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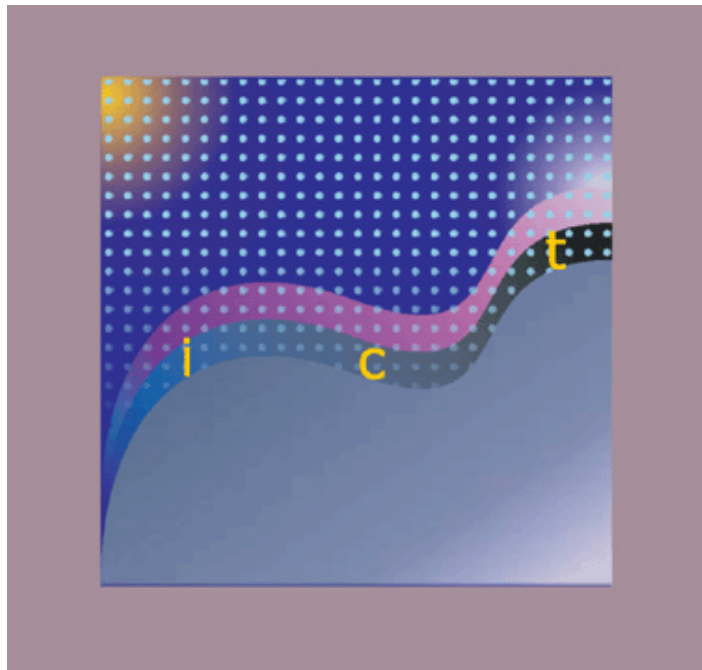
E-COMMERCE AND DEVELOPMENT REPORT 2002

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Foreword

E-commerce is one of the most visible examples of the way in which information and communication technologies (ICT) can contribute to economic growth. It helps countries improve trade efficiency and facilitates the integration of developing countries into the global economy. It allows businesses and entrepreneurs to become more competitive. And it provides jobs, thereby creating wealth.

But knowing that an instrument is powerful is not enough to ensure that it will be put to the best possible use. We need to understand how it works, and how and when it should be used, and find creative ways to put this knowledge into practice, disseminate it widely and maximize its power. Towards that end, the *E-Commerce and Development Report 2002* provides factual information and analysis covering a range of topics that will influence the expansion of e-commerce in developing countries. The Report also identifies the policy and business options available to developing countries, and makes practical proposals for maximizing the contribution of e-commerce to economic and social development.

If the world is serious about achieving the Millennium Development Goal of halving the number of people living in extreme poverty by the year 2015, ICT must figure prominently in the effort. Everyone – governments, civil society, private sector businesses – has a vital stake in fostering digital opportunity and putting ICT at the service of development. Yet despite commendable efforts and various initiatives, we are still very far from ensuring that the benefits of ICT are available to all. The digital divide is as wide as ever, with billions left unconnected. I hope this report contributes to the efforts of the international community to seize the extraordinary opportunities of the digital revolution.

Kofi A. Annan
Secretary-General of the United Nations

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List of abbreviations

A

ABA	American Bar Association
ABoC	Agricultural Bank of China
ABS	Australian Bureau of Statistics
ADR	Alternative Dispute Resolution
AFTLD	African Top Level Domains
AOL	America On Line
AP	accounts payable
APC	Association for Progressive Communications
APEC	Asian-Pacific Economic Cooperation
APTLD	Asia Pacific Top Level Domain Forum
AR	accounts receivable
ARPANet	Advanced Research Projects Agency Network
ASYCUDA	Automated System for Custom Data
ATM	automated teller machine

B

BIAC	Economic and Industrial Consultative Committee of OECD
BNDES	Brazilian Development Bank
BOC	Bank of China
BPM5	IMF 5th Balance of Payment Manual
BPO	Business process outsourcing
BRAC	Bangladesh Rural Advancement Committee
BSCH	Banco Santander Central HispanoAmericano
B2B	Business to Business
B2C	Business to Consumer

C

CA	Certificate Authority
CAPROSOFT	Cámara de Productores de Software
CBC	Construction Bank of China
CCIPT	China Council for the Promotion of International Trade
CCRTU	China Central Radio and Television University
ccTLDs	Country Code Top-Level Domains
CDMA	Code Division Multiple Access
CEF	Caixa Economica Federal
CENAT	Centro de Alta Tecnología
CENTR	Council of European National Top-Level Domain Registries
CFCC	China Financial Certificate Center

CFO	chief financial officer
CGE	Computable general equilibrium
CIECC	China International Electronic Commerce Center
CLS	continuous linked settlement
CMB	China Merchants Bank
CMU	Carnegie Mellon University
CNAP	Cisco Networking Academy Program
CNNIC	China Internet Network Information Center
COD	Cash on Delivery
COFACE	Compagnie française d'assurance pour le commerce extèrieur
CRS	Computer Reservation System
CSRC	China Security Regulatory Commission

D

D&B	Dun and Bradstreet
DMCA	Digital Millennium Copyright Act (ICT Information and Communication Technologies
DMO	destination management/marketing organization
DNS	Domain Name System
DP	digital products

E

EBOPS	Extended balance of payment services
EBPP	electronic bill payment and presentment
ebXML	Electronic Business using eXtensible Markup Language
ECE	United Nations Economic Commission for Europe
EDI	Electronic Data Interchange
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport
EIPP	electronic invoice payment and presentment
ERP	enterprise resource planning
EU	European Union

F

FAQ	frequently asked questions
FDI	foreign direct investment
FTAA	Free Trade Area of the Americas
FTC	Federal Trade Commission of the United States

