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CROSSING THE DIGITAL DIVIDE – CUTTING THROUGH THE HYPE

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CROSSING THE DIGITAL DIVIDE – CUTTING THROUGH THE HYPE

SPEAKER PROFILE

John is a British national who has lived and worked in and around Singapore for about 17 years and 11 years in the Middle East.



John has 37 years experience in telecommunications, having worked for British Telecom, Cable and Wireless and Ericsson.

He is currently CEO of Teleconsult which is a Consulting firm, which specialises in Consulting, Training, Technical Assistance and Project Management services to Operators, MNCs, Contracting firms and other Consulting firms.

John is currently Vice President of ATiS and also Manpower Development Chairman.

John is currently contracted to StarHub Pte.Ltd., where he has been continually assigned since November 1999 and is working with young industry professionals to develop their knowledge, skill sets and experience.

ABSTRACT

This paper sets out to discuss and highlight the core issues of the 'Digital Divide', setting aside the hype which surrounds the subject and clouds the real situation.

It is a fact that there is a divide between the 'Information Haves' and the 'Information Have Nots' and this paper attempts to illustrate and highlight some of these differences and also that the gap is widening.

The paper also discusses the 'Digital Divide' in terms of the 'International Divide' and also the 'National Divide', as this is becoming pronounced in some countries.

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GENERAL

It is a fact that the Internet has ushered in, possibly the greatest period of dissemination of information and wealth creation in the history of the world and mankind.

Probably, the last time such an event occurred was when the printing press was invented and people learnt to read.

Right across the world the Internet really has fundamentally changed and literally rocked the way we communicate, the way we work and deliver and receive information and the way we do business.

For some people it has also broken down barriers and bought them love 'on line'.

Unfortunately, in telecommunications and more specifically recently in the Information Communications Technology (ICT) industry, there is a tendency to hype up events and technologies and a few recent examples are Wireless Application Protocol (WAP), GPRS, General Packet Radio Service, which a lot of people have amended to 'Give People Reasonable Services' and not forgetting probably the most hyped of all 'Third Generation Mobile (3G)'.

A lot of people are quite fed up and disillusioned about the delays to 3G, not to mention the financial problems caused and I am personally suffering from a large dose of 'Wapathy' and am 'Wapped out'.

The fact is that 'hype' inflates expectations, followed by a period of disillusionment as badly planned strategies and failed projects begin to take their toll and technologies fail to deliver on promises.

There is actually therefore a 'Hype Cycle', which must be understood and controlled.

In the case of the Internet and the so called 'Digital Divide' the same thing has happened with the 'Dot.com' 'Dot gone' episode and is still happening

For many, it is easy to make and accept euphoric claims - like those of former US Vice President Al Gore.

Al Gore said "The Internet is bringing about a brave new world replete with an, 'electronic agora' and 'online democracy'".

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With the very greatest of respect to Mr. Gore, for most of us, this type of comment would first of all get us reaching for a dictionary and despite being English and having had a classic education, I must admit I had to look this one up.

I was relieved to find that according to Webster's dictionary, that it is a 'An assembly; hence the place of assembly, especially the marketplace in an ancient Greek city'

Dr Pekka Tarjanne, former Secretary General of the International Telecommunication Union (ITU), who was also a former politician said:

"Mankind is not going to survive unless the UN, the G-8, the Group of 77, the World Economic Forum, the World Bank and the rest of the decision makers are really concerned and concentrating on the bridging of the Digital Divide"

The point I am trying to make here is, that whilst there are elements of truth in what is said, these are actually good examples of the hype and attempts to get political mileage, from this very deep, serious and complex subject.

In a recent speech, United Nations Secretary General (UN), Kofi Annan more simply warned of the danger of excluding the world's poor from the information revolution.

Secretary General Annan said, "People lack many things: jobs, shelter, food, health care and drinkable water.

Today, being cut off from basic telecommunications services is a hardship almost as acute as these other deprivations, and may indeed reduce the chances of finding remedies to them."

