital divide given by Dictionary.com is "the gap between those people who have Internet access and those who do not," which is the widely used explanation as to what the term 'digital divide' means. This definition suggests that there is more to the digital divide issue than the mere presence of Internet connection or computer availability. There are social, economic, educational and even political factors as well. Hence, framing the digital divide in a holistic perspective is of utmost importance to the success of any government or organizational entity that strives to bridge the digital divide. Agarwal et al. (2009) find through empirical analysis that individual choice is subject to social influence that emanates from geographic proximity; this influence is the cause of the excess variation. Additionally they find that widespread Internet use among people who live in proximity has a direct effect on an individual's propensity to go online. There are several types of barriers that should be considered and mitigated before the digital divide

can be bridged. There are many categories of barriers such as institutional, financial, physical, cognitive, physical (infrastructure), content, socio-demographic, design and even cultural.

- **Institutional:** The digitalization of institutions plays a vital role in increasing the penetration rate of users in a given state. The usage of computers and the Internet in schools, ICT centers, cybercafés and offices both public and private play a vital role in increased penetration and speeding up the learning processes (Wilson, 2004).

- **Financial:** ICT and technology in general require a certain level of financial capability in which several cost factors should be considered, such as the cost of ICT itself, software, training and even repair (Hilbert, 2010). The rise of a community/industry that mitigates overall repair and computer spare parts issues is an important factor in creating a sustainable environment that can sustain itself and fulfill consumer basic needs.

- **Illiteracy:** Having a certain level of literacy in the local language is important for the spread and usage of ICT technology and, in fact, having a high literacy level in a certain language is important; however, the fact is that many countries, for example in sub-Saharan Africa, are suffering from high illiteracy levels. This can hinder access to and usage of information.

- **Content:** Content also plays a role in the bridging the digital divide; content about local issues and in local languages are of importance in that they can be easily used because of the inherent low language barrier. Graham, Hale, and Stephens (2011) pointed out that "There is a clear and highly uneven geography of information in Wikipedia. Europe and North America are home to 84% of all articles" and "Almost all of Africa is poorly represented in the encyclopedia. There are more Wikipedia articles (7,800) written about Antarctica than any country in Africa or South America. Even China, which is home to the world's largest population of Internet users and is the fourth largest country, contains fewer than 1% of all geo-tagged articles" (Graham et al. 2011)

- **Physical (infrastructure):** Users must have access to electricity and computers but, more than just having access to ICT technology; the technology should be accessible in their areas. One of the major obstacles is local loop, in which fiber-optic cables are connected to the cities to provide access for the users but ignore large swathes of the countryside. One way of overcoming this obstacle is through the use of wireless spectrums, essentially leapfrogging into the wireless spectrum through Wimax or wibro technologies. Other factors involve issues such as the "distribution of ICT devices per capita" (WilsonErnest, 2004). These actions are desperately needed in developing countries and poor countries as many users have limited access to computers at home or use cybercafés to meet their daily information needs.

- **Socio-demographic:** There are several factors that are known to reduce or increase ICT access to its diffusion affect. Factors such as income and GDP are some.

- **Socio-economic:** In certain countries, class determines access to technology. Certain countries suffer from pervasive digital exclusion and there are several policies that should be conducted to reduce it.

- **Software design:** Relevant software design also plays a vital role in bridging the digital divide. In one example, farmers in India use a system called Question Box in which users ask questions, via phone SMS, to the website to find answers to daily concerns on topics such as health, agriculture, business, education and entertainment. It provides easy access to information in hard-to-reach areas and breaks through technology, language and literacy barriers" (Question Box, 2012).

- **Political:** Political obstructions should also be taken into consideration. Guillen and Suarez (2005) concluded that "democratic political regimes enable a faster growth of the Internet than authoritarian or totalitarian regimes" (p. 687).