G

GAC	ICANN Government Advisory Committee
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GBDe	Global Business Dialogue in Electronic Commerce
GDI	Gender Development Index

GDP	gross domestic product
GDS	global distribution system
GE	General Electric
GEF	Global Electronic Finance
GIS	Geographical information systems
GNP	gross national product
GPRS	General Packet Radio Service
GTAP	Global Trade Analysis Project
GTFNet	Global Trade Finance Network
gTLDs	Generic Top-Level Domains
G3	Third generation mobile communications technology, ITU specification
G8	Group of 8

H

HCOPIL	Hague Conference on Private International Law
HSBC	Hong Kong Shanghai Bank
HTML	hypertext mark-up language

I

IANA	Internet Assigned Numbers Authority
IBM	International Business Machines
ICANN	Internet Corporation for Assigned Names and Numbers
ICBC	Industrial and Commercial Bank of China
ICC	International Chamber of Commerce
ICP	Internet Content Provider
ICT	Information and Communications Technologies
IDB	Inter-American Development Bank
IDC	International Data Corporation
IDN	Internationalized Domain Name
IETF	Internet Engineering Task Force
IFC	International Finance Corporation
IGC	International Gate Way
IIPA	International Intellectual Property Alliance
ILPE	Internet Law and Policy Forum
IMF	International Monetary Fund
INNs	International Non-propietary Names
IP	Internet Protocol
IPO	Initial Public Offer
IPRs	Intellectual Property Rights
ISP	Internet Service Provider
ISTAT	Italian National Statistical Institute
IT	information technology
ITAA	Information Technology Association of America
ITU	International Telecommunication Union

K

KNSO   Korean National Statistical Office

L

LACTLD   Latin American & Caribbean Country Code Top Level Domain Organization
L/C   letter of credit
LDC   least developed country

M

MFN   most favoured nation
MII   Ministry of Information Industry
MLES   UNCITRAL Model Law on Electronic Signatures
MoE   Ministry of Education
MoFTEC   Ministry of Foreign Trade and Economic Cooperation
MPS   Ministry of Public Security
MULTIMOD   Multi-region econometric model

N

NASSCOM   National Association of Software and Service Companies
NATLD   North America Top Level Domain Organization
NGOs   Non-governmental organizations
NTO   national tourism office

O

ODR   Online Dispute Resolution
OECD   Organisation for Economic Co-operation and Development

P

PBoC   People's Bank of China
PKI   Public Key Infrastructure
POS   point of sale
PROCOMER   Promotora del Comercio Exterior de Costa Rica
P2P   Peer-to-peer

R

R&D   research and development
RCA   Revealed comparative advantage
RDPR   Restrictions Dispute Resolution Policy
RTGS   real –time gross settlement

S

SAR	special administrative region
SAT	State Administration of Taxation
SBEM	Softbank Emerging Markets
SLD	Second-Level Domain
SMS	Short Message Service
SME	small and medium size enterprise
STP	straight through processing
SWIFT	Society for World Interbank Financial Telecommunications

T

TCP/IP	transmission control protocol/Internet protocol
TLD	Top-Level Domain
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights

U

UCP	Uniform Customs and Practice for Documentary Credit
UDRP	Uniform Domain Name Dispute Resolution Policy
UN/CEFACT Transport of the	Centre for the Facilitation of Procedures and Practices for Administration, Commerce and United Nations Economic Commission for Europe
UNCITRAL	United Nations Commission on International Trade Law
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNU-INTECH	United Nations University Institute for New Technologies
URL	Uniform Resource Locator
USBOC	United Bureau of the Census

V

VAT	value-added tax
VMM	Virtual Microfinance Market
VoIP	Voice-over-Internet Protocol
VSAT	Very Small Aperture Terminal

W

WAP	wireless application protocol
WCT	Cooperation Treaty
WIPO	World Intellectual Property Organisation http://www.wipo.org
WMS	World market share
WSIS	World Summit on the Information Society
WTDR	World Telecommunication Development Report
WTO	World Trade Organisation http://www.wto.org

X

XML	Extensible mark-up language

EXECUTIVE SUMMARY

1. E-commerce around the world: A brief Status Report

In contrast with the weak performance of several key developed and developing economies in recent months and the difficulties experienced by the information technology (IT) sector, Internet use and particularly electronic commerce have continued to grow at a fast pace since the publication of the *E-Commerce and Development Report 2001.*

The number of Internet users worldwide is expected to reach 655 million by the end of 2002. Developing countries accounted for almost one third of new Internet users worldwide in 2001. In most of them, however, Internet penetration rates remain very low. As for e-commerce, the following table presents three estimates of global online sales. In the most optimistic forecast, e-commerce would represent about 18 per cent of worldwide business-to-business and retail transactions in 2006.

Worldwide E-Commerce: some Estimates and Forecasts (Billions $)

Source	2000	2001	2002	2003	2004	2005	2006
Forrester			2,293.50	3,878.80	6,201.10	9,240.60	12,837.30
IDC	354.90	615.30				4,600.00	
Emarketer (B2B only)	278.19	474.32	823.48	1,408.57	2,367.47		

Regional perspectives

Africa

Internet connectivity has improved in Africa. The number of dial-up subscribers grew by 30 per cent in 2001 and now stands at about 1.3 million. Incoming Internet traffic represents 1 gigabyte per second, while outgoing traffic is around 800 megabytes per second. However, only 1 in 118 Africans has Internet access, and only 1 in 440 has access if the five countries with the most users are excluded from the calculation. Cost remains an extremely high barrier. Business-to-business (B2B) outside South Africa remains almost negligible. However, B2B opportunities have been identified in the online and offline services sectors. In the business-to-consumer (B2C) sector, handicrafts and products and services targeting Africans outside their home countries seem to dominate.