Yet it is a sad fact that more than 80% of people in the world, have never even heard a telephone dial tone.

In those countries where people have never heard a dial tone, they have probably never even heard of 'e mail' let alone send one, surfed the World Wide Web, download information or own or have access to a PC.

The hype for everything online therefore, really obscures the reality about how technology is changing life at the beginning of the 21st century and in many under developed countries around the world, life remains very much the same.

In my opinion, there is no global 'electronic agora' or 'on-line democracy', even on the horizon or on the radar screen.

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Mr. Larry Irving, former US Assistant Secretary of Commerce, a man once labelled as a 'Cybercolonist' or 'Technofacist' said, "Think how powerful the Internet is, then remind yourself that probably fewer than 2% of people in the world are actually connected.

The power of the Web actually increases exponentially with every person who goes online".

FACTS FIRST

In order to really cut through the hype on this subject, we really need to look at figures.

After all, statistics are the basic building block of connectedness.

Unfortunately, the basic information where you can make a start, that is phone lines, is quite stark.

According to a recent United Nations (UN) Human Development Report, industrialised countries, with only 15% of the world's population, are home to 88% of all Internet users.

Less than 1% of people in South Asia are online even though it is home to one-fifth of the world's population.

The situation is even worse in Africa.

With 760 million people, there are only 14 million phone lines and about 1 million Internet users on the entire continent.

Furthermore, 80% of those lines are in only six countries.

That's fewer than large cities in America like Manhattan or Tokyo in Japan.

By way of comparison, 45% of UK households (11 million homes) are connected in the UK.

4 million of these homes have unlimited internet access and 3% of the people of low income groups have home access compared with almost 50% of homes in the higher income groups.

The point is that even if telecommunications systems were in place, most of the world's poor would still be excluded from the information revolution because of illiteracy and a lack of basic computer skills.

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Also, another important point is that 80% of all Websites are in English, a language understood by only one in 10 people on the face of this planet.

BARRIERS

The lack of resources in poor communities does not explain the technology gap alone.

In the developing world, there is still a lot of resistance to the idea that technology is a quick-fix to their problems.

The World Bank for example has recently sponsored a programme which has broadcast over 2000 hours of instruction, to over 9000 students in all regions of sub-Saharan Africa, given by professors from world-renowned educational institutions in Africa, North America, and Europe.

With the same amount of money, just imagine how many lecturers you could have if the African universities could encourage and support the Africans to return back home and teach.

The argument is that in the end, it is only the Africans who can solve their own problems.

Others complain that the money spent on high-tech education, which is - available only to a select elite, is not worth it when so many places on the continent are still without electricity, running water and other basic amenities.

Residents of an under developed country, would probably argue that the priorities are hygiene, sanitation and safe drinking water first, then ICT.

The question is, how is having access to the Internet going to change this situation and attitude?

HOW TO CLOSE THE GAP

In order to close the gap, the first hurdle to be overcome is to recognise that there is a problem and this is the first step to recovery.

International organisations, governments and private institutions are really, just starting to do this.

The Internet may be the wave of the future, but underneath the wave, age-old problems still apply.

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Real disparities exist in access to and use of Information and Communications Technology (ICT) between countries (called the "International Digital Divide") and between groups within countries (called the "Domestic Digital Divide").

There is a wealth of real and anecdotal evidence to support this statement and the volume of reports and statistics on this topic is both impressive and persuasive.

For example, one in two Americans, is online, compared with only one in 250 Africans.

In Bangladesh a computer costs the equivalent of eight years average pay.

Underlying trends are often lost in the heated debate over how to define the problem, but a pattern emerges from within the statistics.

There is an overall trend of growing ICT disparities between and within countries:

- All countries, even the poorest, are increasing their access to and use of ICT. But the "information have" countries are increasing their access and use at such an exponential rate that, *in effect*, the divide between countries is actually growing.
- Within countries, all groups, even the poorest, are also increasing their access to and use of ICT. But within countries the "information haves" are increasing access and use at such an exponential rate that *in effect*, the division within countries is also actually growing as well.
- These trends are repeated on many levels - in use of ICT, in affordability, in training, in relevant content, and in participation and growth of the ICT sector.

