AFACT
Asia Pacific Council for Trade Facilitation & Electronic Business

2009 AFACT
Year Book

PREFACE I
AFACT Chairman, Mr. Rahul Khullar

The gap between people with effective access to digital and information technology and those with very limited or no access at all has become a serious issue. The Asia Pacific region needs to work to increase the economic efficiency of its enterprises by bridging the digital divide between developing and developed countries. Many Governments / policy makers in the AFACT member countries / economies like India are making serious efforts to close this gap. Trade process standardisation is an essential pre-requisite of any such exercise.

All the AFACT members should take the lead by introducing electronic practices in administration thereby increasing the transparency of Government working. Business processes need to be integrated throughout the supply chain, which is the key point of any trade facilitation process. The end-to-end entities of this chain together with Governments providing efficient customs services have important roles to play. Cooperation of all these actors is a must for success of eCommerce. The integration of United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) recommendations, guidelines etc. in the work program would certainly help member countries/economies to have standardised development across the Asia Pacific region at par with developed nations.

Sustainable development of eCommerce requires the availability of affordable and reliable telecommunication services a conducive legal environment, and activities aimed at raising awareness and building capacity with regard to electronic commerce. The hosting of AFACT 2009, eASIA Awards and EDICOM 2009 is a step in that direction. I take this opportunity to thank AFACT for entrusting this responsibility to us. I am sure that the meetings will provide a platform for strengthening trade facilitation and electronic business activities between member countries/economies.

AFACT Chairman

Rahul Khullar

PREFACE II
UN/CEFACT Vice Chairman, Mr. T.A. Khan

In this time of global recession, trade facilitation is all the more important especially for Small and Medium Enterprises (SMEs), on which the impact can be greatest because of their relatively small scale of operation. To overcome this all AFACT member countries/economies need to work towards modernization, strengthening and alignment of the national, regional and international legislative and institutional framework; standard setting efforts; and the development of value added services to business, especially for SMEs. In order to have efficient systems business and official agencies need greater cooperation and immediate transfer of information as per requirement. New technologies need to be adopted, which allow affordable solutions to an increasing number of SMEs and thus facilitate their integration in global supply chains.

The development of e-Business has become an important component of policy making at the national level. At the same time, many governments of the region are developing and implementing their own strategies, based on the different priorities that exist in respective countries/economies. Access to new technologies and the Internet is considered a key element of such strategies and a prerequisite for enhancing the participation of businesses and consumers in e-commerce and the digital economy. To make these strategise effective all AFACT members need to make concerted efforts for alignment with UN/CEFACT work program so as to implement global standards and best practises.

It would be our endeavour to see that the meetings are successful in promoting interconnectivity and interoperability between member countries/economies trade facilitation efforts. The AFACT roadmap transition and selection of new secretariat are two major agendas for this year meeting. The roadmap transition would require synergy between existing JWGs and new committees. All member countries/economies need to support these initiatives and set higher goals.

I appreciate the efforts made by the Institute of Information Industry(III), Chinese Taipei as AFACT Secretariat in bringing the AFACT to its present position and hope that they would continue to support new Secretariat during transition phase.

UN/CEFACT Vice Chair & Deputy Director General, NIC

T. A. Khan

PREFACE III
AFACT Secretariat, Mr. Jyh-Sheng Ke

Over this past year, Asia Pacific economies were brought face to face with a number of simultaneous global challenges. The global financial crisis raged on against a backdrop of increasing global warming, widespread natural disasters, global resource exhaustion, and a worldwide flu outbreak. Each year as the world gets closer, the problems we face seem to get tougher and further out of hand.

How can we in AFACT team up as a community to address these issues together? How can we leverage the power of new technologies to achieve the goal? One thing is certain. In the context of a connected world, the solutions to the global issues we face will emerge from local actions and be implemented for local needs, and ICT will play a vital role in helping us to understand and solve the problems we face together.

ICT makes the world closer together and allows us to share instantly the solutions that individual communities find to curb global problems. It allows diverse communities to collaborate together on large problems, regardless of the geographic or cultural differences that may otherwise separate us. The diversity of our communities gives us strength to approach the solutions from a various perspectives. In our diversity, we are unified in our commitment to build up solutions to major global issues that face our generation. More than ever, Asian nations must work together for sustainable development. This is exactly the goal AFACT strives for.

Over the past 8 years, Chinese Taipei has been dedicated to serving our role as the AFACT Secretariat. We are more than pleased that our efforts to bring our members together have born fruitful results. For example, the eASIA Award campaign now serves as a platform for the best practices in e-Government, e-Business and bridging digital divide in this region. This year is the end of the 2nd term for the AFACT Secretariat. We wish the best to the new Secretariat, and look forward to doing everything in our efforts to support the transition to the new Secretariat and to continue with our contributions to AFACT.

AFACT Secretariat

J. S. Ke
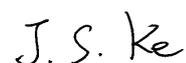
Jyh-Sheng Ke

PREFACE IV
UN/CEFACT Rapporteur for Asia, Mr. Sangwon Lim

This year is special for AFACT community. After successful transition from ASEB in 1999, the AFACT marks its 10th anniversary this year. For the last 10 years, the AFACT community members made much effort for the progress of electronic business and trade facilitation by actively cooperating among the members and with the regional and international bodies. The current development in AFACT is the result of collective action among the AFACT member countries and economies.

This year, AFACT community expects much meaningful activities and achievements. Under the leadership of India, the long-standing task of AFACT Roadmap TFT is expected to be delivered, covering the issues of AFACT Secretariat recruitment, JWG transition, substantiation of strategic work items such as single window. In addition, the bi-annual eAsia award campaign is held this year in India with the competition of regional best practice projects on trade facilitation, e-Business and digital divide.

I would like to compliment AFACT Secretariat for successfully publishing this year's AFACT Yearbook for AFACT community. The AFACT Yearbook, together with the official AFACT website, is the primary reference for understanding AFACT work program and activities. I am confident that the AFACT Yearbook will remain as an essential AFACT reference with significant contribution.

UN/CEFACT Rapporteur for Asia

Sangwon Lim

Introduction to AFACT

About AFACT

AFACT Bylaws

2009 AFACT Structure & Members

ABOUT AFACT

AFACT is the Asia Pacific Council for Trade Facilitation and Electronic Business. It's a non-profit, non-governmental organization that is open to participation from the representatives of member economies and experts from private sectors within the Asia-Pacific region.

The forerunner of AFACT was ASEB (Asia EDIFACT Board) established in 1990 in response to disseminate EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport) policies and activities in the Asia-Pacific region. After 8 years' contribution to facilitate international transaction within the region, through the simplification and harmonization of procedures and information flows, the need for re-engineering was raised in the 16th ASEB meeting to conform to the rapidly changing trend of EDI and EC, and to respond to the successful restructure of UN/CEFACT. As a result of re-engineering, AFACT marked down the era of ASEB in 1998. In 1999, the epoch of AFACT was officially commenced.

AFACT aims to promote the commitment and development of trade facilitation, electronic business policies and activities in the Asia Pacific region, mainly focusing on those promoted by UN/CEFACT (United Nations Center for Trade Facilitation and Electronic Business), to guide, stimulate, improve and promote the ability of business, trade and administrative organizations from members, as well as to exchange products and relevant services effectively within AFACT community.

Currently, there are 19 members from Afghanistan, Australia, Cambodia, Chinese Taipei, India, Indonesia, Iran, Japan, Korea, Malaysia, Mongolia, PRC, Pakistan, Philippines, Saudi Arabia, Singapore, Sri Lanka, Thailand, and Viet Nam. Each of which is represented by a local organization dedicated in promoting the application of standards and recommendations, e.g. UN/EDIFACT, developed by UN/CEFACT. eBusiness Asia committee and PAA (Pan-Asian eCommerce Alliance) are the associate members of AFACT, which are dedicated to promote cooperation in implementing trade facilitation and eCommerce in this region.