Latin America

E-commerce is highly concentrated in four relatively developed Internet markets (Argentina, Brazil, Chile and Mexico). Overall, between 50 and 70 per cent of Latin American enterprises in the formal sector are estimated to have access to the Internet. The Internet is widely used for business contacts and information-gathering, but only a minority of enterprises carry out online transactions. Large transnational corporations, notably in the automotive sector, are playing a key role in the development of online B2B transactions, especially in Brazil and Mexico. Banking is another sector in which B2C providers in the region, particularly in Brazil, have developed a competitive edge. Brazil has also made significant progress in business-related e-government applications.

Asia and the Pacific

It is in this region that e-commerce is spreading most quickly among developing countries. The region's enterprises, particularly in manufacturing, are exposed to pressure from customers in developed countries to adopt e-business methods and are investing to be able to do so. China's population of Internet users is already the world's third largest. The transformation of this great potential into an actual e-commerce market may not happen at the same pace. Logistical difficulties such as insufficient transport networks represent a serious hurdle to B2B development, as they make it difficult for companies to realize the potential gains of increased efficiency in their supply chains.

Countries with economies in transition

Fast growth in both B2B and B2C e-commerce is expected in the Central and Eastern European countries with economies in transition. However, e-commerce in transition economies is not likely to reach 1 per cent of global e-commerce before 2005. While the more technologically advanced nations in Central Europe and the Baltic have relatively high rates of digital literacy and are laying the foundations for the development of e-commerce activity, others (particularly in the Balkans, the Caucasus and Central Asia) remain far behind.

North America and Western Europe

In the most advanced markets e-commerce growth seems to have been little affected by the prevailing poor economic conditions. B2B e-commerce in 2001 constituted at most 2 per cent of all B2B transactions in the United States and much less in Europe, but the share of online transactions in total B2B sales is growing quickly on both sides of the Atlantic, and it is estimated that in the next two to four years it will approach 20 per cent, representing a massive shift of business operations towards the online environment. Enterprises will focus on e-business tools for procurement, supply chain operations, business process out-

sourcing and, to a certain extent, e-marketplaces. In the case of B2C e-commerce, persistent growth during the economic slowdown could indicate that, rather than being a maturing activity, online retailing is still in a growth phase even in those economies where it took off earlier. Although even in the United States the share of B2C e-commerce in total retail sales remains modest (below 3 per cent), it has progressed significantly more in a number of sectors, in some of which online sales already represent up to 18 per cent of total sales. Some of these sectors, such as software, travel and tourism services and music, could represent good opportunities for developing-country suppliers.

E-commerce and development: the international dialogue

The effects of Internet-induced changes in the global economy and their implications for developing countries will depend to a significant extent on factors that policy-makers, business players and other stakeholders can influence. Policies must be designed, articulated in coherent e-strategies and implemented in partnership with all the relevant players to ensure that the new opportunities for creating, transforming, applying and exchange information and value are used to improve the productivity of developing economies and their enterprises. The process of designing the strategies that can make e-commerce a force for development must necessarily include an international component that supports national efforts by ensuring that the developmental perspective is present in a meaningful way in the multiple international discussions of the Internet, information and communications technology (ICT) and the organization of their economic applications. A close relationship between national e-commerce strategies and international cooperation would be greatly facilitated by the emergence of a common understanding of the fundamental elements of e-commerce strategies for development, specially if, as seems desirable, ICT is to be mainstreamed into official development aid programmes.

2.   The Domain Name System and Issues for Developing Countries

Domain names have evolved very rapidly into a common feature used to identify a website's location while at the same time expressing the name, brand or other identifying features of the person, business or organization using the domain name. As the use of information and communications technology (ICT) and

e-commerce spreads in developing countries, domain names are expected to become important for commercial and non-commercial uses in these countries.

The development of a national domain name system (DNS) infrastructure is an important means of facili-

tating the online exchange of information in developing countries and thus creating a valuable resource for communication, education and business. At the same time, however, domain names and the DNS present a complex array of commercial, technical, policy and legal questions which highlight many of the cross-border issues presented by the Internet and e-commerce. Developing countries need to understand these issues and formulate responses that are appropriate for the country's online community, satisfying relevant legal, cultural, economic, language and other dimensions.

Policy decisions are required in relation to developing countries' national country code top-level domains (ccTLDs), which foster not only ease of registration of domain names but also overall confidence in the ccTLD space. There is no single model for structuring a ccTLD that would meet the needs of all countries or territories. In developing countries, ccTLD administrators can develop appropriate policies to meet the needs of their community, with the overall goal of promoting access to and use of the Internet. In particular, authorities in developing countries should be aware of the architecture and functioning of the DNS so that they can establish a reliable DNS environment to ensure that predictable results are achieved when a user enters a domain name. It is important that the overall structure of the DNS market within a country provide a competitive environment, at least at the registrar level. One key decision is whether the ccTLD should be structured more openly so that anyone, even non-residents, can register, or whether to reserve the ccTLD exclusively for local residents and companies. CcTLD administrators in developing countries can enhance domain name registration practices by (i) ensuring that standard agreements exist for domain name registrants setting out their rights and obligations; (ii) ensuring equal treatment of all eligible registrants requesting domain names; (iii) making the policies and procedures of the ccTLD available on the Internet for public inspection; (iv) establishing a clear policy for maintaining registrants contact information, and for protecting their privacy; and (v) establishing a dispute resolution policy.