Internet policies set in place to prevent certain actions by certain citizen have instead led to large expansion and in turn to protest and even uprooted governments through public uprisings. The Arab

spring provides a good example. In the case of Egypt, the Internet was blocked and was successful in hindering Internet usage but not stopping it completely (Hopkins, 2011).

3 DEVELOPMENT OF HYPOTHESES

We formulate our hypotheses on how different socio-economic factors have an effect on the usage of the Internet in a given state. The first hypothesis ascertains whether there is a positive relationship between Internet usage and urbanization. Does urbanization affect Internet usage or increase the chances of a country gaining access to the net?

Hypothesis 1: Urbanization has a positive relationship with Internet usage.

The second hypothesis considers whether there is a positive relationship between Internet usage and the availability of electricity. Access to electricity must precede Internet usage. That electricity is a critical requirement to access the net is widely recognized.

Hypothesis 2: the usage of electricity is positively correlated with Internet usage.

The third hypothesis considers whether there is a relationship between cellular phone usage and Internet usage. Mobile phones also have an effect on Internet usage. For example, in Africa, there has been a large increase in mobile phone usage to surf the net, remit funds and check on news and updates about current event in the country and marketplace. They are becoming more than a device to talk with but a device to gather information and transact business.

Table 1 shows how Opera Mini, one of the world's most widely used mobile phone browsers, has witnessed user growth of 176% in Africa and South Asia of 206%. Table 1 shows the growth rate of Opera Mini usage in Africa and other parts of the world.

Region	Page view growth	New User Growth	Data Transfer Growth
Southeast Asia	575%	362%	580%
South Asia	256%	206%	187%
Africa	373%	176%	182%
Latin America	276%	143%	208%
East Asia	256%	132%	257%
North America	240%	105%	148%
Middle East	136%	102%	90%
CIS	129%	95%	176%
Europe	107%	73%	107%

Source: Opera Software

Table 1: Opera Mini regional growth (November 2008-November 2009)

An article in *African Business Review*, "Smartphones – Africa's Laptop Killers?", reported that at Microsoft SA's Tech-Ed Africa 2009 conference in Durban, Microsoft SA's Chief Technology Officer Fred Baumhardt "revealed that mobile devices such as smartphones are entering the market four times faster than PCs or laptops." (DenbyJ., 2010)   According to a report published by the U.K. Office for National Statistics, *Internet Access: UK Households and Individuals, 2011*, over 45 per cent of Internet users in the UK now access and use the Internet from a mobile data connection (statisticsoffice, 2011). The previous year (2010), it was 31%. The report also stated that the number of wireless spots have nearly doubled since last year to 5 million.

Hypothesis 3: the usage of mobile cellular phone has positive relationship with Internet usage.

4   BACKGROUND AND DATA DESCRIPTION

All data was taken from (1) The International Telecommunication Union (ITU) which includes the percentage of individuals using the Internet, fixed (wired) broadband Internet per 100 inhabitants, and active mobile broadband subscription per 100 inhabitants, (2) the World Bank data set 2011 which includes GDP growth, access to electricity, GNI per capita, population age 0 to 14 and population age 14 to 64, and (3) the United Nation Development Program Human Development Index 2011 data set, which includes education index, expected years of schooling, human development index, and per cent of urbanization. All variables were taken directly from these databases and computed using variables from the data bases.

4.1   Variables

This paper's goal was to gather from the databases all variables that are indicators of development or urbanization. Nevertheless we included other data on socioeconomic status and sets that could be of importance in assessing the overall effects of the diffusion of the Internet in general.