There are 11 active Working Groups formed under AFACT, each with its own scope of work and responsibilities. The Working Groups are Awareness and Education Working Group (AEG), Financial Working Group (FWG), Transport Working Group (TWG), Customs Working Group (CWG), Security Working Group (SWG), Air Transport Working Group (ATG), Supply Chain Working Group (SCWG), Legal Working Group (LWG), Internetworking Implementation Committee (IIC), XML Working Group (XMLWG), and Business Collaboration Framework Working Group (BCFWG).

The major activities include：

1. Analyzing and understanding the key elements of international transactions and working for the elimination of constraints;

2. Developing methods to facilitate transactions, including the relevant use of information technologies such as UN/EDIFACT and ebXML;

3. Promoting both the use of these methods, and associated best practices, through channels such as government, industry and service associations;

4. Coordinating its work with UN/CEFACT and other relevant international, regional and non-governmental organizations; and

5. Enhancing the cooperation among the AFACT members and promoting the objectives of the mission statement in the Asia Pacific region.

AFACT BYLAWS

Article 1
Name

The name of this organization shall be the Asia Pacific Council for Trade Facilitation and Electronic Business (hereinafter referred to as "AFACT").

Article 2
Mission Statement

AFACT aims to support in the Asia Pacific region policies and activities, especially those promoted by UN/CEFACT (United Nations Center for Trade Facilitation and Electronic Business), dedicates to stimulate, improve and promote the ability of business, trade and administrative organizations, to exchange products and relevant services effectively in a non-political environment.

Its principal focus is to facilitate international transactions, through the simplification and harmonization of procedures and information flows, and so contribute to the growth of global commerce.

Article 3
Terms of Reference

The principles of the mission statement are to be achieved by:

- Analyzing and understanding the key elements of international transactions and working for the elimination of constraints;

- Developing methods to facilitate transactions, including the relevant use of information technologies such as UN/EDIFACT and ebXML;

- Promoting both the use of these methods, and associated best practices, through channels such as government, industry and service associations;

- Coordinating its work with UN/CEFACT and other relevant international, regional and non-governmental organizations; and

- Enhancing the cooperation among the AFACT members and promoting the objectives of the mission statement in the Asia Pacific region.

Article 4
Structure

AFACT shall be a non-profit, non-political, voluntary and independent organization.

Article 5
Membership

Membership shall comprise two categories shown in Appendix 1 hereto:

- Member - The countries and economies in the Asia Pacific region represented by the agency assigned to promote and develop trade facilitation and Electronic Business. Such agency is recognized as the single focal point for UN/EDIFACT or UN/CEFACT related activities.

  Agencies of the United Nations can also be members.

  All existing members and associate members in the ASEB shall be automatically recognized as members of AFACT.

- Associate member - Any other organization from the Asia Pacific region or relevant international organization located in the region, committed to similar objectives as AFACT.

Any country, economy or organization wishing to join AFACT must submit an application for membership in writing to the AFACT Secretariat who shall circulate it to the Steering Committee members for consideration and approval, as well as to all members and associate members for consultation. If approved, the Steering Committee shall report to the Plenary on the approval of the application.

The Chair for the Plenary may also invite non-member countries, economies and experts as observers or special invitees.

Article 6
Plenary

The Plenary shall include members, associate members and observers, represented by their Heads of Delegations. A simple majority of the members is required for a quorum.

The Plenary Meeting shall be a forum to exchange views on any areas of common interest including the latest developments in each member or associate member under the ambit of the Mission Statement.

The Plenary shall be the highest decision making body of AFACT and shall have the responsibility of ratifying all major decisions and monitoring the execution of the adopted resolutions.

The preferred way of reaching decisions shall be by consensus. However, the Chair shall have the authority to call for a vote if, in his view, consensus cannot be reached on a particular issue. In such cases, a simple majority of all voting members constitutes a decision. In case of a tie, the chair shall cast the deciding vote.

Only members are eligible to vote. The vote shall be cast by the Heads of Delegations or their designated representative.

For dissolution of AFACT, the adoption of the Bylaws or a change to the Bylaws, a two-third majority of all voting members is required.

Absent members can have the option to vote by email or other means, or by proxy entrusted to the Chair or a fellow AFACT member.

The Plenary shall meet at least once a year.

Article 7
Officers and Secretariats

Annually AFACT shall identify a member to host the organization (hosting member).

The officers of AFACT shall be the Chair, two Vice-Chairs and the Secretary. The term of office for each post shall be one year.

The hosting member shall nominate the Chair, with one Vice-Chair being nominated by the next hosting member (Chair elect) and the immediate former Chair acting as the other.

At the start of each Plenary, the identification of next hosting member and the Chair elect shall be approved.

The hosting member shall nominate a person who shall be the Hosting Secretary of AFACT (hereinafter the hosting Secretariat).

Their term shall start immediately after the close of the previous Plenary meeting. In order to ensure a smooth hand-over between the two hosting Secretariats, a Joint hosting Secretariat shall exist for an agreed period, after the previous Plenary meeting.

The AFACT Secretariat shall be nominated by the Steering Committee and ratified by the Plenary for four years term, based on the Terms of Reference described in the Appendix 3, which shall be open for any AFACT member and reviewed every four years.

Article 8
Steering Committee

The Steering Committee is responsible for the management and coordination of AFACT between the Plenary meetings. The Steering Committee also supervises the progress status of the decision made by the Plenary meeting.

The composition of the Steering Committee shall be as follows:

- Chair (of AFACT)
- Two Vice-Chairs (of AFACT)
- UN/CEFACT Rapporteur for Asia (Advisor)
- Two Heads of Delegation appointed by the Plenary who will hold office as members of the Steering Committee for a term of two years.
- AFACT Secretariat

The Steering Committee is chaired by the Chair of AFACT.

The hosting Secretariat shall be present in all Steering Committee meetings.

The agenda for the Steering Committee meeting shall be circulated to the Heads of Delegations and Chairs of Working Groups for comments.

The Chair may invite Chairs of Working Groups for specific meetings, as appropriate and all Heads of Delegation shall be entitled to attend meetings of the Steering Committee.

Where required, the Steering Committee shall be empowered to take decisions on behalf of AFACT between Plenary meetings. In such cases, every effort shall be made to consult with the Heads of Delegations.

Steering Committee decisions shall be made by consensus.

The Steering Committee shall meet at least twice a year. This can be either in the form of a physical meeting or a virtual meeting.

Article 9
Working Groups

Working Groups may be established to focus on a specific area of interest, under the ambit of the Mission Statement.

To establish a Working Group, the interested parties shall submit a proposal, including the Terms of Reference, to the Steering Committee for approval and subsequently, to the Plenary for ratification.

Each Working Group shall appoint its own Chair and Secretariat. The term of service for the Chair and the Secretariat shall be for a period of two years.

Each Working Group shall submit its Work Program to the Steering Committee for endorsement.

The Working Group shall meet at least twice a year. This can be either in the form of a physical meeting or a virtual meeting.

The Chair of each Working Group shall report to the Plenary.

All Working Groups under the ASEB shall be automatically recognized as a Working Group under the AFACT. Each Working Group shall review and submit their Terms of Reference to the Steering Committee for approval and subsequently, to the Plenary for ratification.

Article 10
Focal Point

Each AFACT member is required to have a single focal point, dedicated to the promotion, dissemination and implementation of AFACT objectives.

The focal point shall identify the Head of Delegation and a contact person who shall be responsible for communication with the AFACT Secretariat and all related parties.

Article 11
EDICOM

EDICOM is the annual conference and exhibition of AFACT. It features the latest technology and information on Electronic Data Interchange (EDI), Electronic Commerce (EC), UN/EDIFACT and other related activities including trade facilitation.

EDICOM shall be organized by the hosting member, adjacent to the Plenary, in consultation with the Steering Committee.

Article 12
Relationship Between AFACT and UN/CEFACT

As set out in its Mission Statement, AFACT seeks, amongst other objectives, to promote the aims, objectives and activities of UN/CEFACT within the Asia Pacific region. To this end, Asia Pacific delegations to UN/CEFACT provide a strong link between AFACT and UN/CEFACT.