Increasing amounts of information are becoming available to developing country experts to assist in formulating an appropriate approach for management of the ccTLD. Developing-country ccTLD managers should become involved in the relevant forums for exchanging information about and participating in the DNS; information about ccTLD organizations is provided in this chapter.

The Internet Corporation for Assigned Names and Numbers (ICANN) is a central player in the management of the DNS, with its governance and coordinating functions extending to many areas of importance. While it has achieved a number of important milestones, it has not been able to avoid continuing questions concerning its structure, its basis for legitimacy, its sources of funding and its international representativeness. Unlike a treaty-based organization, ICANN was established as a private-sector organization with responsibility for coordinating the DNS in a number of key areas. ICANN has been funded through the registries and registrars participating in the global DNS and has introduced the concept of "accreditation" for companies seeking to offer registry and/or registrar services for the generic top-level domains (gTLDs) in the DNS. One issue of special concern to developing countries is that most ccTLD administrators have yet to sign any formalized agreement with ICANN. Such an agreement would define rights and responsibilities, including funding commitments.

A reform process is underway for ICANN. For developing countries, the reform of ICANN is an important issue because it gives these countries a renewed opportunity to engage in the ICANN process, either directly or through their regional ccTLD organizations so that their perspectives, requirements and international diversity are duly taken into account.

Domain names have generated a number of legal issues, key among them the tension arising from conflict between domain names and the system for protecting trademark rights. Relying on trademark law, a company can develop goodwill in connection with its brand and expect that the brand will be protected from infringement, while consumers will similarly be protected from deceptive practices. Domain names were launched into the commercial space in a manner that largely disregarded this aspect of the intellectual property system. The automatic process for registering a domain - first used for the gTLDs but now commonly applied also in many ccTLDs - created conditions that permitted a flood of registrations of popular names. A positive consequence of this approach is that it has presented a low entry barrier for the many new entrants into e-commerce, including businesses in developing countries. At the same time, however, the disconnect between the DNS and the trademark system has given rise to practices such as the bad-faith registration by third parties of trademarks as domain names in order to take unfair advantage of the marks.

After a somewhat painful transition period in which trademark owners and domain name registrants, and

various other stakeholders, have battled to draw the lines that should delimit fair as opposed to abusive practice, the situation is much improved today. The avoidance of such disputes is an objective being pursued, albeit not without problems, in the implementation of the new gTLDs (e.g. .biz and .info). More significantly, the implementation and acceptance of an international dispute resolution system, the Uniform Domain Name Dispute Resolution Policy (UDRP), which applies to registrations in the gTLDs and in some ccTLDs, has allayed concerns. The UDRP was adopted by ICANN in late 1999, and since then more than 6,000 cases have been filed under the procedure.

The UDRP is administered by multiple dispute-resolution service providers applying a uniform procedure. This uniformity works to enhance a general understanding of the UDRP, which is of benefit to all parties, be they in developed or developing countries. The UDRP sets out bright-line criteria for determining whether a domain name registration should be considered abusive, and the scope of the remedies relates only to the status of the domain name registration. The cost of bringing a claim under the UDRP is reasonable even for parties in developing countries. The complainant is normally required to cover the costs of the procedure, unless the respondent has demanded a three-member panel, in which case the parties share the extra costs of the panel.

The UDRP has met with widespread international acceptance. Complainants entrusting cases to the procedure include businesses from every sector of commerce, including many smaller enterprises and individuals from various countries, and the parties filing or defending cases have come from more than 70 countries on every continent. At the same time, a number of criticisms have been lodged against the UDRP, including that it promotes forum shopping among the dispute-resolution service providers and that the decisions themselves are inconsistent and sometimes poorly reasoned. These criticisms have engendered responses in the ongoing discussions concerning the UDRP, including the suggestion that an appeals mechanism be established. It is important that developing countries become involved in the current UDRP debate and in the discussions taking place as to whether protection should be provided in the DNS for categories of identifiers other than trademarks, such as personal names, geographical indications or trade names, to name a few.

3. Gender, E-commerce and Development

While there is little doubt about the role of information and communication technologies (ICT) and e-commerce in driving the global economy and reshaping existing business structures, many are concerned about issues relating to the "digital divide" and the risk of excluding a large part of the population, especially in developing countries. In this context, attention is increasingly being paid to the question of whether women are benefiting as much as men from the new technologies, or whether the digital revolution reinforces existing gender inequalities in the job market and other parts of the economy.

have used the Internet to expand their customer base in foreign markets while at the same time being able to combine family responsibilities with lucrative work. However, in spite of the publicity given to e-retailing, its scope and spread in the poorer parts of the world have remained small, and especially women working in microenterprises and the informal sector are far from being in a position to access and make use of the new technologies. Moreover, B2C e-commerce is small compared to business-to-business (B2B) e-commerce and thus only benefits a small number of women.

Enhancing business opportunities for women entrepreneurs

ICT and e-commerce are attractive to women entrepreneurs (who in many developing countries account for the majority of small and medium-size enterprise owners), allowing them to save time and money while trying to reach out to new clients in domestic and foreign markets. Success stories in business-to-consumer (B2C) retailing or e-retailing are heard from all developing-country regions, demonstrating how women

Creating new employment in IT-related services

New job opportunities created by ICT through outsourcing in the services sector look promising for women, who form a significant share of the workforce in the IT-enabled industries in developing countries, notably in Asia, but increasingly also in Africa and Central and Latin America, where new IT-related services are being created. These women are engaged in activities such as data processing and storing, tran-

scription services, responding to customer call or claims processing. Some of these activities are carried out through teleworking, from a distant site such as a community center or from home. Home-based teleworking offers women the opportunity to earn an income while taking care of family responsibilities. On the other hand, it hampers their career prospects and therefore seems to be attractive to only a limited number of women, such as those in childbearing age wishing to remain economically active.