- *Percentage of individuals using the Internet:*
  "The estimated number of Internet users out of total population. This includes those using the Internet from any device (including mobile phones) in the last 12 months. A growing number of countries are measuring this through household surveys. In countries where household surveys are available, this estimate should correspond to the estimated number derived from the percentage of Internet users collected. (If the survey covers percentage of the population for a certain age group (e.g., 15-74 years old, the estimated number of Internet users should be derived using this percentage, and note indicating the scope and coverage of the survey should be provided). In situations where surveys are not available, an estimate can be derived based on the number of Internet subscriptions." Source: (International Telecommunication Union, 2011)
- *Fixed (wired) broadband Internet per 100 inhabitants:*
  "Total fixed (wired) broadband Internet subscriptions refers to subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 k bit/s. This can include for example cable modem, DSL, fiber-to-the-home/building and other fixed (wired) broadband subscriptions. This total is measured irrespective of the method of payment. It excludes subscriptions that have access to data communications (including the Internet) via mobile cellular networks. If countries use a different definition of broadband, this should be indicated in a note. It should exclude technologies listed under wireless broadband category." Source: (International Telecommunication Union, 2011)
- *Active mobile broadband subscription per 100 inhabitants:*
  "Sum of active mobile broadband subscriptions and dedicated mobile data subscriptions" Source: (International Telecommunication Union, 2011)
- *Percentage access to electricity:*
  "Access to electricity is the percentage of population with access to electricity. Electrification data are collected from industries, national surveys and international sources. International energy agency, world energy outlook 2010. Catalog sources world development indicators" (World Bank, n.d.)
- *GDP growth (annual %):*
  "Annual percentage growth rate of GDP at market prices based on constant local currency, aggregates are based on constant 2000 U.S dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsides not included in the value of the product. It is calculated without making dedication for deprecation of fabricated assets or for depletion and degradation of natural resources World Bank accounts data, OECD national accounts data files, Catalog sources World Development indicators." (World Bank, n.d.)
- *GNI per capita $US*:

"GNI per capita based on purchasing power party (PPP). PPP GNI is gross national income (GNI) converted to international dollars using purchasing power party rates. An international dollar has the same purchasing power over GNI as a U.S. dollar has in the United States. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. This variable is chosen based on the previous work of Kiiski et al. (2002). Data are in current international dollars. World bank, international comparison program database, catalogue sources world development indicators." (World Bank, n.d.)

- *Mobile Cellular Subscription:*
  "Mobile cellular telephone subscriptions are subscriptions to a public mobile telephone service using cellular technology, which provide access to the public switched telephone network. Post-paid and prepaid subscriptions are included. International Telecommunication Union, World Telecommunication / ICT Development Report and database and World Bank estimates. Catalog sources world development indicators" source: (World Bank, n.d.)

- *Population age:*
  Population between the ages 0 to 14 is a percentage of the total population. Population is based on the de facto definition of population. Population ages 15 to 64 is the percentage of the total population that is in the age group 15 to 64. Population is based on the de facto definition of population. World Bank staff estimates from various sources. (World Bank, n.d.)

- *Expected year of schooling of adults:*
  "Number of years of schooling that adults of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist throughout the adult life." (UNDP, n.d)

- *Percentage of population urban*:
  "Percentage of population that live in urban areas Population Density (person per Square km) number of population density per person in any given square kilo meter." (UNDP, n.d)

4.2   Procedure:

Twelve variables from the three data sources that matched possible Internet barrier criteria or matched a measure for Internet access – the dependent variable — were isolated. Data on a few other variables had also been collected but had very few data points and had to be discarded. The three sources we used did not all have data for the same countries so we had to match the countries by lining them up. Some datasets had more complete sets of countries than others. In the end, we had 225 countries.

	Means	Deviation	Minimum	Maximum
Fixed (wired) broadband Internet	9.06	11.13	0.00	38.20
Access to electricity	76.32	28.97	9.00	100.00
GDP growth	4.36	4.11	-9.79	25.48
GNI per capita	14447.45	21006.48	180.00	84290.00
Mobile cellular subscriptions	56.72	38.76	1.14	150.86
Population ages 0-14	27.78	10.66	11.51	48.97
Population ages 15-64	63.74	6.90	48.86	83.93
Education index	0.59	0.20	0.11	0.97
Population, urban	0.67	0.17	0.28	0.94
Expected years of Schooling of children	12.53	3.00	4.40	18.00
Mean years of schooling for adults	7.72	3.02	1.20	12.60
Population density	394.24	2101.79	2.77	23763.09