The UN/CEFACT Rapporteur for Asia provides another significant linkage. The Rapporteur shall be appointed by the Plenary of UN/CEFACT on the recommendation of the AFACT Plenary. (The Mandate of the UN/CEFACT Rapporteur for Asia is attached as Appendix 2).

AFACT is also strongly encouraged to identify and nominate potential members to the UN/CEFACT Steering Group. These nominations shall take place after full consultation with AFACT and shall normally be made on behalf of AFACT, to the UN/CEFACT Secretariat, by the delegation holding the Chairmanship of AFACT or by a delegation designated by the Chair.

Close coordination between AFACT Working Groups and UN/CEFACT Working Groups is strongly encouraged and both bodies shall use their best endeavors to ensure this coordination. This is most effectively achieved when there is a formal relationship between the respective groups.

Article 13
Expenses

The hosting member shall cover all expenses involved in organizing the Plenary Meeting, the Steering Committee Meeting and the meetings for the various Working Groups held before the Plenary Meeting.

The hosting member is entitled to charge a participation fee for each delegate. The amount to be charged shall be decided in consultation with the Steering Committee.

The AFACT Secretariat shall cover all the costs incurred in performing the responsibilities as the secretariat and maintaining the AFACT Website.

Article 14
Working Language

The working language of AFACT shall be English.

Article 15
Effectiveness

These Bylaws enter into effect on October 3, 2001, upon ratification by the AFACT Plenary.

Appendix 1

List of Members and Associate Members as of May, 2006

Members：Afghanistan, Australia, Cambodia, Chinese Taipei, India, Indonesia, Iran, Japan, Malaysia, Mongolia, Pakistan, Philippines, P.R.C, Republic of Korea, Saudi Arabia, Singapore, Sri Lanka, Thailand, Vietnam

Associate Members：eBusiness Asia Committee, PAA

Appendix 2

Mandate UN/CEFACT Rapporteur for Asia

Within Asia, the Rapporteur shall:

- Promote and represent UN/CEFACT's interest and activities to governments, inter-governmental organizations, relevant trade associations and business and trade facilitation organizations;

- Encourage the participation of experts in UN/CEFACT's work program and stimulate the implementation of UN/CEFACT's Recommendations;

- Coordinate UN/CEFACT's activities in the region.

Liaison Relationships

This mandate shall be carried out, where appropriate, in liaison with Heads of delegations to UN/CEFACT coming from Asia as well as in liaison with the secretariat of ESCAP and the Chairs of UN/CEFACT's Working Groups.

Reporting Relationships

The Rapporteur shall be presented a report at each UN/CEFACT Plenary. The Rapporteur may raise issues directly with the CEFACT Forum Management Group (FMG) and the Bureau, and has an open invitation to attend the Bureau and FMG meetings in a consultative capacity.

Duration of Appointment

The appointment as Rapporteur is for two years, renewable.

Appendix 3
AFACT Secretariat Terms of Reference

1. Background

- When the Asia EDIFACT Board (ASEB) was reformed into the Asia Pacific Council for the Facilitation of Procedures and Practices for Administration, Commerce and Transport (AFACT) in 1998, the Board decided that AFACT did not have a permanent secretariat, and secretariat roles were served by the host secretariat in one year term. The running secretariat shall be provided by the host member, which this new system shall be reviewed after two or three year's experiences.

- In the Taipei AFACT meeting, the HoD of Islamic Republic of Iran suggested to consider for setting up a secretariat to manage AFACT in consistent manners. The AFACT Plenary has decided to establish a secretariat under AFACT in principle. Then, the Chair (Dr. Lin) allowed the Steering Committee to look for a secretariat within AFACT members.
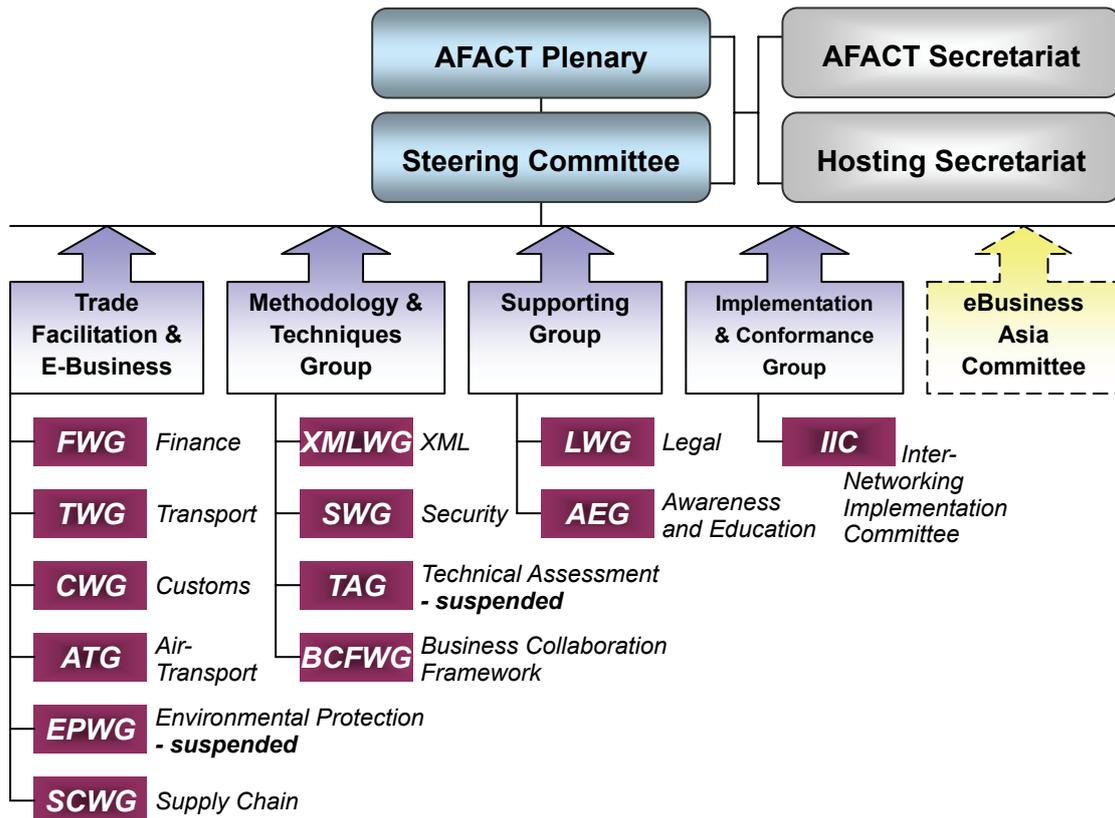
2. Terms of Reference

- The purpose of AFACT Secretariat is to explore, review and identify the most practical approach for managing and operating AFACT tasks on Trade Facilitation and Electronic Business in Asia Pacific region.

- The AFACT Secretariat should coordinate with UN/CEFACT Rapporteur for Asia to achieve the responsibility of the AFACT Secretariat.

Taking account of existing AFACT Terms of Reference, these shall include;

a) To document all AFACT related activities and publish them on the AFACT web site,

b) To maintain the AFACT web site in cooperation with other members' secretariat,

c) To support the host secretariat for organizing AFACT Plenary meeting and its joint working groups' meetings, AFACT Steering Committee meeting and EDICOM,

d) To facilitate the affairs in relation to new membership application,

e) To attend AFACT related meetings to support the host secretariat,

f) To attend UN/CEFACT Plenary meeting, if possible, to follow up its decision and discussion made during the meeting and feed back them to AFACT community, and

g) Any other business.