Identifying the barriers

Women often face greater barriers than men in getting education and training that can equip them with computer literacy, foreign language proficiency and business skills. In the developing parts of the world, parents tend to give priority to the education of male rather than female children. Women also often find it more difficult to engage in new forms of self-employment created by ICT, such as running telekiosks or cyber-cafes if they do not have the same access as men to family property or institutional financing. Women make up the majority of the rural poor in the developing countries, and in the countryside access to ICT infrastructure is less available than in urban areas. Given their increased responsibilities at home, they have less time to access the technologies outside their homes or to enhance their command of the IT, language and other skills required by the information economy. Few women work in the higher-skilled seg-

ments of the IT-enabled industry, and even those in lower-skilled areas are often hard to retain once they enter childbearing age and social and cultural norms prompt them to leave their jobs and attend to the young and elderly.

Mainstreaming gender in ICT policy-making

Policy-makers will have to play a key role in creating an environment favourable to the participation of women in the digital economy. Education is the most important policy intervention for improving the ability of girls and women in developing countries to participate in the information society. Apart from ensuring equal access for girls and boys to primary and secondary schooling, policies should promote women's access to business and technical education, especially at tertiary levels. Other key policy interventions should focus on providing women with access to Internet infrastructure and technologies, financial capital and e-business and IT-enabled employment opportunities. Improving women's access to Internet technologies requires extensive infrastructure building to bring basic telecommunications in rural and peri-urban areas, which are currently underserved in many developing countries. This should include common facilities such as telecentres and telephone shops that offer public Internet services and are located in venues women frequent, such as markets, places of workship, health clinics, schools and post offices.

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4.   M-Commerce

M-commerce is often defined as the buying and selling of goods and services using wireless handheld devices such as mobile telephones or personal data assistants (PDAs).

In the last four years, growth in the number of mobile telephone users worldwide has exceeded fixed lines, expanding from 50 million to almost one billion in 2002. This fast growth stems from the cost advantage of mobile infrastructure over fixed-line installation and from the fact that mobile network consumers can simply buy a handset and a prepaid card and start using it as soon as the first base stations are in place, without having to open a post-paid account.

The introduction of wireless communications has also brought wireless data services, essential to conducting m-commerce, to many developing countries. If the convergence of mobile and fixed Internet and infor-

mation and communication technologies continues, first access to the Internet for a significant part of the world will be achieved using mobile handsets and networks. Wireless technologies have made inroads even in relatively low-income areas, where prepaid cards allow access to people who cannot have a prepaid subscription because of billing or creditworthiness problems. Developing Asia is the leader in this area with Latin America showing slower adoption of wireless technology amid predictions for strong acceleration in the coming years. Africa has more than 20 million mobile device users, and by the end of 2001, twenty-eight African nations had more mobile than fixed subscribers. In many least developed countries, more mobile users have been added during the last few years than fixed lines during the entire history of fixed lines' operations.

M-commerce applications are already seeing everyday use. Worldwide m-commerce revenues are forecast to totally nearly $50 billion in 2002. Western Europe and North America should lead in the next three years. However, sales in the Asia-Pacific region and the rest of the world are expected to rise significantly to almost 40 per cent of the global $225 billion in m-commerce revenues forecast for 2005. Overall, business-to-consumer (B2C) transactions will be far more numerous than business-to-business (B2B) ones in m-commerce.

The main areas of m-commerce use are in text messaging or SMS (short messaging service), micro-payments, financial services, logistics, information services and wireless customer relationship management. Text messaging has been by far the most successful m-commerce application in developing countries, where rates of low fixed-line connectivity and Internet access have made it an e-mail surrogate. Operators in China and other Asian developing countries are gearing up for m-commerce applications for financial services in particular. However, difficulties in making electronic payments and concerns over the security and privacy of transactions are limiting the conduct of m-commerce, which may have to await third-generation wireless technologies and fully Internet-enabled handsets.

A number of government actions such as liberalizing the telecommunications market, licensing new mobile operators or creating an independent regulatory body would help establish a fair and competitive market for m-commerce. National governments should promote the adoption of authentication, security and data privacy policies and regulations. Finally, improving connections to the Internet backbone remains vital if m-commerce is to fully realize its promise of connectivity for all.

5. The IT industry, e-business and development

The information technology (IT) industry is one of the world's largest industries and accounts for 22 per cent of developing countries' exports. The UNCTAD secretariat undertook a survey of the most important IT companies in order to explore the role that foreign investment in the IT industry can play in facilitating the adoption of e-business by the local business sector in developing countries and more generally the potential contribution of the IT industry to economic growth.

The 35 respondent companies had a cumulative turnover of $413 billion. While this number represents half of worldwide IT production, it includes revenue from sources other than IT, because many of the companies are in different sectors and do not report or disclose their turnover from IT products separately.

The survey showed that IT companies are comparatively heavy users of e-commerce. Many of the subsidiaries of the IT companies in the developing countries are also using e-mail and have a website, but comparatively few engage in more complex e-business operations such as offering online catalogues, receiving online orders and handling online payments. The great majority of respondents reported that e-commerce had facilitated the set-up and operation of developing countries' ventures. IT investment from multinationals might make an important contribution to increasing e-commerce in these countries, boosting data traffic on the Internet and hence potentially bringing about cost reductions in telecommunication services.

IT investment in developing countries has also appeared to have positive effects on the local productive sector, which is significantly involved in the production process of the multinationals. The companies also reportedly had a focus on increasing the competences of their local workforce.