In highly developed countries a different process *appears* to be occurring, but upon further examination it is the same pattern of growing ICT disparities:

- In certain rich countries (such as the US and Finland), saturation points for baseline technologies such as PCs have almost been reached for some groups. Therefore, since the underserved are increasing baseline technology access and use, the gap between the information "haves" and "have-nots" appears to be closing.

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- A closer look shows that even when the gap for a particular technology appears to shrink, underlying disparities remain. When new technologies are introduced, the actual divide is re-illustrated because only the "information haves" can afford to acquire, and have the skills to use, the technology quickly, and they derive exponential benefits.

Underneath the apparent widening and narrowing of the ICT divides, the underlying trend is that privileged groups acquire and use technology more effectively, and because the technology benefits them in an exponential way, they become even more privileged.

- The infusion of ICT into a country paints the existing landscape of poverty, discrimination, and division onto the new canvas of technology use. Because ICT can reward those who know how to use it with increased income and cultural and political advantages, the resulting digital divide shows up in increasingly stark contrast.
- Therefore, ICT disparities usually exacerbate existing disparities based on location (such as urban-rural), gender, ethnicity, physical disability, age, and, especially, income level, and between "rich" and "poor" countries.

It must be understood that the digital divide is not a single thing, but a complicated patchwork of varying levels of ICT access, basic ICT usage, and ICT applications among countries and peoples:

- Each country and group has a unique profile for how technology is used, or not. While a few countries rate low on many of the metrics for ICT use and readiness, most have a mixture of positive and negative ratings.
- Divisions can only be effectively tackled by looking at these specific deterrents; gross measurements of ICT usage available in most reports on the digital divide do not provide a coherent plan of action to address the inequities they describe.
- E-readiness assessments are a valuable tool with which to gain this more informed, region-specific understanding, and to develop an action plan.

Current estimates are based on the status quo. Concerted efforts by governments, the private sector, organisations and individuals to diffuse information technology and put it to effective use could completely change the current situation.

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WHAT ARE WE MEASURING?

There are many different perspectives on the digital divide, some defining it as a lack of Internet use between countries, and some focusing on gaps in access between socio-economic groups within countries.

My goal here is not to argue one definition of the digital divide or another, but rather to point out the real existence of disparities, whichever way they are looked at.

People describe disparities in ICT access and use in a variety of ways.

Below are some of the major findings and criteria:

Criteria used to measure ICT Disparities

Criteria	Description
Number of users or computers	How many people use the technology in various countries?
Infrastructure, Access	What telecommunications networks are in place, how many people have access to PCs to web-enabled phones to other handheld devices, where are PCs located (homes, workplaces, community centres)?
Affordability	Is the technology affordable, and to whom?
Training	Do people know how to use the technology? Is it taught in schools, in vocational programs and are these programs affordable?
Relevant Content	Is there content in local languages that addresses the immediate needs and interests of the population?
IT Sector	How large is the local ICT sector and integration of ICT into existing industries in terms of jobs, GDP, and trade?
Poverty	What challenges exist to widespread ICT use, such as illiteracy, infant mortality, and poor water quality?
Geography, race, age, religion, gender, and disability	How is access to and use of technology distributed across demographic lines?

Unfortunately, it is an immensely difficult task to measure the distribution of ICT around the world.

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While it is relatively easy to estimate is, how many computers are out there, but replicating this for all the countries in the world and segmenting that data by socio-cultural divisions (race, income, religion, etc.) is an enormous problem.

Apart from physical access to technology, it is hard to define *effective* use and even harder to measure.

Finally, there are many technological "divides" that could impact on the equation, such as number of computers, Internet access speed, pricing, radios and televisions.

The result is a number of approximations of ICT distribution that are incomplete, but paint a common picture.

Statistics have been gathered and published in numerous reports, but most statistics point towards the same fact, there is a vast gulf between the information "haves" and "have-nots" and in most cases the gulf is becoming increasingly worse.

