

The future of E-commerce in Africa?

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ESRF
TzDG
SWOPNet



Agenda

1. Introduction
2. The impact of the mobile phones
3. The good news
4. The bad news
5. Feasibility
6. Possible reasons for the performance
7. Part of the solution

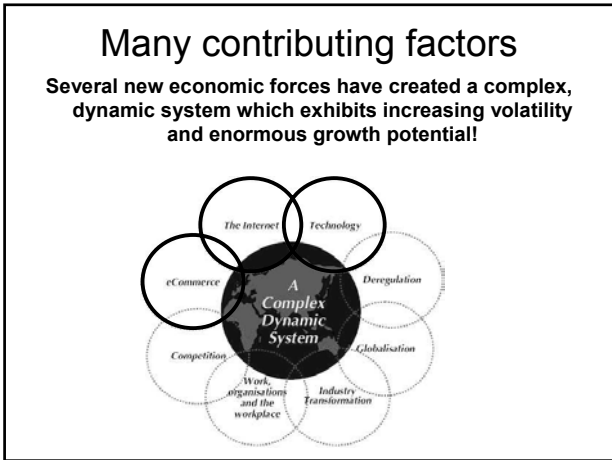
**We live in a world
where the face
of business is fast
changing ...**





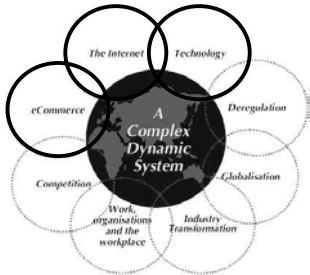
Running a successful business is like doing a jigsaw puzzle. The problem is that the pieces and the picture are both changing.

*Cyril J. Yansouni
Chairman and CEO
Read-Rite Corp.*




Many contributing factors

Several new economic forces have created a complex, dynamic system which exhibits increasing volatility and enormous growth potential!



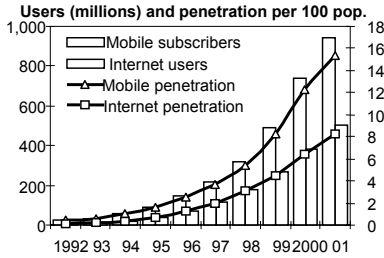
Technology is reshaping this economy and transforming businesses and consumers. This is about more than e-commerce, or e-mail, or e-trades, or e-files. It is about the “e” in economic opportunity.

William Daley



Impact of new technologies

- 1840's: telegraph
- 1870's: telephone
- 1890's: radio telegraphy or "wireless"
- 1920's: radio broadcasting
- 1950's: television broadcasting
- 1960's: geostationary satellite communications
- 1970's: computer communications
- 1980's: optical communications
- 1990's: Internet and mobile communications



In the last part of the 20th century, the almost simultaneous arrival of two major innovations – mobile phones and the Internet – not only changed the face of communications, but also gave impetus to dramatic economic growth.

Impact of technology

- Until very recently, only computer people had computers
- Started to change in the 1980's
- Paradigm shift in 1995 – the World Wide Web



Continued growth

- Despite meltdown, the Internet continues to grow at phenomenal rate – traffic is still doubling every 100 days – *Fortune magazine*
- More than 100-million new users come on line each year – *IDC*
- There are about 600-billion web pages in existence
- The Internet is responsible for 3-million jobs in the US today – more than the insurance industry – *Forrester Research*
- Nearly one billion people – about 15% of the earth's population is on the Internet – *IDC*

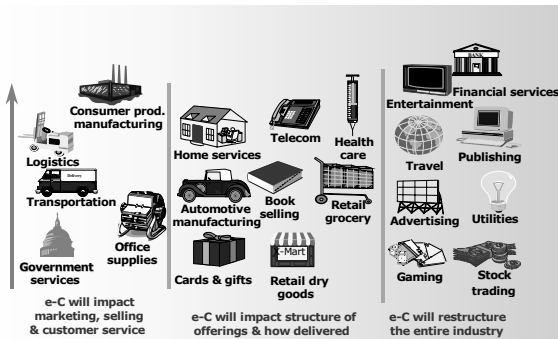
Some e-commerce figures

By 2010, online sales in USA alone will reach \$331 billion. eCommerce will account for 13% of total retail sales in 2010, up from 7% in 2004.