These positive findings have to be weighed against the fact that the IT multinationals' investment in developing countries is still heavily concentrated in South Asian and South-East Asian countries; even more so than investment from industries which are more dependent on the availability of natural resources. IT investment for research and development – which offers the best opportunities for transfer of technology – is even more heavily concentrated in these regions.

On the other hand, a local IT industry can also facilitate the adoption of an e-business culture by the local business community. For example, when the business sector starts adopting new information and communication technologies in its operations, it relies heavily on local or locally available IT expertise in order to fully realize all the efficiency gains that the Internet makes possible at the level of a single firm as well as at the level of the industry and of the country's production system as a whole.

The localization of existing software and the creation of open-source software for the benefit of the local business sector, government and civil organizations can also constitute an initial entry strategy for software companies from developing countries, which can then build up export capacity targeted at regional markets. These business opportunities are at the borderline between IT production and IT use, and thus they simultaneously provide new markets for local IT companies and enhance the local business sector's capacity to engage in e-commerce.

To ensure that these opportunities are fully exploited, governments can play an active role by creating a nurturing environment for e-business through the adop-tion of a national e-strategy developed with the partic-ipation of all relevant stakeholders. Such a strategy should take into account issues such as telecommuni-cations and access, the legal framework for e-com-merce, awareness raising, training and community involvement. An important part of the national e-strategy might be to ensure that local industry can make choose the operating system and applications that best suit its needs, with a full understanding of the issues at stake. Awareness campaigns, training pro-grams and the adaptation of university curricula may be needed to ensure that the local IT industry as well as the local business sector can take full advantage of the opportunities offered by open-source software.

6. E-Finance for Development: Global Trends, National Experiences and SMEs

E-finance resources, know-how and operational expe-rience are concentrated within a limited number of large number of large companies headquartered in OECD countries. They provide key elements of infra-structre, networks, systems and applications. They operate globally in terms of sourcing and selling their products and services, and the emerging economies are the natural extension of their outreach. At the same time, a number of financial institutions in devel-oping countries are trying to find their own niche and have launched their own e-finance initiatives in areas such as banking, payments and trade finance, some with a specific focus on small and medium-size enter-prises (SMEs).

As an information-intensive industry, finance has seen its business processes profoundly changed by the Internet. In developed countries, online banking, for instance, already represents between 5 and 10 per cent of total retail banking transactions. An effect of these changes has been the emergence of global online banking and payments platforms. So far, those plat-forms have tended to focus mainly on the needs of global corporations. For developing countries it is essential that thepayment and settlement services for their SMEs, operated by banks in developing coun-tries, be integrated into these global systems. Careful consideration should be given to the issue of interop-erability between global and local e-finance platforms.

Global trade trade and information platforms present a somewhat different challenge. While they explicitly cover developing countries and SMEs, their full bene-fits will not materialize unless both the quantity and the quality of information about SMEs are enhanced. Thanks to the Internet, this can be done at a relatively low cost, but it remains a complex task. Hence the need for closer cooperation with and between existing credit information companies in developing countries as well as the creation of such services in countries where they do not yet exist.

While possibilities for technological leapfrogging exist in e-finance, it is not certain that they are widespread. E-finance offers opportunities for quicker deploy-ment and better coverage than the traditional approaches to financial systems development; at the same time, it also increases the complexity of the underlying systems and applications. For developing and transition countries, the challenge ahead will be to build up capacities, particularly local expertise to man-age these complex systems.

Lessons from global e-finance experiences

Four basic misconceptions were frequently present in the business strategies employed in the earlier stages of the development of e-finance. First, while the Internet can reduce financial transaction costs, these gains have often been exaggerated or misinterpreted. Second, while it is cheap and quick to create a basic website, designing and implementing a fully functional, indus-trial-strength application capable of securely accom-modating a large number of complex transactions and huge variations in volume is a complex and protracted undertaking. Third, rather than eliminating possibili-ties for intermediation, the abundance of information, opportunities and relationships created by the Internet

increases the need for new intermediation structures and mechanisms. Fourth, contrary to the view that e-business would revolutionize the financial industry and destroy the incumbent "dinosaurs", the evolution of e-finance clearly demonstrates the advantages of established financial services suppliers, as long as they have the capacity to evolve and to embrace the new approaches and technologies.

E-finance challenges for SMEs

Numerous SME-oriented e-finance initiatives by banks and other financial service providers are under way in developing countries. Some positive signs are already visible, including a high level of acceptance of technology by customers and financial institutions; the presence of many innovative approaches; and initial tangible results in terms of market access and revenue generation. However, most projects have not yet been deployed on a large scale. It is therefore too early to determine which ones are likely to be most successful and provide "best-practice" benchmarks to be replicated in other countries. Nevertheless, experiences to date allow the identification of the following key challenges:

Adapting global technology to local requirements: While Internet technologies are global and standardized, their applications can and must be adapted to local circumstances. Distinctions between proximity and remoteness remain highly pertinent, even if the distance becomes virtual rather than geographical. The need to localize financial solutions is even stronger in e-finance for SMEs, which for the most part operate within a limited geographical area. Furthermore, their characteristics, size, financial structure and sectoral mix can vary considerably even within the same country or region.

Strengthening public support: Most e-finance developments have taken place through the interplay of competitive market forces, with limited public-sector intervention. In the case of e-finance for SMEs, public-sector intervention is more frequent. The majority of developing-country SME success stories in relation to e-finance were largely due to initial public-sector support which was flexible and proactive and relied on co-operation with the private sector.