EFFECTIVE ICT USE AS PART OF THE SOLUTION TO BROADER PROBLEMS

Common sense, backed up by practical experience, shows that a number of practical factors hinder wide scale technology use.

A community that does not have electricity and whose residents are illiterate will struggle to incorporate conventional ICT in their everyday lives.

More subtly, people must have their basic needs met before they will be able or willing to use computers.

Quite simply, if you do not have electricity, there is no need for a PC, more specifically you cannot use a PC.

Although many argue that these issues need to be addressed head-on in order to have effective ICT use, the very same technology could be used to help overcome many of these obstacles.

By appropriately integrating ICT as part of the solution, more effective solutions to the delivery of basic services can be found and a further gap between information "haves" and "have-nots" can be avoided.

Access to the Internet is often gauged by the number of 'registered online computers' computers with valid IP addresses on the Internet.

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The division between countries is evident here as well.

By far the most registered online computers are in the United States, with other developed nations close behind.

This basic pattern of disparities is repeated again and again with other technologies.

International bandwidth, including submarine and other international cables and satellite links, is an important but often ignored factor in most digital divide reports.

The amount of bandwidth a country has tells how much information can quickly travel from one country to another.

International bandwidth is vital since non-US users of the Internet are effectively limited by their country's total international bandwidth.

The vast capacity of the Internet is distributed highly unevenly throughout the world.

Between countries there is also a wide variation on internal access rates.

The majority of people in developing countries cannot afford the technology, even when it is available, so usage remains low.

In nearly all developing countries and developed countries, phone calls are charged by the minute and can without a liberalised environment be extremely expensive.

When people in these countries use dial-up connections to reach the Internet, they must then pay access fees as well as these phone charges.

Since the speed of their Internet connections is relatively slow, it takes longer to download email and web pages - which means it is more expensive, and fewer people can participate.

Additionally, web pages (and email) are becoming increasingly graphic-heavy and 'large' in terms of file size.

For the United States and Europe, with steadily increasing bandwidth, this is not a problem. For other countries it means that, all other things remaining equal, it can actually become *more* expensive to use the Internet over time.

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Many analysts have noted that the per-minute phone charges mean that people in these countries don't "surf the web", and cannot reasonably explore the Internet to become more comfortable with it, learn new information, and gain its full benefit.

RELEVANCE OF CONTENT

From the beginning of the Internet, the English language has predominated, despite the underlying and increasing diversity of its users.

Just over 50 percent of all Internet users are native English speakers.

Yet, 80% percent of all websites are currently in English, while 96% of e-commerce sites are in English.

Over the last decade U.S users and English language content have defined the Internet as a U.S-centric environment.

Though it is a rough metric, consider that 70 % of all websites originate in the U.S. and the vast majority of these are in English.

The dominance of English, and especially US content, makes it less useful to other countries.

Additionally, non-English countries produce less local content making the Internet less relevant to their lives, and less of a tool of self-expression and *local* communication.

ADVANCED APPLICATIONS OF ICT

Advanced uses of ICT such as E-Commerce show even greater disparities than in basic access to computers.

E-commerce is dominated by the United States and to a lesser extent some European countries.

The United States has most of all the secure servers in the world; the next highest being the United Kingdom.

A number of small projects have allowed small entrepreneurs in rural areas of the developing world to bypass middlemen and sell their projects directly through e-commerce.

Although these have been highly touted, they still are a tiny minority.

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The United States and US companies are dominating the Business to Business, Business to Government, and Business to Consumer markets.

INDUSTRIAL INFORMATION TECHNOLOGY

For Industrial Information Technologies such as CAD, CAM, and Numerically Controlled Machinery, the data is sparse, but points to a similar divide.

Unfortunately, there is not any comparable research into the use of other industrial and applied information technologies, in fields such as agriculture or waste management.

Realistically, the larger divisions for advanced ICT applications are to be expected.

For example, without considerable infrastructure, access, training, and resources to develop and administer e-commerce websites, significant e-commerce is simply impossible.