Table 2: Variable descriptive statistics

5 RESULTS

The OLS regression results are robust with a strong R^2 of 0.84. Access to electricity had a surprising result because it had a negative effect on Internet access while education did not seem to have much effect on Internet access which is not expected. Also surprising is that the population age distribution seems to matter in Internet access. Both the younger age group (0-14 years of age) and working age population had a negative effect on Internet access. Reasonably, the wealthier the country is, the more Internet access it has. The higher the urban population of the country is, the more likely it is to have high Internet usage. Finally, mobile cellular usage is high when Internet usage is high.

5.1   Urbanization: - hypothesis 1: Urbanization has a positive relationship with Internet usage.

Urbanization had a significant effect. In the case of Seoul, which is known to be the most wired city in the world (Kim et al. 2009) with a total population of 9,762,546 million people (Korea Statistical Information Service, 2011) is substantially wired. In an article written in the New York Times (Lohr, 1996) stating several factors of how the Internet has an influence on urbanization.

5.2   Electrical Usage: - hypothesis 2 the usage of electricity is positively correlated with Internet usage.

The research assumes that if people have access to electricity, they would have the physical power to access the Internet. As accessibility to electricity is one of the basic building blocks to using the Internet, we added access to electricity in the regression. The correlation table, below, indicated that there should have been a strong correlation.

Variable	Correlation
Fixed (wired) broadband Internetsubscriptions per 100 inhabitants	0.59
Access to electricity (% of population)	1.00
GDP growth (annual %)	-0.18
GNI per capita, Atlas method (current US$)	0.49
Mobile cellular subscriptions (per 100 people)	0.74
Population ages 0-14 (% of total)	-0.79
Population ages 15-64 (% of total)	0.76
Education index	0.76
Population, urban (%) (% of population)	0.85
Expected Years of Schooling (of children) (years)	0.72
Mean years of schooling (of adults) (years)	0.71

Table 3: Correlation with % of population with access to electricity

On the contrary the results of the regression in the Table 3 showed a reversed trend. This result does not appear to make sense so further investigation was required. For further research, countries were divided into three categories by the level of interim access to electricity – low, medium and high electrical access countries. Table 4A shows the average results for GDP growth, GNI per capita, mobile cellular subscription, population age 0 to 14 and population age 15 to 64. Table 4B shows the average of education index, urban population, years of schooling for children, years of schooling for adults and population density.

Electrical Access (Categories of Countries)	Average of GDP growth (annual %)	Average of GNI per capita (current US$)	Average of Mobile cellular subscriptions (per 100 people)	Average of Population ages 0-14 (% of total)	Average of Population ages 15-64 (% of total)
Low	5.45	1,583	20	39	57
Medium	5.63	10,075	60	25	66
High	2.19	31,012	91	19	68
World Average	4.36	14,447	57	28	64

Table 4A: Electrical access categories of countries

Electrical Access (Categories of Countries)	Average of Education index	Average of Population, urban	Average of Expected Years of Schooling of children	Average of Mean years of schooling of adults	Average of Population density
Low	0.39	0.49	10	4.93	547
Medium	0.62	0.71	13	8.43	299
High	0.75	0.82	15	9.92	323
World Average	0.59	0.67	13	7.72	394

Table 4B: Electrical access categories of countries

It is interesting that countries with high population density have low access to electricity. This is counterintuitive as it should be easier to bring electricity to places with a high concentration of people. Also places with low electricity had high levels of population density. The lowest population densities were countries that had medium electricity. In this case there is no clear trend.