Between 2004 and 2010, online sales will grow at a 15% compound annual growth rate.

Source: Jupiter Research

The impact of e-commerce on industry restructuring

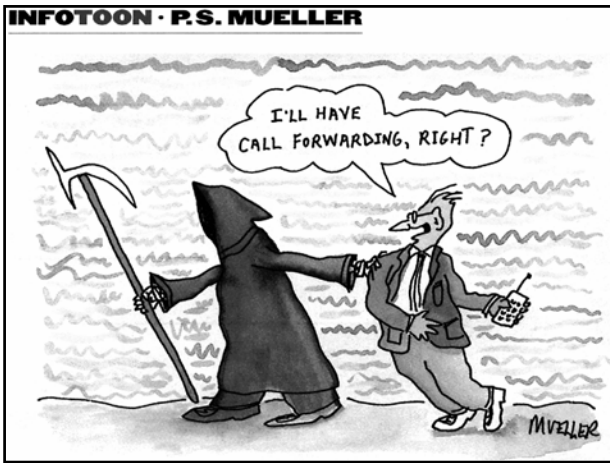


Source: Meta Group, 1998

The real race is only starting

The mobile explosion

- There will be over 600-million 3G users by 2010 - UMTS Forum report – May '01
- Mobile penetration in in the world is increasing exponentially.
- Millions of SMS messages per month
- Data growing rapidly.

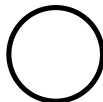


Mobile commerce

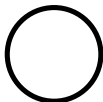
- Consumers use mobile phones or PDAs to carry out business where and when they want:
 - Electronic ticketing e.g. transport m-tickets
 - Online shopping
 - Payment for goods and services
 - Financial transactions
 - Banking
 - Theatre programmes, weather, news
- Smart card phones hold cash, tickets, loyalty points, and medical records on phone.



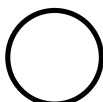
Services



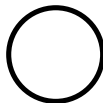
Banking



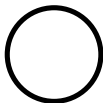
Trading



Shopping



Entertainment



Ticketing


Etc.

Mobile commerce - numbers

- 2003 - 1 billion mobile phone users in the world.
- SA – 25 m mobile phone users (compare to 3.6 m on the Internet).
- US – only 40% of teens have access to the Internet; 100% have mobile phones.
- High percentage of teenagers have cell phones



Mobile commerce - value

- The delivery of electronic commerce capabilities in the consumer's hand. 
- Putting a retail outlet in the customer's hand.
- M-commerce eliminates the limitations of distance, borders, and walls.

Mobile commerce advantage

Power to reach new customers – innovative marketing and unique value added services.

m-commerce (m-kom-ers), Inc.

Reasons for mobile commerce

- Cellphone is more personal than a PC (always with you, on and ready).
- Reachability: for the first time the consumer can be reached with tailor made information where ever he/she is.
- Convenience: more freedom and lifestyle flexibility.
- Localisation of services.
- Personalisation of services.



The future

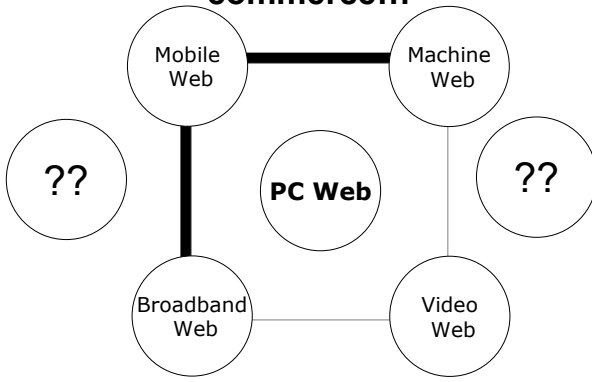
- Bluetooth, MMS, 3 G phones will over the next 2 years open up new opportunities for m-commerce. 4G?
- Third generation (3G/UMTS) phones with high quality mobile multimedia communication (voice, data, video).
- Companies will have to adapt to keep the loyalty of the customer.
- Continuous availability will be the key success factor in the ability to compete successfully.