Creating adequate regulatory and institutional frameworks: Developing countries need to take a proactive role in developing a robust, flexible regulatory framework for e-commerce and e-finance. It is equally important to ensure effective coordination of government agencies, industry associations and other facilitators. E-finance and e-commerce will succeed only if they create a stable physical and virtual infrastructure of trust, shared by all parties concerned, including public authorities, local and foreign entrepreneurs, financial services providers and customers and, last but not least, SMEs.

Mainstreaming SMEs towards e-finance: Improved tax regimes and simplified regulations as well as other support measures will permit SMEs to move into the formal economy. This will include comprehensive reporting on their assets and liabilities and hence allow them to be listed in Internet-based credit information databases. SMEs will also be encouraged to adopt online banking and payments as part of their everyday business practices, while as trusted clients they may start receiving financing for and eventually investment in their online trade activities. This is true not only for the overwhelming majority of SMEs in developing countries but also for SMEs in developed countries.

7.   E-Commerce and the Publishing Industry

Publishing is one of the most important channels for disseminating knowledge. Consequently, improvements or expansions in publishing lead to further creation and dissemination of knowledge and in turn to increased economic and social development. Publishing is also a business activity that creates income and employment for publishers, publishing distribution channels and libraries in many countries.

Publishing is a large industry covering a wide range of products such as books, newspapers and periodicals. Available data indicate, for example, that world trade in printed matter and literature totalled around $26 billion in 1998. However, this figure does not include all publications actually produced and circulated around the world. Publishing is currently a fast-growing industry and is largely concentrated around a few large, global publishing houses, all of which are located in developed countries, though small-scale publishing enterprises are widespread around the world.

E-publishing comprises technology and business models that involve the production, maintenance, archiving and distribution of documents (books, newspapers, journals, etc.) in electronic form and/or

by computer. E-publishing uses technology that provides new publishing opportunities and can be used by individuals and small enterprises. It allows publications to reach a global readership at minimal cost. The result is to enable enterprises in developing countries to compete with established publishers, although initially they may need to rely on niche markets, especially at the national and regional levels. Also, e-publishing allows more individuals to get their works published than is true of print publishing.

An examination of electronically published newspapers, scholarly journals and books shows that they share many features such as delivery format, capabilities and pricing models. Publishers generally offer parallel print and electronic versions of the same publications, although some publish electronic-only versions as well. While parallel or dual publishing has some advantages, it tends to be very expensive and presents publishers with a dilemma, since electronic-only publishing may not necessarily be a viable business model.

There are a variety of pricing models for e-publications, especially for journals and newspapers, including providing a free electronic version for readers, providing the electronic version free to print subscribers, selling the electronic version to print subscribers for an extra charge, selling single articles, and so on. Journal publishers also use site licenses.

While e-publications are generally cheaper to distribute than print publications, when other fixed costs and development costs are taken into account, e-publishing may be as costly as or even more costly than print publishing, at least in the short run.

Because of low levels of Internet and computer connectivity and also low levels of print publishing, developing countries have lagged behind developed ones in publishing and using e-publications. Recognition of the value of e-publishing in developing countries has led to a variety of national and international initiatives aimed at promoting e-publishing and access to e-publications in developing countries. Some of the initiatives are similar to the marketing strategies used by publishers in developed countries. Publishers and users of publications in developing countries may find some of the initiatives to be useful sources of support and opportunities for co-operation when formulating their own e-publishing strategies.

The economic importance of intellectual property rights, including copyrights, coupled with the widespread development of digital technologies, has encouraged national, regional and international authorities to adapt their legislation to the digital age.

A number of countries have enacted national legislation and ratified international treaties to secure copyright protection. However, bringing national laws on copyright into line with the WTO Agreements and WIPO Internet Treaties and providing effective enforcement of these laws has proved difficult, in particular for developing countries. Due to the complexity of intellectual property laws and their enforcement, developing countries still lag behind in this respect and need further assistance in order to comply with their multilateral commitments.

A wide array of strategies are available to the various stakeholders. Publishers can choose between training their own staff members to can handle the new technology and contracting out the work. An other important issue is whether to publish online only or adopt the "parallel" model of print publishing combined with electronic publishing. Choosing the appropriate mix of online and offline distribution channels can influence earnings. The pricing models used should reflect the nature of the publication - audience size and profile, its subject matter and its frequency of publication.

Institutional users may need to know how to negotiate licenses with publishers and create and/or join buying consortia. Rationalizing purchases by mixing e-publications and printed materials, as well as choosing between overlapping e-publications (e.g. e-journals and e-books with the same content) can lead to substantial savings. Once content is acquired, it needs to be circulated. Given the existing e-book technology and the cost of related hardware, libraries may need to operate a "dual" system combining printed and digital information with the associated tasks of digital archiving and training of library staff members and readers in the use of e-published materials.

Governments can make wider use of e-publishing to provide leadership by example and can encourage educational institutions to provide training in e-publishing. Governments should address the issues of deposit of electronic publications in national repositories or archives and provision of fiscal incentives such as tax exemptions or reductions for e-publications. Financing can be directed to public and academic libraries to enable them to launch initiatives for accessing and archiving electronic publications. Clear guidelines regarding copyright laws are essential. Finally, Governments can promote regional co-operation among publishers as well as among libraries and raise public awareness regarding the advantages of electronic publications.

8. E-Insurance

E-insurance, broadly defined, is the application of Internet and related information technologies to the production and distribution of insurance services. The insurance sector plays an important role in a country's economic success. Its main objective is to provide financial stability to individuals, organizations and businesses. However, it is also an important investor. Furthermore, insurance is needed for successful trade and commerce. Insurance improves the creditworthiness of trading partners and can reduce the risk of failure for start-ups and small and medium-size enterprises.