2009 AFACT Structure & Members

AFACT Plenary	AFACT Secretariat
Steering Committee	Hosting Secretariat

Trade Facilitation & E-Business	Methodology & Techniques Group	Supporting Group	Implementation & Conformance Group	eBusiness Asia Committee

FWG *Finance*

TWG *Transport*

CWG *Customs*

ATG *Air-Transport*

EPWG *Environmental Protection - suspended*

SCWG *Supply Chain*

XMLWG *XML*

SWG *Security*

TAG *Technical Assessment - suspended*

BCFWG *Business Collaboration Framework*

LWG *Legal*

AEG *Awareness and Education*

IIC *Inter-Networking Implementation Committee*

Members

Chinese Taipei	Singapore	Iran	Pakistan
Indonesia	Philippines	Korea	India
Thailand	Australia	Japan	Sri Lanka
Malaysia	P.R.C.	Viet Nam	Saudi Arabia
Mongolia	Cambodia	Afghanistan	

Associate Member

Pan-Asian E-Commerce Alliance (PAA)

AFACT Organization

2009 AFACT Steering Committee Board Members

2009 AFACT Heads of Delegations

2009 AFACT Members Secretariat List

2009 Working Groups Chairmen

2009 eBusiness Asia Committee

Associate Member

AFACT Member Focal Points

2009 AFACT Steering Committee Board Members

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2009 Members Progress Reports

Chinese Taipei Progress Report
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Viet Nam Progress Report

Chinese Taipei Progress Report

Bureau of Standards, Metrology & Inspection, M.O.E.A

Taipei EC/EDI Committee

2009 Members Progress Report：Chinese Taipei

SECTION I – GENERAL CONDITION UPDATE

1.1 Ranking in International Evaluations

The Swiss International Institute for Management Development (IMD) analyzed that Chinese Taipei's overall competitiveness ranking was in the 23th place, World Economies Forum (WEF) ranked Chinese Taipei the 17th in Growth Competitiveness Index (GCI). According to the WEF's latest "Global Information Technology Report, 2008-2009," Chinese Taipei was up by four to the 13th. which is the 3rd place among Asian Pacific countries.

In addition, Economist Intelligence Unit (EIU) ranked Chinese Taipei the 17th in e-Readiness survey and 2nd in IT industry competitiveness index which is the No.1 position among Asian Pacific countries. At last, Chinese Taipei is ranked the 17th among the 140 countries covered in the World Bank's Knowledge Economy Index (KEI) for 2008. In Asia, Chinese Taipei is up to No. 1 place (Table 1)

Table 1：Chinese Taipei's Ranking in International Evaluations

Index	Source	The Ranking of Chinese Taipei
World Competitiveness	IMD (2008)	13
Growth Competitiveness Index (GCI)	WEF (2008–2009)	17
Networked Readiness Index (NRI)	WEF (2008–2009)	13
e-Readiness	EIU (2008)	17
IT Industry Competitiveness Index	EIU(2008)	2
Knowledge Economy Index(KEI)」	WORD BANK(2008)	17

1.2 e-Commerce Regulation Update

In order to encourage the development of e-commerce and to reduce the amount of paper-base invoice in daily transactions, the Ministry of Finance amended the "Directions to the Practice of e-Invoice," based on the hope to enlarge application scope of e-Invoice. Besides, due to problems about online copyright infringement are getting more and more serious, how to distinguish liabilities of internet users from the responsibilities of Internet service providers, hereinafter called ISPs," had become a key issue in Chinese Taipei. The Intellectual Property Office of the Ministry of Economic Affairs submitted the "Amendment of Copyright Act," which includes doctrines regarding liabilities of ISPs. This amendment was approved by the Executive Yuan in September, 2008; and later passed by the Legislative Yuan in May, 2009.

1.3 Status of e-Commerce

1.3.1 B2B e-Commerce Market

The MOEA Department of Commerce (DOC) published a report on the current status of B2B e-commerce in Chinese Taipei in 2008. The report, entitled "EC Legislation & Infrastructure Building-up Project", examines the status of digitization in the IT industry, manufacturing, finance and insurance, agriculture, construction, trade and small and medium sized business industries. The report focused especially on the six major industries over which the DOC has jurisdiction, namely the food and commodities industry, the 3C products circulation industry, the publishing, media and entertainment industries, the clothing industry, the cosmetics and pharmaceuticals industry, and the travel and tourism industry.

Survey results indicated that digitalization levels of the information and manufacturing industries were the highest. Among the companies of the six primary industries interviewed that have set up an information system, the proportion (67.3%) of ERP is the highest, followed by EIP (32.9％). Among those that are planning to or evaluating the possibility to establish an information system, the information security management system and EIP top the list with 20.7％ and 19.7％ respectively.

In the commercial digitalization area, degree of internal network usage was the highest in the cosmetics and pharmaceuticals industry, followed by the food and commodities industry and the 3C products circulation industry; degree of B2B e-commerce usage was the highest in the cosmetics and pharmaceuticals industry, followed by the 3C products circulation industry and the travel and tourism industry. In terms of the two indicators as a whole, the cosmetics and pharmaceuticals industry and the 3C products circulation industry have higher degree of digitalization.
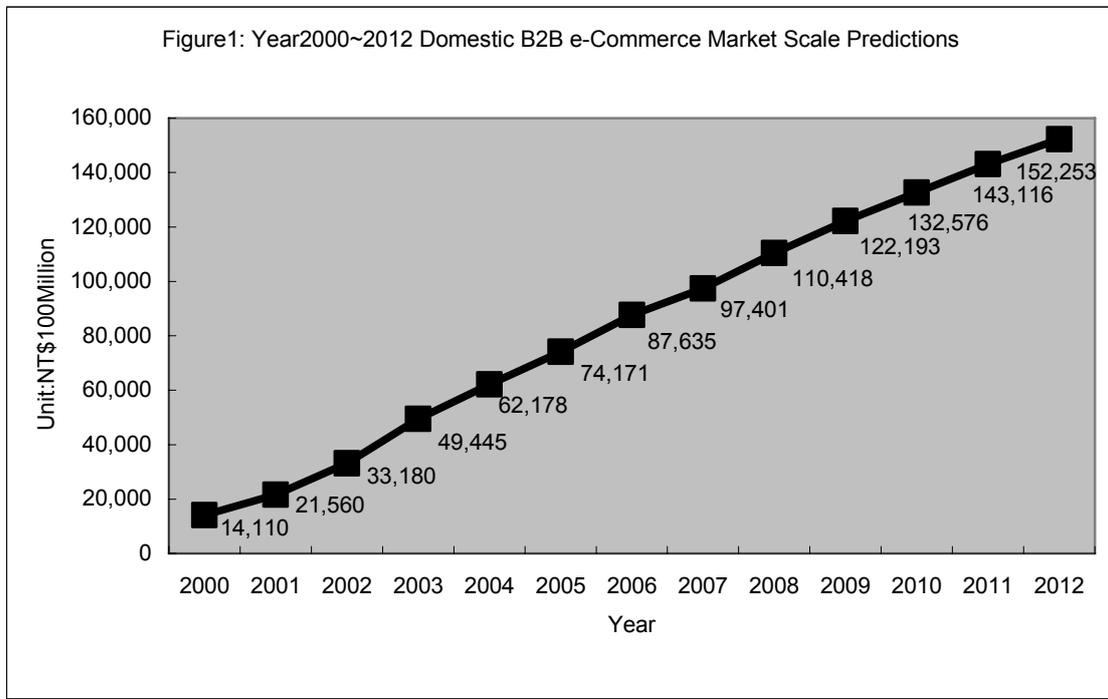
Figure1: Year2000~2012 Domestic B2B e-Commerce Market Scale Predictions

Source：Department of Commerce, MOEA,
"EC Legislation & Infrastructure Building-up Project", 2008

Looking at the overall market scale, Chinese Taipei's B2B transactions worth a total of NT$ 1.411 trillion in 2000 and had grown to NT$11.0418 trillion by 2008. The domestic B2B e-commerce market grew by approximately NT$10 trillion in nine years, for a compound annual rate (CAGR) of 27.3% (Fig 1.).

1.3.2 B2C Online Shopping Market

According to 2008 "Online Shop Operational Survey," the main consumer group for online shopping is the 20-39 age group. Out Of this population, the 30-39 age group constitutes the largest group of online consumers (23.5%), followed by the 20-29 age group (22.4%). Additionally, the survey results show that women constitute 55.9% of online store consumers, while men constitute 44.1%. This is consistent with survey results in 2007 and underscores the importance of female shopping group. Products and services tailored for female consumers should continue its increase in the future.