The next generation



The extended Internet and e-commerce...



1. Just think how the networked era changed photography



2. How the network era changed the music industry



3. The network era and supply chains



4. The network era and healthcare

A Complete Process for Secure 24x7 Data Acquisition, Transmission, Analysis and Reporting

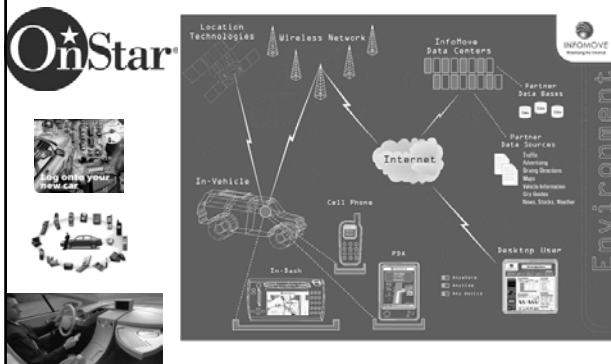
Sensors worn by the patient continuously monitor 30+ physiological signs and record the data in a small recorder.

Patient data is encrypted in the recorder and sent to the VeevaMetrics Data Center.

All the Data Center, patient data is decrypted, scanned for artifacts, analyzed, and posted in our database.

Data is displayed in easy-to-read graphical and numeric formats for clinical trials and physicians. Custom reports available.

5. The network era and the automotive industry



Network era at the intersection of three laws

Gilder's Law

Connection Speed

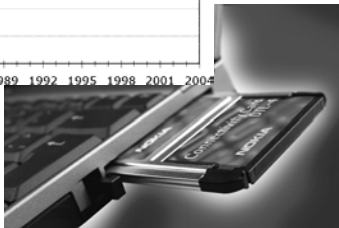
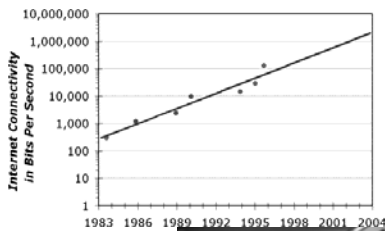
Metcalf's Law

Network Nodes

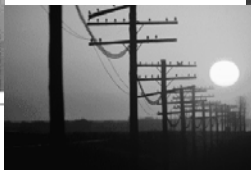
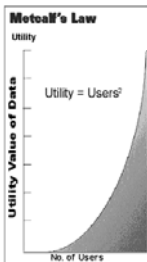
Moore's Law

Computing Power

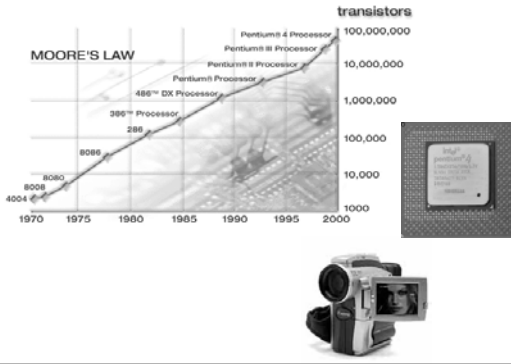
Gilder: Bandwidth Law



Metcalf: Value of networks



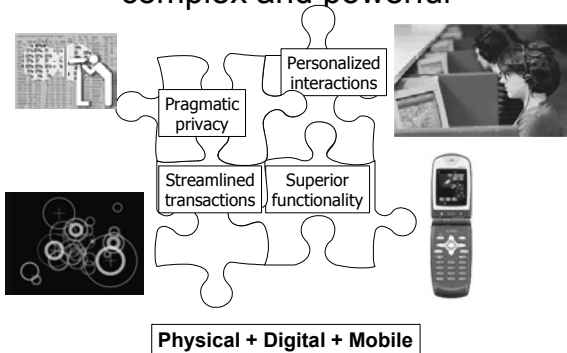
Moore: Computing power



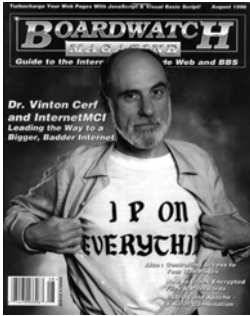
What do these laws mean for you?