And, without knowing English, most people cannot participate in e-commerce, since English is, overwhelmingly, the language of e-commerce and most of the pages pointing to secure servers (sites capable of doing e-commerce) are in English.

ICT IN THE ECONOMY

ICT can increase the productivity of existing industries and create high-paying and new employment in a local ICT sector.

ICT enables multinational corporations (MNC) to expand the scope of their operations to a hereto unknown scale and coordinate alliances with other MNCs.

These expanded companies are at a significant advantage over non-IT enabled companies, (especially when developing world trade and investment barriers are lowered).

DISPARITIES WITHIN COUNTRIES - DOMESTIC DIVIDES

Within countries, there are significant divisions in the use of ICT along the lines of geographical location, education, income, race, language, age and disability.

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Overall, these divisions mirror existing inequalities in the society, but there is disturbing evidence that ICT is distributed more unevenly than other technologies and further exacerbate inequality.

Geographical location

Major cities are far more likely to have Internet, phone, and PC access than smaller cities and rural areas.

The role-out process may eventually equalise access to particular technologies for rural populations, but new technologies follow the same urban-rural divide.

Education

Differences in education levels are also highly correlated with PC and Internet access - those with higher levels of education are more likely to have ICT at home and at work.

Education is closely correlated with income, which facilitates the purchase of ICT and inclusion in the work environment.

However, when income levels are taken into account, those with higher educational attainment will have higher rates of access. ICT sector jobs are disproportionately available to the highly educated as are jobs in e-commerce.

Since knowledge of English is often highly segmented in a society (wealthier, better educated, male), existing content is far more relevant to their lives.

International disparities in technical training build on long standing divisions on investment in education, including such factors as staff development programs, technical training in schools, and secondary and tertiary enrolment.

Race

Many early reports on the 'Digital Divide' studied the United States and focused extensively on race.

In the US, there was seen a vast disparity between the usage by European and Asian Americans versus Hispanic and African Americans.

Jesse Jackson called it the 'Digital Apartheid', and called for massive government programs to bridge the divide.

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Ethnic and racial divisions in ICT use are much less studied outside of the US, but some reports do exist.

Further analysis on the digital divide has led a number of researchers to state that the gap between computer usage among racial groups is almost completely explained by income differentials - i.e. in the United States, wealthier individuals, who are disproportionately white, are most likely to have and use the technology than their poorer, disproportionately black and Hispanic counterparts.

There is still considerable debate on this issue though, and conflicting reports.

Age

Overall, the highest number of users is in the 35-45 age group, though some countries such as Australia have more users in lower age groups.

Disability

Some disabled individuals show especially low levels of Internet use.

To a large extent, the technology to make access feasible is not available or is not affordable.

The type of disability a person has greatly influences overall access rates.

For example, the visually impaired are facing increasing difficulties using the Internet as web pages change from text to incorporate an increasing number of graphics (text is easily rendered in other media, graphics are not).

Technologies such as smart cards and Internet kiosks are rarely designed for people with disabilities, thereby excluding them.

Disabilities are also limiting training and job opportunities:

if the webmaster herself is a person with a disability, she will also find a lack of web authoring applications that she can utilise.

This is especially true for webmasters with mobility disabilities requiring voice, eye tracking or keyboard input/output features in web authoring applications."

Involving people with disabilities can reasonably overcome many of these barriers with proper web page design and in product development.

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THE FUTURE OF DIGITAL DIVIDES

Whether international and socio-economic divisions appear to be increasing, decreasing, or staying constant really depends on where and how hard one looks.

The use of information technologies are increasing across the board - in access rates, in content, in e-commerce, e-governance; almost regardless of ethnicity, age, gender, etc.

All appears to be well.

Unfortunately though, in most categories the relative gap between countries and groups is increasing.

A simple analogy in Singapore is the use of 'Broadband'.

The 'haves' are connected.

The 'have nots' struggle with a dial up connection of low quality.

With that I end my presentation and thank you for listening.