In the 2008 survey, travel services (20.7%) topped e-shop merchandise/service category, followed by investment and finance (16.8%) and 3C products (10.8%). In 2007, travel

services came in first (24.5%), followed by toy/gift/craft (19.2%) and cosmetics products (15.2%). Other products and services include design service, professional ability training, professional consultation service, religious products, leather cleaning, real estate leasing and sales advertisement and toys for lovers.

In digital contents and value-added services, market scale of Chinese Taipei's e-learning environment has grown significantly with supports from government policies and market requirements. According to estimates of National Science and Technology Program for e-Learning, Chinese Taipei's e-learning market scale reached NT$12 billion in 2007. Concerning the scale and status quo of online audio-video market, market research company iSuppli predicts that the combined revenues created by paid TV, mobile TV, DVD and broadband TV will exceed US$ 277 billion in 2010. Concerning the size of the online game market, Pricewaterhouse Coopers estimates from 2007 to 2011 CAGR of the revenues of Asia-Pacific online game market can be expected to reach 16.1％. The predicted revenue for 2007 is US$3.1 billion. In 2011 Asia-Pacific online game market can anticipate a revenue of US$5.2 billion.

Corporate e-marketing: Internet penetration and information digitalization have given birth to innovative information applications that give the corporate world more possibilities. According to analysis of the hot discussion topics among international and domestic marketers, more and more marketing plans are incorporating elements that invite user participation. The trend has even resulted in development of a platform for long-term interaction with consumers, a platform that serves as effective tool for uncovering consumers' inner thoughts and preferences. Digital technology helps enterprises talk to consumers and give consumers higher independence in selecting information. In response to the fact that consumers are using various media, enterprises are paying greater attention to cross-media applications in marketing activities. Thanks to the real-time and interactive features of the Internet, the rate of digital media utilization rises gradually.
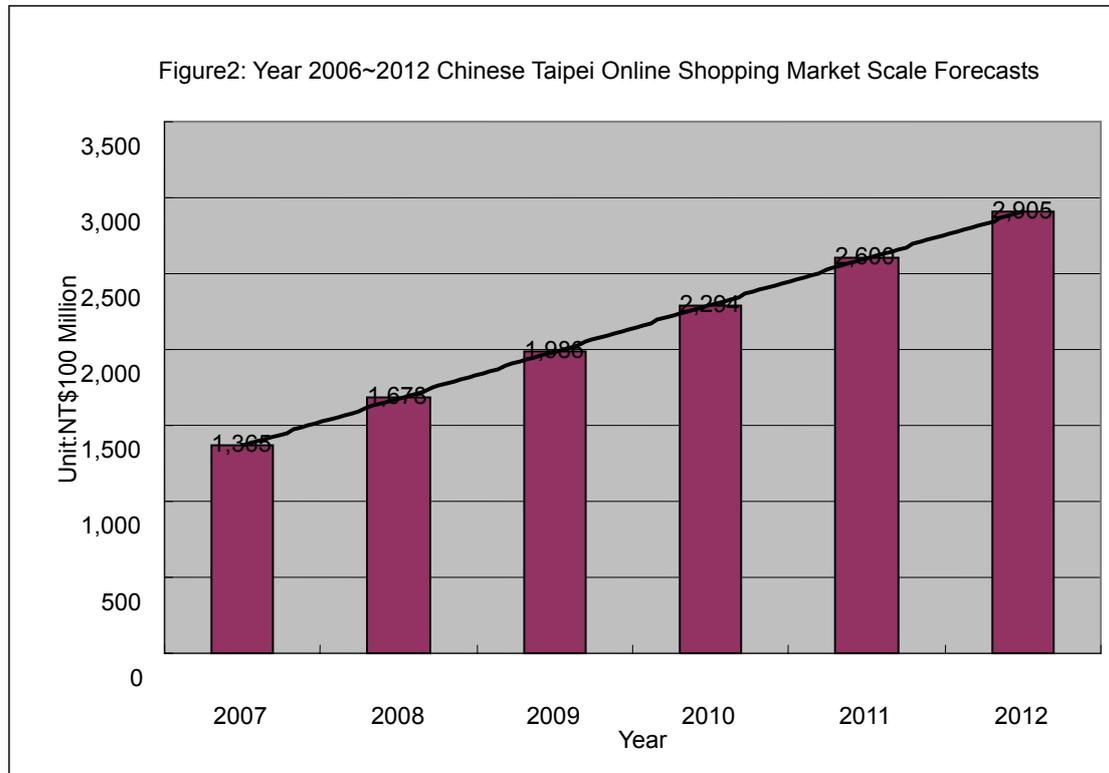
Figure2: Year 2006~2012 Chinese Taipei Online Shopping Market Scale Forecasts

Source: Department of Commerce, MOEA,
"EC Legislation & Infrastructure Building-up Project", 2008

2007 domestic online purchases totaled to NT$136.5 billion (Fig. 2). Forecasts for 2008 were expected to surpass NT$160 billion, and that for 2012, NT$290.5 billion. Compound annual growth rate for the period from 2008 to 2012 was expected to be 14.7%. It was also estimated that online retail shopping would accounted for a 5.0% share of the overall retail market in 2008.

1.3.3 C2C Online Shopping Market

Rapid development pf the Internet in the past 10 years boosted e-commerce. The rise of C2C online auction has changed consumer behavior and transaction methods of people. Based on online consumption amount, revenue of major Internet shopping companies, and also transactions not recorded, the Institute for Information Industry MIC estimated Chinese Taipei's 2007 C2C Internet auction market scale at NT$77.4 billion with growth rate of 50%. Forces driving market scale up include Internet consumer percentage, increase of consumption amount, and professional sellers investing in Internet auction. It is projected that Chinese Taipei's C2C market scale will reach a growth to NT$114.5 billion in 2008 with

a growth rate of 47%. In 2008 the CAGR of the online auction market is expected to reach 56.3%. Currently, the main operators of the domestic online auction market include: auction services of Yahoo! Kimo (bid.yahoo.com.tw), Ruten bazaar (www.ruten.com.tw), Roodo market (www.roodo.com), and Hinet auction (hibid.hinet.net).

According to statistics, Yahoo! Kimo accounts for 57.47% of the total population of the online auction world in Chinese Taipei, a figure that is more than twice of 23.53% of the runner-up Ruten. According to Yahoo! Kimo's own statistics, its monthly revenue in Q1 2008 was over 1 million NTD, its sellers are growing by 77% annually, and its transaction amount is up by 76% each year, which is higher than the average annual growth rate (31%) of Chinese Taipei's e-commerce market in 2007, according to MIC figures released by Institute for Information Industry.

Development of Chinese Taipei's C2C auction market is similar to that of the Japan market. Low-price products are used to attract online shoppers. According to Institute for Information Industry MIC survey entitled "Analysis of Online Consumer Behavior in Chinese Taipei," online shoppers prefer purchasing the products directly. In online shopping stores, shoppers who make direct purchase account for 39%; in online auction stores, as many as 35% of the bidders end up buying the products outside the auction. The figures indicate direct purchase is more popular among Chinese Taipei shoppers than auction. The media have helped create a trend of personal online shops. Vendors like Yahoo! Kimo have also hopped on the bandwagon, transforming the online auction mechanism into online shopping malls that provide professional-level services including payment mechanism, transaction certification, evaluation system and bulletin.

1.4 e-Infrastructure

1.4.1 Internet Hosts

As of January 2008, there were 5.12 million host servers in Chinese Taipei that used the country-specific suffix.tw.6.35 million hosts were registered under hinet.net, the domain of the largest commercial ISP in Chinese Taipei. The two combined exceeded the 10 million mark to reach 11.47 million hosts. This was an increase of 1.7 million users and a growth rate of 17% compared to the previous year. On average, there were 50 hosts per 100 inhabitants in Chinese Taipei.

1.4.2 Public Internet Access Center

As of December 2007, all 368 villages and towns in Chinese Taipei with the exception of Kinmen's Wuciou Township now have their own PIAC. This translated into a 99.7%

coverage rate for PIACs and these are accessible to nearly 100% of the population.