	Product	Process	Service
Gilder: Bandwidth Law	Rich Interactions	Process Networks	Personalised Services
Metcalf: Networks	Connected Products	Networked Process Components	Universal Service Networks
Moore: Computing power	Digitized Products	Informed Business Processes	Remote Services

The network infrastructure is complex and powerful



What does 4 billion to the fourth power mean?



$(4,294,967,296)^4$

A whole new world...



Indeed, technology transformed the business world

- Information and communication technology changed the way we live and do business
- Numerous networks and interconnectivity
- The Internet
- Electronic commerce
 - Eradication of geographical boundaries
 - Overcoming time barriers
 - New business models
 - New revenue models
 - Contribution to wealth creation, especially via small and medium size companies

What about Africa?

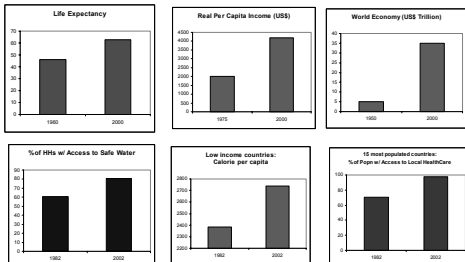
Constantly Changing World

- We live in a constantly changing world due to *scientific progress* and *technological innovation*
- Future is uncertain and unpredictable
- Final outcome depends on battle between two opposing forces
 - Those that threaten people's lives
 - Those that improve them

Great improvement...

“Progress in human development during the 20th century was dramatic and unprecedented.”

– 2004 Human Development Report



Great improvement...

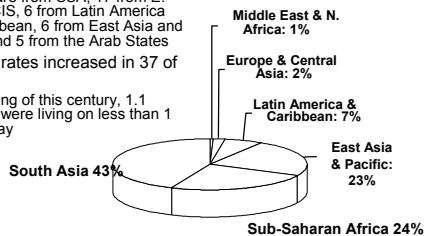
Science and Technology front:

- Greater efficiency
 - It takes 33% less energy to produce a unit of output in industrial economies than it did 30 years ago
- Revolution in information and communication technology
 - 13% of humanity connecting to the internet, and digital divide between North and the South narrowing from 40-to-1 in 1996 to 4-to-1 last year

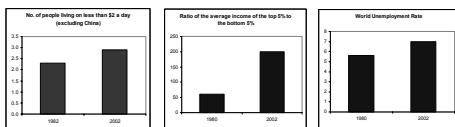
But there is some bad News

- Overall progress not equally shared by all the 6.4 billion people who populate the 194 countries/areas around the world.
- 54 countries are poorer now (lower real per capita income) than in 1990
 - Of these, 20 are from SSA, 17 from E. Europe and CIS, 6 from Latin America and the Caribbean, 6 from East Asia and the Pacific, and 5 from the Arab States
- Income poverty rates increased in 37 of 67 countries
 - At the beginning of this century, 1.1 billion people were living on less than 1 PPP US\$ a day

Where you will find the poor



But there is some bad News

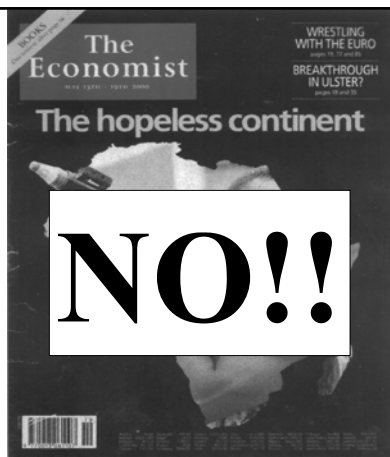


- In 19 countries more than 1 person in 4 is going hungry and the situation is failing to improve or getting worse.
- In 21 countries the hunger rate has increased; 831 million people are undernourished.
- In 14 countries, under-5 mortality rate increased in the 1990s.

But there is some bad News

- In 7 countries, almost one in four children will not see their fifth birthday
- 11 million children under age 5 are dying each year.
- Some 104 million primary age children are not in school, 60% of them are girls
- Developing country debt in 2002 was 74% more than it was 20 years earlier

How are we doing regarding e-commerce in Africa?