In 2000, insurance companies worldwide wrote $2,444 billion in direct premiums. In other words, the equivalent of 7.8 per cent of global GDP was used to purchase insurance products. During the same year, insurance companies in developing countries generated premiums worth $209 billion, representing 8.5 per cent of global insurance premiums. Of total global insurance premiums, about 1 per cent could qualify as e-insurance. However, the majority of the $100 billion global reinsurance business is traded using electronic media, and there are estimates that by 2005 e-insurance will gain 5 to 10 per cent of market share in personal lines insurance. The corresponding figure for Europe is 3 to 5 per cent. Developing countries do not participate to e-insurance in any meaningful degree.

The efficiency effect of applying e-commerce technology in insurance would be twofold. First, it would reduce the need for administration and management. Second, direct sales to clients could be used to reduce the cost of commissions paid to intermediaries. Since insurance penetration in developing countries is only half of that in developed countries, e-insurance efficiency gains may contribute to growth in insurance spending in developing countries.

The information-intensive nature of insurance will eventually enable it to become a full-fledged e-business provided that efficiencies are passed on to consumers. However, the industry is still trying to determine the optimal business models to follow.

Information technology may bring about changes in the value chain, and definitions of best practice will change as well. Analysis must not exclude the costs of online client acquisition and retention, and marketing, in particular if the insurer is embarking on an intensive e-commerce venture.

E-insurance faces three serious challenges. The first is to redefine the relationships between insurers and their agents and brokers. The second is to bring existing pre-Internet computerized data systems out of the back office and online, onto the World Wide Web. Further, outsourcing IT development and maintenance warrants careful examination and consideration of the economies of scale involved in IT deployment. The third challenge is to interface the business process of insurance to a fully functional website given the fact that most existing customers are unlikely to make frequent repeat visits to a site.

For the insurance industries of developing countries, adopting e-insurance will most likely be spurred from abroad. Business relations with international reinsurers may be a first impulse. The entry and local incorporation of foreign personal lines insurers which then transplant tried and tested e-insurance operations may become another motivating factor. Commercial insurance may be the last to be affected by e-insurance practices; however, this is a broad generalization, and insurers must carefully scrutinize market developments. Cross-border sales of personal lines have not yet reached significant levels.

As an important financial sector, insurance requires prudential supervision and regulation. In the context of e-insurance this means that the power of the Internet should be harnessed to improve consumer protection, education and awareness building. Government supervisors and regulators should use information and communication technologies and the Internet to receive and process periodic financial reports. National insurance supervisors can use Internet technologies to communicate among themselves and coordinate activities related to prevention of fraud and money laundering.

9.   Export Performance and E-Services

Information and communications technologies (ICT) and e-commerce have been particularly influential in the services industries. The Internet makes it possible to sell a variety of services – for example, airline tickets, financial or insurance products, customer support, data-processing services or legal, health, education or software services – around the clock and from anywhere in the world. This form of commerce is profoundly reshaping many of the existing services industries and creating new services as related technologies develop. This has resulted in an increase in cross-border trade, allowing companies to outsource activities and services to more cost-effective locations or access new clients in foreign markets. As a result, an increasing number of companies, including many from the developing world, are directing their efforts towards becoming more competitive in their services exports.

"Dynamic" export services and "rising stars"

Available statistics on international trade in services demonstrate that between 1990 and 2000 developing countries' services exports grew faster than those of developed countries, especially in services that experienced above-average growth rates on the global market. These "dynamic" export services are to a large extent services that can easily be provided electronically - so-called e-services. Computer-related services were the most dynamic export service during this period, growing at an average annual rate of 31 per cent (at 58 per cent in the developing countries) and gaining 23.3 per cent in market share.

An analysis of export competitiveness in e-services reveals that developing countries' global market share is still minor and few of them have a comparative advantage in the export of e-services. But many developing countries are gaining world market share in the export of, for example, communication services, financial services or royalty services. "Rising stars" (i.e. the most competitive exporters) are mainly developed and transition economies, but include a few developing countries. However, given the high growth rates in a number of developing countries, their share among the rising stars is expected to increase in the near future.

Computer-related services exports from developing countries

Examples from two countries that have developed their computer-related export services, Costa Rica and India, demonstrate that e-services can contribute significantly to enhancing export competitiveness. In Costa Rica, software services exports as a share of total services exports have increased from almost 0 per cent to over 3 per cent in just three years. India's IT services exports have almost doubled in two years and currently account for more than 16 per cent of total exports and 8 per cent of all foreign exchange earnings. Given the extraordinary growth rates of these e-services exports, the latter figure is expected to reach 30 per cent by 2008. Despite considerable differences between the two countries, they have been successful in developing their domestic IT capacities and IT-related export sectors. Both countries have an educated workforce, IT know-how, long experience in high-tech development, contacts in their major export markets and a good reputation abroad. In addition, they have received large amounts of foreign capital for the establishment of the domestic IT sector.

As ICT and e-commerce spread, e-services will also grow. Business process outsourcing will play an increasingly important role for developing countries. In the near future, more and more traditional industries located in developed countries, including the retail, energy, transportation and manufacturing sectors will outsource parts of their services. This will trigger an increase in international trade in services, as most of these business processes will be outsourced to foreign providers. These human-capital-intensive services offer a major opportunity for developing countries with abundant cheap labour to develop their exports in certain e-services.

Policy measures to support exporters of e-services should focus on increasing market access in e-services for exporters from developing countries, as well as addressing a number of domestic obstacles related to technology, payments, infrastructure (telecommunications) and standards.