1.4.3 ICT Hardware Industry Production Value

According to a Market Intelligence Center (MIC) study commissioned by the Industrial Development Bureau (IDB), in 2007 Chinese Taipei's ICT hardware industry production value reached NT$7,198.2 billion (US$217.5 billion), an increase of 23.2% over the NT$5,841.3 billion (US$176.5 billion) from 2006.

1.4.4 IT Service Industry Production Value

According to Industrial Development Bureau (IDB) statistics, in 2007 the Chinese Taipei IT service industry had a production value of NT$277.7 billion, an increase of NT$38.2 billion compared to 2006, and has grown steadily every year since 2003.

1.5 e-Government

1.5.1 Number of Online Government Services

According to RDEC (Research, Development and Evaluation Commission, Executive Yuan) data, at the end of 2006 the government provided 2,470 items of online services. The latest data from the end of October 2008 put this figure at 2,426 items. It indicated that the Chinese Taipei government's online services have now stabilized at around 2,400 items.

1.5.2 e-Government Portal Site Usage Rate by the General Public

According to RDEC data from September 2008, 33.1% said that they had heard of MyeGov and 38% of these had used e-government portal sites at some stage. This meant that the Chinese Taipei general public usage rate of e-government portal sites was 12.6%, a small decrease compared to 2007.

As for the main uses that the general public do on the e-government portal sites, these were in order : searching for information (66.7%), inquiry about service information or form download (16.5%), online applications (6.8%), viewing of real-time images from sights around Chinese Taipei (3.0%) and send suggestions/complaints (1.4%).

This study also showed that 74.1% of the population knew that the government was promoting e-government, with 47.4% having used e-government portal websites at one point. The overall usage rate was therefore 35.1%.

1.5.3 Government Online Procurement Usage

Due to strong government supports for the procurement system, the proportion of vendors that make use of online government procurement has increased every year. According to Public Construction Commission statistics, at the end of 2006 the online procurement usage of the Chinese Taipei government had reached 95.33%. It increased to 98.57% in 2007 and is approaching 100%.

1.6 e-Industry

1.6.1 Chinese Taipei's services industry has been posting constant growth over the past years, reaching an output value of NT$2.141 billion in 2006.

1.6.2 Enterprise ERP System, SCM System, CRM System, KM System, e-Learning System, HR System, PDM/PLM System and BI System Penetration Rates

In 2007, the electronization system used the most by Chinese Taipei enterprises was HR at 18.2%. It was also the largest category in the preceding year at 18.0%. The next highest was the ERP system at 13.5%, followed by PDM/PLM at 10.2%. The smallest category was BI system with just 4.5%.

The 2007 study showed that with the exception of HR, ERP and PDM/PLM, none of the other systems had yet achieved a penetration rate of over 10%. If multi-year trends are taken into consideration, the proportion of e-business system adoption among enterprises has grown slightly every year since 2004.

If analyzed according to enterprise size, then the introduction of HR systems at large enterprises was the highest at 69.7%, followed by ERP at 62.6%. For medium enterprises, the introduction of HR systems was the highest at 19.2%, followed by ERP at 14.0%. Among small enterprises, the introduction of HR systems was the highest at 6.7%, followed by CRM at 5.3%, then PDM/PLM at 5.2%.

1.7 e-Life/e-Usage

1.7.1 Internet Subscribers

According to NCC (National Communications Commission) statistics, as of the end of 2007 the total number of Internet subscribers in Chinese Taipei was 17.26 million, with 780,000 on dial-up, 11.85 million on mobile Internet and 4.63 million on broadband. Here broadband includes xDSL, cable modem and fiber-optic technology.

The data showed that xDSL is still currently the dominant broadband access technology and at the end of 2007 there were 3.64 million xDSL subscribers in Chinese Taipei. Cable modem had 440,000 while fiber-optic had 550,000. Though xDSL is currently still the main method for the general public, its growth has begum to show. In the past two years, it has been the growth rate of fiber-optic technology that has been drawing attention. In 2006 there were only 210,000 fiber-optic subscribers but by 2007 this had more than doubled.

1.7.2 Mobile Internet Accounts

Statistics showed that at the end of 2007 there were 13.38 million mobile Internet subscribers in Chinese Taipei, a jump of 46.2% compared to the 9.15 million subscribers in 2006. The number of WAP mobile Internet accounts has declined over the years and by 2007 there were only 40,000 accounts left. GPRS began declining in 2006 as well, dropping from 4.43 million to 3.80 million in 2007 ; in 2006 3G＋PHS began providing the main impetus for growth and by the end of 2007 the two had 8.01 million subscribers in total, a jump of 73.3% compared to 2006.

1.7.3 Household Internet Penetration Rate

According to an III study, in 2007 71.3% of families in Chinese Taipei used the Internet, a decrease of 0.4 percentage point compared to the 71.7% in 2006.

1.7.4 Household Broadband Penetration Rate

According to an III study, in 2007 68.7% of Chinese Taipei households used broadband to access the Internet, an increase of 6.3 percentage points from the same period in 2006. Region-wise, the highest household broadband penetration rates were in Taipei City (80.6%), Kaohsiung City (72.2%) and northern Chinese Taipei (71.0%). There was a large gap when compared to the eastern Chinese Taipei and offshore regions.
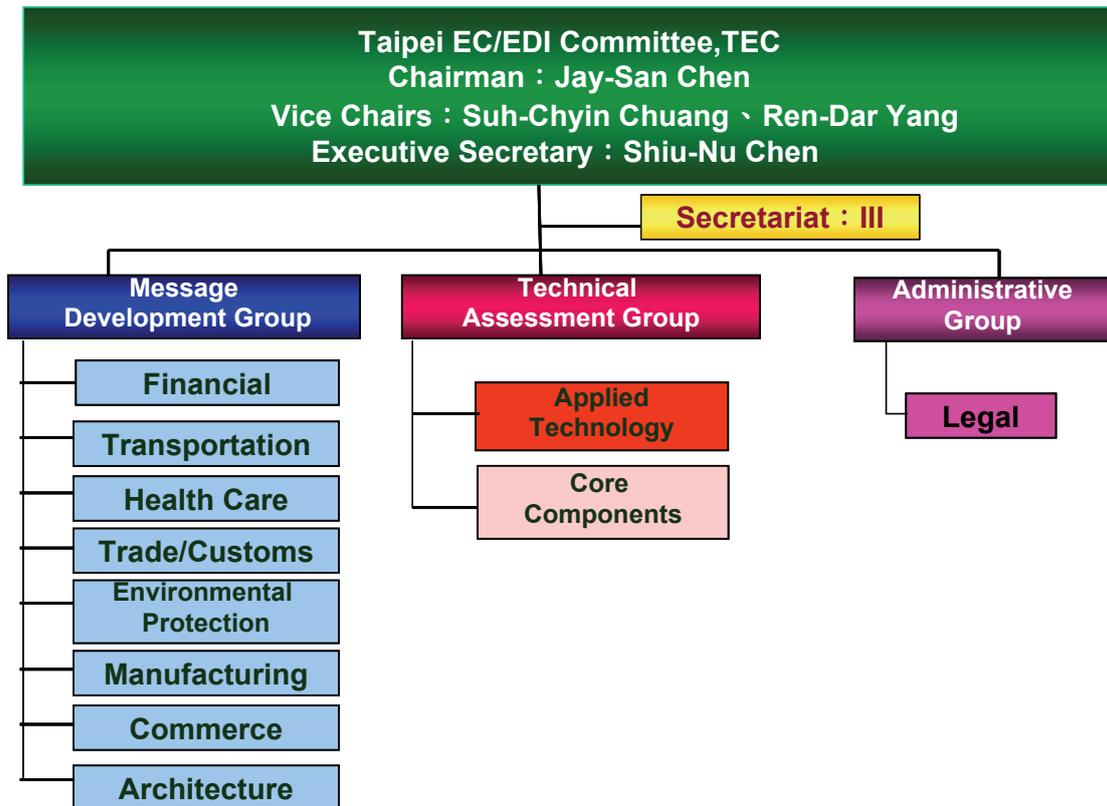
1.8 Taipei EC/EDI Committee

1.8.1 Introduction

The Bureau of Standards, Metrology and Inspection under the Ministry of Economic Affairs established Taipei EC/EDI Committee (TEC) in 1992 to accelerate the promotion of e-Commerce Standards and Trade Facilitation as well as to set up respective working groups under the TEC to take charge in specific areas of concern.