Time to think...

Is Africa perhaps in the slow lane?

Is e-commerce feasible in a developing country context?

Do we perhaps other priorities than e-commerce?

Can we afford not to take part in e-commerce?

No doubt about the importance...

“The Internet ... offers the best chance yet for developing countries to take their rightful place in the global economy. And so our mission must be to ensure access as widely as possible. If we do not, the gulf between the haves and the have-nots will be the gulf between the technology-rich and the technology-poor.”

Kofi Annan
Secretary General, United Nations Organization
Science, 19 February, 1999:1079

However,

According to the IMD World Competitiveness Report over the past few years African countries are mostly positioned in the last 20 positions.

Africa's readiness for the networked world is very low

Rank	Country	Score
1	United States	5.50
2	Singapore	5.40
3	Finland	5.23
4	Sweden	5.20
5	Denmark	5.19
6	Canada	5.07
7	Switzerland	5.06
8	Norway	5.03
9	Australia	4.98
10	Korea	4.98
11	Germany	4.95
12	Japan	4.90
13	Netherlands	4.79
14	Luxembourg	4.78
15	United Kingdom	4.68
16	Israel	4.64
17	Taiwan	4.62
18	Hong Kong SAR	4.61
19	France	4.60
20	Korea	4.60
21	Austria	4.58
22	Ireland	4.55
23	New Zealand	4.48
24	Holguen	4.43
25	Belgium	4.23
26	Malaysia	4.19
27	Malta	4.15
28	Italy	4.07
29	Spain	4.03
30	Thailand	3.99
31	Portugal	3.94
32	Chile	3.84
33	Czech Republic	3.80
34	Greece	3.76
35	Slovenia	3.74
36	Hungary	3.74
37	South Africa	3.72
38	Denmark	3.72
39	Spain	3.67

South Africa 3.72 37

Source: Dutta, S., Larvin, B. & Pava, F. 2004. *The Global Information Technology Report 2003-2004: Readiness for the Networked World*. Oxford University Press, New York.

Top 10 e-commerce countries

1998	Billion	2002	Billion
USA	37.4	USA	409.0
Japan	2.0	Germany	62.8
Germany	1.7	UK	47.6
UK	1.4	Japan	28.8
Canada	1.2	Canada	28.5
Australia	0.4	Canada	19.9
France	0.4	Italy	18.1
Italy	0.4	Netherlands	12.6
Netherlands	0.4	Sweden	8.7
Sweden	0.3	Spain	8.0

Where is Africa?

Source: International Data Corporation, 2003

Top ten nations: Critical 2003 variables

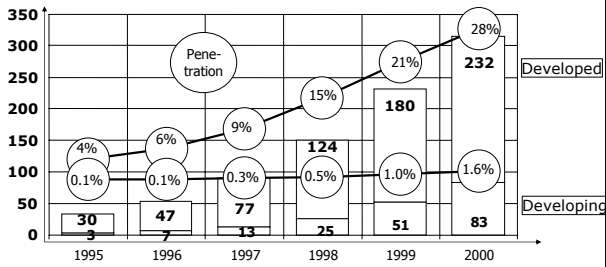
Home PCs	Cellular Phone	Ecommerce	Home Internet	Business Internet	Education Internet	PCs Installed
US	Finland	US	Canada	Australia	Singapore	US
Japan	Hong Kong	Switzerland	Sweden	Singapore	Sweden	Singapore
Canada	Korea	Norway	Singapore	US	Spain	Australia
Singapore	Switzerland	Sweden	Sweden	Sweden	Sweden	Sweden
UK	Japan	Japan	Japan	Japan	Japan	Denmark
Sweden	Norway	Norway	Norway	Norway	Norway	Norway
Australia	Israel	UK	UK	New Zealand	Germany	Switzerland
Israel	UK	Austria	Norway	Israel	Denmark	Canada
France	Australia	Canada	Belgium	Sweden	Netherlands	Netherlands
Hong Kong	France	Belgium	Austria	Switzerland	Belgium	Finland

Where is Africa?