Country	Population density	Access to electricity	fixed (wired) broadband Internet
Bangladesh	1033	41	0.00
Comoros	395	40	0.00
India	373	66	0.90
Philippines	311	86	3.10
Trinidad and Tobago	261	20	0.10
Nigeria	171	40	0.00
Gambia	153	40	0.00
Thailand	135	14	0.00
Guatemala	132	81	1.80
Indonesia	126	65	0.80

Table 5: Statistics of the most densely populated countries

Examining the countries, two facts appeared. All of these countries are very poor and almost none have Internet access. Having population density does not mean having electricity. Only two states that have substantial electricity access are Guatemala and the Philippines. Population density is not a good indicator of Internet access.

5.3   Mobile cellular subscription: - hypothesis 3: the usage of mobile cellular phone has positive relationship with Internet usage.

Seven variables were dropped as several of them had high correlations between them, e.g, age of adults and age of children were dropped and one mean age gathered from the World Bank database was added. After dropping the seven variables, the results of the regression on the independent variable, "fixed (wired) broadband Internet subscriptions per 100 inhabitants," is shown in table 6.As seen above, the coefficient or the beta estimate is stated with t statistic followed by the P>|t| value. The t statistic for Active mobile broadband subscription per 100 inhabitants is significant at the 95% level at 4.84.

The relationship between fixed (wired) broadband Internet subscriptions per 100 inhabitants and Active mobile broadband subscription per 100 inhabitants is positive (0.1607671) and based on the t-value (4.84) and p-value (0), a relationship that is statistically significant. Hence, there is a statistically significant positive linear relationship between "fixed (wired) broadband Internet subscriptions per 100 inhabitants" and "Active mobile broadband subscription per 100 inhabitants". "GDP growth (annual %)" on the other has a negative relationship with fixed (wired) broadband Internet subscriptions per 100 inhabitants" but on the other hand "GNI per capita, Atlas method (current $US)," has a positive relationship with "fixed (wired) broadband Internet subscriptions per 100 inhabitants".

Concerning "Mobile cellular subscriptions (per 100 people)" and "fixed (wired) broadband Internet subscription per 100 inhabitants," the t statistic is close to the rule of thumb of 2 but not significant. On the other hand "mean years of schooling (of adults) (years)" is positive (0.7435191) in relationship to "fixed (wired) broadband intern-et subscription per 100 inhabitants" and based on the t-value (3.04) and p-value (0.003), raising the possibility that this relationship is statistically significant.

Variables	Pooled Data
active mobile broadband subscriptions	0.161***(0.0332)
GDP growth	-0.219**(0.107)
GNI per capita	7.46e-05**(3.63e-05)
Mobile cellular subscriptions	0.0463*(0.0239)
Mean years of schooling of adults	0.744***(0.244)
Dummy	-1.846(1.231)
Constant	1.474(4.279)
Observations	144
R-squared	0.777
N	144

Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 6: Results of pooled data

Results of the pooled data regression on with the introduction of a dummy variables based on the independent variable "fixed (wired) broadband Internet subscriptions per 100 inhabitants"

5.4   Three groups for developed, developing and least developed countries and pooling data method

The three categories were formed, a dummy variable was added to the list of each category and the usage of pooling data method was performed. This method can be used when the groups to be pooled share relatively similar or homogenous characteristics. Level differences are removed by 'mean-centering' the data across the groups, The following states the result for the three categories: developed countries, developing countries and least developed countries. First developed countries are stated in

case of the most developed nations in table 8 which shows the status of developed nations; we notice that active mobile broadband subscription per 100 inhabitants has a positive significant relation with Internet usage.