1.8.2 Constitution

The General Director of the Bureau of Standards, Metrology and Inspection chairs the Taipei EC/EDI Committee.

＜**Figure 3：Current Structure of TEC**＞

Taipei EC/EDI Committee,TEC
Chairman：Jay-San Chen
Vice Chairs：Suh-Chyin Chuang、Ren-Dar Yang
Executive Secretary：Shiu-Nu Chen

Secretariat：III

Message Development Group	Technical Assessment Group	Administrative Group
Financial	**Applied Technology**	**Legal**
Transportation	**Core Components**	
Health Care		
Trade/Customs		
Environmental Protection		
Manufacturing		
Commerce		
Architecture		

Source: TEC Secretariat, July 2009

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 e-Health Care Services

Our Executive Yuan Department of Health in 2008 began to plan for the HL7 CDA/XML standard for electronic patient records, and as of the end of June 2009, we have already completed templates for 78 commonly used hospitals and clinical medical records, and expect to complete a total of 108 templates by the end of December 2009. Additionally, in order to ensure the completeness and precision of our domestic electronic patient records standard, it will be possible to use the electronic patient records maintenance system to undertake OID registration applications and queries, document identifier code registration applications, applications to add or amend data fields, applications to add or amend the CDA/XML models, so that hospitals and related health care industry firms will have guidance as they develop their electronic patient records services and products, and to assist in integration of health care information across clinical users and the bio-informatics industry.

SECTION III – e-Readiness and e-Application – e-Government/e-Business Related PROJECT UPDATES

This section depicts the current state and future development trend of various standard-related projects that are carried out by the respective working groups under the Taipei EC/EDI Committee.

3.1 Manufacturing

The e-Business standards in seven manufacturing industries were developed and implemented in 2002 with budget from Industrial Development Bureau (IDB) and Ministry of Economic Affairs (MOEA). These industries are the textiles, pulp & paper, automobile, heavy electronics, iron & steel, petrochemicals, and machinery industries. During the project period, 14 business process standards, 30 document standards, 2 vocabulary standards and 4 classification standards were accumulatively developed, and about 143 companies implemented and applied document standards in business process of ordering, purchasing and shipping in a total of 20 systems. (Table 2)

Table 2 : Summary of e-Business Standards Implemented and Applied by industries in 2002 (Source: IDB, MOEA)

Industry	Process Applied	Standards implemented	Standards Developed
Textiles (RN-like)	Fabric dying, finishing process operations	Dying/finishing notice, shipping notice	▪ Process standard: packing specification notice ▪ Document standard: dying/finishing notice, muslin finishing, shipping notice, packing specification notice
Petrochemicals (CIDX)	Order operation client-end	Ordering, response, modification, cancellation, response, tracking, and response	▪ Process standards: Client registration process, demand forecasting process, supply planning/demand planning process ▪ Document standards: Qualification application, qualification response (customer management operation), demand forecasting, demand forecasting response, demand planning, demand planning response (supply management operation)
	e-Catalogue operation	Product catalogue update, particular client catalogue update	
Machinery (RosettaNet)	Purchasing operation on supplier's end	Enquiry, quote, purchasing order, tracking, modification, and cancellation	▪ Process standards: Enquiry, quote, purchasing order, tracking, modify, cancellation ▪ Document standards: Enquiry, quote, purchasing order, tracking, modification, cancellation
Pulp & Paper (PapiNet)	Order management operation from client end	Ordering, order confirm	▪ Document standards: Shipping indication, shipping notice

Industry	Process Applied	Standards implemented	Standards Developed
Automobile (OAGIS)	Manufacturing management operation from supplier end	LT component demand plan, ST component demand plan, shipping indication, receipt QC	▪ Process standards: Ordering, payment specification ▪ Document standards: Order, payment specification Note: LT = Long term ST = short term QC = Quality Control
		Shipping indication, Receipt QC	
		Shipping indicator, ST component demand plan	
		Shipping indication, receipt QC	
		Shipping indication, receipt QC, return notice	
Heavy Electronics (OAGIS)	Purchasing operation from supplier end	Enquiry, quote, order form, order confirmation	▪ Process standards: order process ▪ Document standards: order cancel, order modify

Industry	Process Applied	Standards implemented	Standards Developed
Iron & Steel (isXML)	Order operation from client end	Order form	▪ Process standards: Order process ▪ Document standards: enquiry, quote, order confirm, order form/ dispatch notice ▪ Classification standards: stainless steel plates/hot-rolled stainless steel/cold-rolled stainless steel, stainless steel rod/ steel wire, galvanized & painted steel wire, concrete reinforcement bars ▪ Vocabulary standards: particular terminology for iron & steel industry, business related terminology
	Distribution operation from client end	Shipping notice, quality certification, non-radiant certification	
Total		Document standards: 36	Process standards: 14 Document standards: 30 Classification standards: 4 Vocabulary standards: 2

In 2003, the budget supported by IDB assisted two benchmark industries, heavy electronics and machinery, to develop e-Business standards application. Moreover, seven major domestic manufacturers of benchmark industries were in cooperation with their upstream and downstream to implement the e-Business standards. The application of e-Business standards included inquiry, quote, order, shipping, quality control and payment of e-Business standard items.

Also, five user-groups were supported by the IDB to develop the plan of e-Business standard application, including the industries of heavy electronics, machinery, filament weaving, iron & steel, and pulp & paper. There were five primary industrial associations carrying out these plans, including Chinese Taipei Association of Machinery Industry, Chinese Taipei Electrical & Electronic Manufacturers' Association, Chinese Taipei Silk & Filament Weaving Industrial Association, Chinese Taipei Paper Industry Association, and Chinese Taipei Steel & Iron Industries Association.

The professional training courses and discussion for the industries in the fields of e-Business standards application were provided as well, the courses focusing on XML, UML, ebXML, and etc. There were sixteen courses held in Taipei, Taichung and Kaohsiung with more than 180 participants.

In 2004, IDB learned that the environment for e-Business standards application was getting more and more mature, and expanding standard users in any manufacturing industry is a key success factor for the development of e-Business in the future. IDB decided mainly to support industrial users who can commit themselves to implement e-Business standards. Machinery and filament weaving industries have been applied and got sponsorships to implement e-Business standards they have developed these years and kept maintaining standards as well.

"e-Business standards implementation projects for machinery industry, 2003~2006" were organized by the Precision Machinery Research & Development Center (PMC). User group members are Falcon Machine Tools, Anderson, Fu Sheng Industrial, Fu Chun Shin Machinery Manufacture, Victor Taichung Machinery Works, and Tung Pei Industrial. Rexon Industrial, Chinese Taipei's biggest manufacturer of motor-driven tools manufacturer, joined the project in 2005. They set up 28 machinery industry e-Business standards and these seven companies invited over 220 suppliers to use peer-to-peer TAMIvas turnkey solutions. The feature of machinery industry is that they set not only document standards but also transmission protocols to improve data communication efficiency. (Table 3)

☐Table 3：e-Business Standards In Machinery Industry (Source: IDB, MOEA)

No.	Cluster	Segment	*PIP*
1	2A	2A1	New Product Information Notification
2	3A	3A0.1	Inquiry Apply Request
3		3A0.2	Inquiry Apply Response
4		3A1.1	Price And Availability Request
5		3A1.2	Price And Availability Response
6		3A4.1	Purchase Order Request
7		3A4.2	Purchase Order Response
8		3A8.1	Purchase Order Change Request