Source: IDC, 2003

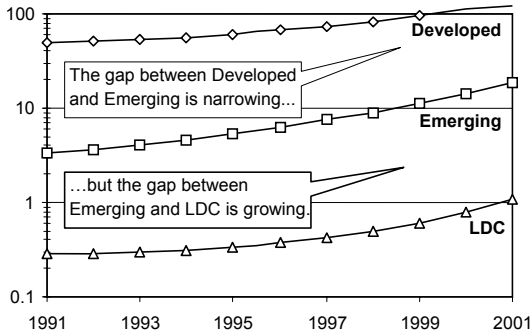
Internet connectivity

Number of Internet users, millions



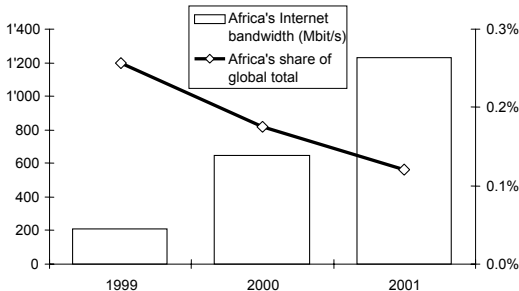
Source: ITU, 2001

Total teledensity (mobile + fixed)



Source: ITU World Telecommunication Development Report, 2002: Reinventing Telecoms

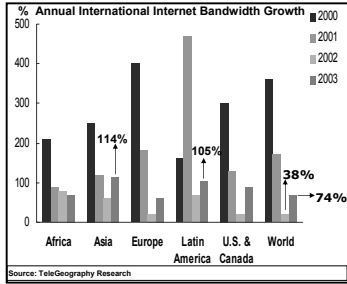
760 million Africans share less IP connectivity than 400 000 Luxemburgers



Source: ITU African Telecom Indicators, adapted from TeleGeography Inc. "Packet Geography, 2002".
Note: Figures are for mid-year.

Bandwidth

- Rapid evolution of Global Internet backbones in 2003
- Growth of international IP capacity reaccelerated
- Fast network deployments generate renewed growth



Bandwidth – a serious limitation



Adoption of E-Commerce

- 3 Main reasons for not buying on-line:
 - Concerns about security
 - Waiting for deliveries
 - Slow Internet response times - oversubscription



Source: Van der Merwe, J. 2001, An Investigation into the Adoption of Electronic Commerce by South African Consumers from a Social, Technological and Business Perspective. PhD thesis. University of Pretoria.

Internet users 2005

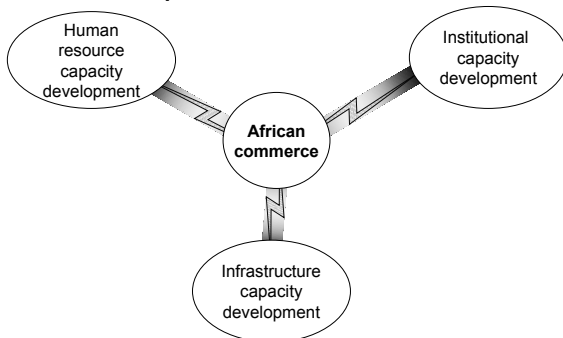
Entity	Number of users	%
World	957.8 million	100
Sub-Saharan Africa	23.8 million	2.5

- Africa is e-absent in the world
- 2.5% Internet access
 - 2% Teledensity
 - 2.7 % Internet penetration
 - But 14% of the global population

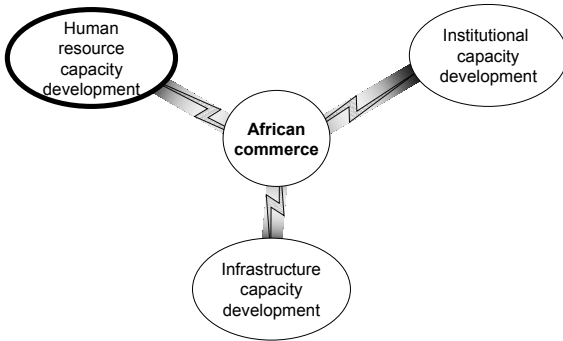
Source: Internet Usage Statistics for Africa
World Bank, 2005
Computer Industry Almanac, 2005

What are the possible reasons for Africa's performance?