Variables	Pooled Data	Developed countries pooling method	Developing countries pooling method	Least developed countries pooling method
Active mobile broadband subscriptions	0.161*** (0.0332)	0.0615* (0.0344)	0.133 (0.235)	0.182 (0.534)
GDP growth	-0.219** (0.107)	-0.0926 (0.188)	0.235 (0.468)	0.000420 (0.309)
GNI per capita	7.46e-05** (3.63e-05)	5.47e-05 (3.48e-05)	0.000559 (0.000816)	-0.000203 (0.00325)
Mobile cellular subscriptions	0.0463* (0.0239)	0.0581 (0.0380)	0.0505 (0.0749)	0.0650 (0.133)
Mean years of schooling of adults	0.744*** (0.244)	3.787*** (0.515)	0.419 (0.890)	-0.135 (0.791)
Dummy	-1.846 (1.231)	-29.41*** (6.466)	-18.20** (8.225)	-13.36*** (4.274)
Constant	1.474 (4.279)	2.694*** (0.492)	11.62*** (1.123)	13.28*** (0.995)
Observations	144	144	144	144
R-squared	0.777	0.824	0.113	0.280
N	144	144	144	144

Standard errors in parentheses*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7: Results for all countries pooled data and the developed countries, developing countries and least developed countries using pooling method

In the developing countries category in table 7, active mobile broadband subscription and mobile cellular subscription and mean years of schooling have a positive relation with Internet usage, indicating that developing countries need to work on capacity building policies that target education and the diffusion of devices such as mobile phone as they are becoming a source of information access for many in the developing world.

In case of the least developed countries, active mobile broadband subscription and mobile cellular subscription mean years of schooling have a positive relation with Internet usage similar to that in the developing countries but also have a positive relation of Internet usage with GNI per capita, suggesting that the more a country is producing products locally the more ICT usage increases or Internet usage increases in general and thus the greater the imperative to be connected by means of telecommunication or Internet. This might indicate that companies are reaching out to new technology in order to have a competitive edge over other companies.

6   CONCLUSION

The world of the Internet is replete with potential for many developing and least developed nations. Connecting these countries to the Internet through new technologies that are currently available such as broadband Internet access or wireless access is wonderful but a holistic view as to the usage of the Internet in general and who is able to benefit from its potential is required, especially where developing and least developed countries are concerned. This holistic framework should include

factors such as literacy level, education, electricity and national development status on other socio-economic factors.

A few world leaders tried to resolve the issue of digital divide, including President Bill Clinton, who was dubbed the "Internet president" for being the first president of the United States and one of the first presidents around the world to advocate solving the digital divide problem. In his speech at Massachusetts Institute of Technology 1998 commencement, he stated that

"We know from hard experience that unequal education hardens into unequal prospects. We know the Information Age will accelerate this trend. The three fastest growing careers in America are all in computer related fields, offering far more than average pay. Happily, the digital divide has begun to narrow, but it will not disappear of its own accord. History teaches us that even as new technologies create growth and new opportunity, they can heighten economic inequalities and sharpen social divisions."

This paper examined Internet usage and its relationship with other economic and social factors of a country and how these relations can have a positive or negative correlation. We notice that mobile phones are becoming a key source of information for the developing world and a gateway for Internet usage in the developing world. Examples of this are the usage of mobile phone to access information about the weather news and the product prices in the market for farmers to sell their product. Not only do we notice an increase in Internet usage by cell phone but also well-known companies in the Internet arena that are working on providing better and free services by mobile phone usage, e.g., the Facebook Zero initiative that Facebook has taken to allow for Facebook users in the developing world to access Facebook on a lightweight text-only version of Facebook for free (http://www.0.facebook.com/).

We notice how GNI per capita might have an effect on Internet usage and technology in general as more countries start to produce but most of all we noticed the effect of education on Internet usage and how the need to tackle issues such as illiteracy is very important for the success of Internet policies in the developing world. Hence we can say the Internet is for all countries but Internet usage in all countries is in need of first reaching a level in which these countries are able to access the full potential of the Internet and join other countries that had done so. The world of the Internet is introducing new technologies every day and a new generation, Millennial, was born bathed in bits and bytes. Millennial are eager to be connected to the world through their Internet-compatible devices and ever connected world. New, effective and relevant policies are the key to allowing many of today's developing countries to have the potential to be connected to the global village that we all live in today.

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