Three important reasons hampering the adoption of e-commerce



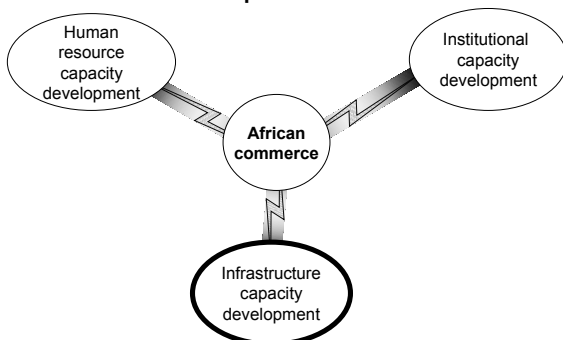
Three important reasons hampering the adoption of IT



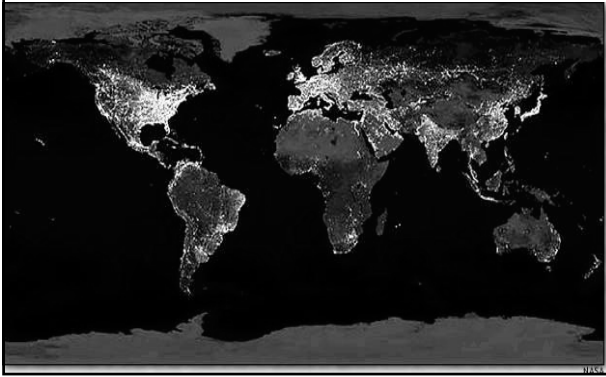
Human resource capacity

- Shortage of qualified information and telecommunication professional persons in Africa – especially with regard to the newer technologies.
- Brain drain in ICT is a reality.
- School, Technical University and University curricula are often not adapted to the changing technologies. The lag factor.
- Insufficient investment in ICT research by Government.

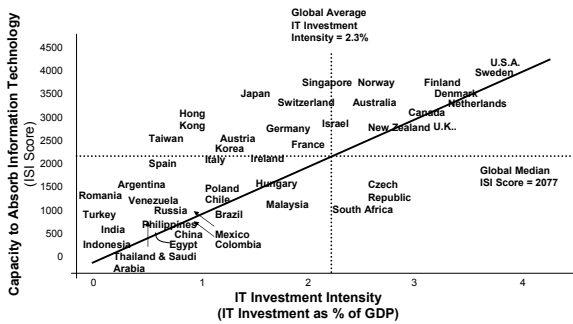
Three important reasons hampering the adoption of IT



E-commerce is related to development



Infrastructure capacity



Source: based on data from IDC/World Times Information Society Index, www.idc.com.

Infrastructure capacity

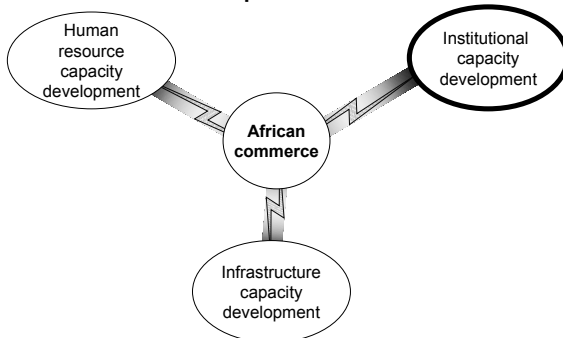
Region/ Country	GNI/capita 2001 (PPP \$)	Telephones/ 1000 people 2001	PCs/1000 people 2001
World	7370	172	87
High	26650	593	416
Upper middle	8500	208	77
Lower middle	4700	139	26
Low	210	30	6
SSA	1750	14	10

Source: World Bank, 2003

Infrastructure capacity

- The problem of the last mile
- Limited bandwidth
- Newest technology often not available - licensing
- Serious service problems with the deployment of new technology

Three important reasons hampering the adoption of IT



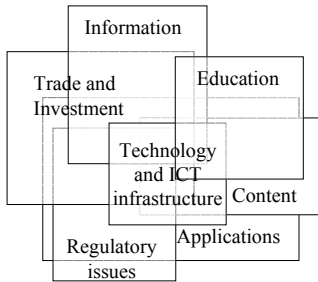
Institutional capacity

- The lack of privatisation, deregulation, liberalisation of and competition in the telecommunications industry restricts commerce and economic growth.
- Resultant high cost of services (telecommunications, bandwidth, Internet access)
- Limited business opportunities (service providers, value added services)

What is (part of) the solution?



Overlapping issues do not allow sequencing



Some success stories

The Case of Brazil

- In the case of Brazil, the country was one of the first developing countries to put in place in the late 1970's, policies aimed at promoting the development of its domestic ICT industry and private sector. Brazil began its pioneering approach to leveraging ICT for development in the 1980s, and by the end of the decade, a set of diversified IT corporations with significant presence in the local market had been built.
- The Brazilian ICT sector drew on a skilled population base, strong R&D networks, a relatively extensive telecommunications and communications infrastructure and a strong level of government commitment. These policies resulted in the building of a strong technological base that brought about a rapid growth in the ICT sector in the 1990's.

The Case of India

- India, like a number of other Asian countries, has embraced the 'ICT for accelerated development process' by putting in place a number of programmes and initiatives to drive its ICT private sector and industry. Due to the international recognition of India's software development industry, the industry grew from a mere US\$150 million in 1991 to a staggering US\$5.7 billion by 2000. India now targets a yearly export in software and services of \$50 billion by 2008.

The Case of China

- Another Asian country, aggressively embarking development of its ICT private sector to serve as an engine for the development of other sectors is China. The Chinese government has put in place a number of policies and programmes to attract FDI in the area of ICTs targeted at the development of the local ICT private sector and industry. A number of China's provinces like Shanghai are aggressively promoting the development of their private sector laying emphasis on the ICT sub-sector.

What we need to do...

- Consider tax breaks on IT for educational purposes
- Reconsider customs duties on information technology
- Lower communication costs (monopoly!!)
- Make international bandwidth available and affordable
- Create the necessary communications infrastructure
 - (teledensity, degree of digitisation, plans for network build-out, number of Internet host computers, number of personal computers)
- Simplify the regulatory environment
 - (policies regarding liberalisation, privatisation, competition, interconnection and pricing policies, Internet technology and service, access to information, Internet service provider licensing policies, universal service goals)
- Promote IT development
 - All areas: Education, healthcare, agriculture
 - Determine how best to build human capacity for technical expertise in the private sector and among developing country officials
 - Identify the technological options available to achieve Internet build-out, and prepare a technology-neutral guide to options for Internet build-out
- Promote access to information
- Government create the right environment

Alternative Futures

Future depends on which will dominate:

Forces which threaten peoples lives

vs.

Forces which provide opportunities for their improvement

Is e-commerce feasible in a developing country context?

- Certainly e-commerce is feasible
- But perhaps e-commerce is not the highest priority...
- The dilemma: Developing countries cannot fall behind in a global economy where competition is fierce and companies are forced to use e-commerce!
- New solutions are necessary

Promising approaches

- Open source software developments (to get around the cost of the Microsoft monopoly)
- India and Brazil making \$200 "Simputers"
- Cell phones/other alternative technology



Conclusion

Africa may not fall behind or disappear in the digital divide – we need e-commerce

We may end up here...



But....

We have one of the greatest resources!!!

Industrial age foresight

"The only irreplaceable capital an organisation possesses is the knowledge and ability of its people. The productivity of that capital depends on how effectively people share their competence with those who can use it."

Andrew Carnegie

Challenges

- Shortage of the technology worker
- Reaching out to children to be challenged
- Keeping the innovations coming
- Bringing the benefits of these technologies to inner city and rural communities
- Creating the enabling infrastructure

Teletoons

By Phil Frank and Joe Troise
baba@sjgate.com



What you will have to do in the future to survive...



Think outside the traditional box!!

Business on the Internet is bound only by the creativeness of our imagination – something we have in abundance in Africa



The Winds of Change ●

The pessimist complains about the wind;

the optimist expects it to change;

the realist adjusts the sails.

- William Arthur Ward

...Don't be afraid of others, because they are bigger than you.

The real size could be measured in the wisdom.





Thank you



Questions if you are not too tired!

E-mail: Lfourie@uwc.ac.za