9		3A8.2	Purchase Order Change Response
10	3B	3B0.1	Shipment Notification Request
11		3B0.2	Shipment Notification
12		3B2.1	Shipment Receipt Request
13		3B2.2	Shipment Receipt Response
14		3B2.3	Quality Notification
15		3B18	Shipment Delivery
16	3C	3C0.1	Remittance Advice Notification
17		3C0.2	Remittance Advice Response
18		3C3	Accounts Checking Notification
19		3C5	Billing Statement Notification
20		3C6	Payment Notification
21	4C	4C1.1	Inventory Status Query
22		4C1.2	Inventory Status Response
23	6C	6C1.1	Support Service Request
24		6C1.2	Support Service Response
25	7C	7C1	Manufacturing Genealogy Query
26		7C2	Manufacturing Genealogy Notification
27		7C4.1	Quality Incident Notification
28		7C4.2	Quality Incident Response

Chinese Taipei Silk & Filament Weaving Industrial Association and Chinese Taipei Textile Federation organized "e-Business standards set-up pilot projects for filament industry, 2004~2005." User group members are Wisher Industrial, Sumagh High Tech, Tai Yuen Textile, Far Eastern Apparel, Everest Textile, Li Peng Enterprise, Formosa Taffeta, and Chinese Taipei Taffeta Fabric. They have setup 16 filament industry e-Business standards, such as order

request/response and order change request/response. 4 supply chains had implemented the standards and passed the pilot test. They also came out detailed plans for platform operations and developing profitable business models in the near future.

"User group" for e-Business standard applications has been proven to be a very good strategy, especially in machinery and filament industry. For small- and medium- sized enterprises, both of platforms and peer-to-peer solutions can save them a lot when they exchange business information with more than one customer. Big companies' buying force can also drive SMEs invest money without pain. After information flow related industrial standards have been set up and implemented, these two industries are going to make some plans about involving cash flow and logistics flow in their existing standards to enhance their competitiveness.

After industrial B2B data exchange standards were available, IDB has been developing an e-Business maturity evaluation standard, which is named as "e-Business Assessment Schemes for Enterprise, e-BASE," for manufacturers since 2005. According to "AIDA model" in marketing theory, enterprises should be aware of the importance of e-Business before they can take actions to implement e-systems. e-BASE, as a benchmarking system, can force enterprises to care about e-Business and their e-Business capabilities.

Referring mainly to Supply-Chain Operations Reference-model (SCOR) promoted by Supply Chain Council (SCC), IDB develops an e-BASE assessment tool, which encompasses 4 sections: "e-Readiness (Enabling)", "Source", "Make" and "Deliver." The purpose of 54 questions here is to measure the degree of e-application in different business operations. The current version focuses on ODM and OEM operation models and the scope will be expanded in the next phase.

Through the past four years of promotion, e-BASE has been tested and adopted by more than 5,846 domestic enterprises and attracted the attention of SCC, an international organization designated to the development of supply chain methodology. Due to the accomplishment that e-BASE has made, the SCC is further considering to include e-BASE in its SCOR.

The result shows that, in turns of e-Business operations, enterprises are more mature in the category of "e-Readiness (Enabling)", followed by "Make," "Deliver," and "Source." Different industries have different levels of maturity too. For example, information technology industry by far is the most mature industry in Chinese Taipei, followed by chemical industry, FMCG industry, and metalworking and machinery industry. As anyone can imagine, big companies get higher score compared to medium and small companies. In conclusion, the e-Business maturity of Chinese Taipei enterprises is improving.

In 2007 and 2008, due to the previous efforts, IDB was invited by SCC to join the "Customer-Chain Operations Reference-model (CCOR)" working groups to discuss the processes, metrics and best practices of sales activities and formulate the CCOR standard version one. The key processes include "Plan," "Relate," Sell," "Contract," and "Assist," and

the five major metrics are "Reliability," "Responsiveness," "Agility," "Asset management" and "Costs," while the best practices are still under discussion. Because of the early involvement of CCOR standard, Chinese Taipei manufacturers which focus on their own brands or channel developments can be benefited by learning from foreign successful stories.

In November 2008, there was an international seminar hosted by IDB to introduce most updated CCOR standard including processes, metrics and best practices to Chinese Taipei own brand manufacturers, such as Mio Technology, Johnson Health Tech., Gigabyte, and BenQ. The keynote speaker, Caspar Hunsche CTO of SCC, was very pleased to know Chinese Taipei companies want to adopt CCOR standard to improve their customer chain processes and activities to pursuit the world class performance, and understand the meaning and value of standards for Chinese Taipei industry. Due to the efforts, IDB was rewarded a "Commitment Award" by SCC to show the contribution of IDB to the international standard community.

3.2 Commerce

3.2.1 The Achievement of e-Business Consulting in B2B for Chinese Taipei Distribution Services Industry in 2008.

In order to create high additional value and efficiency for Chinese Taipei distribution services industry, the Department of Commerce, Ministry of Economic Affairs, launched the "The Sectors of Electronic Commercial Promotion Plan" and "The Electronic Commercial Pioneer Promotion Plan" to integrate upstream and downstream enterprises in the distribution services industry. The government anticipates that both of the plans can assist the distribution services industry in re-structuring the business processes, strengthening or integrating the marketing channels. What is more, the enterprises can also sort out the proper operation processes, collaboration models or industrial horizontal strategic alliances, and then target the applications of the most appropriate e-business model in its operation. Finally, the full e-business solution of industrial value chain can be established.

"The Sectors of Electronic Commercial Promotion Plan" aims to drive the integration and collaboration between supply chain and demand chain. It provided consultations for 16 enterprises (including applications and community service platforms) in distribution services industry and 5,228 enterprises applied B2B e-business solution in 2008. The benefits include integrating diverse resources, enhancing the operating efficiency of value chain, and consolidating customer relationship. Table 4 depicts the e-business development among different businesses in 2008 :

☐Table 4：The Main e-Applications of Different Businesses for Distribution Services in 2008

Business	The number of counseled enterprises	The number of co-operative enterprises	Major e-Business application list
Computer, Communication and Consumer Electronics	2	312	1.e-Purchase Management 2.Online After-Service System 3.DSS(Decision Support System) 4.Logistics Management System
Cosmetics and Medicine	2	1,402	1.e-Purchase Management 2.CRM(Customer Relationship Management) 3.DSS(Decision Support System)
Auto Components	1	1,009	1.e-Purchase Management 2.e-Learning 3.Web 2.0 4.Store Management System
Cleaning Services	1	241	1.e-Purchase Management 2.Inventory Management 3.e-Invoice 4.Knowledge Management(KM)
Tourism	1	58	1.Online Booking System 2.e-Purchase Management 3.CRM(Customer Relationship Management)
Wholesale of Building Materials	1	120	1.Online 3D Designing System 2.e-Purchase Management 3.CRM(Customer Relationship Management)
Food and Commodity	4	244	1.Inventory Management 2.e-Purchase Management 3.CRM(Customer Relationship Management) 4.POS
Community Service Platform	4	1,842	1.e-Catalog 2.e-Purchase Management 3.Sale Management 4.Web POS 5.EC Website
Total	16	5,228	

In addition, "the Electronic Commercial Pioneer Promotion Plan" makes efforts in increasing the industrial international competitiveness and assisting the enterprises in linking with the global supply chains. 8 enterprises carried out the innovative, large-scale or international projects obtaining consultations in 2008. Furthermore, they integrated 5,529 upstream and downstream enterprises to connect the value chain with the innovative business model. Besides, there are also 2,089 companies selling their products to the international market. Table 5 is the brief introduction that resulted from the 8 projects:

Table 5：The Summaries of e-Business Consultations for Distribution Services in 2008

Enterprise	Summary
SENAO International CO., Ltd.	It cooperates with the national mobiles companies to analyze the customers' requirements and to customize marketing activities as well as to provide the mobiles with excellent quality and reasonable price for the consumers.
Rock Mobile Corporation	In order to publish and sell the digital music to satisfy the consumers, it assists the composers in delivering their creative lyrics and melody on the platform as well as transforms the digital formats automatically.
Hsin Tung Yung Co., Ltd.	It drives the products pedigree mechanism to ensure the food safety and to reduce the resources consumption.
Chinese Taipei Car Rental Co.,Ltd.	It integrates the relative travel information and customizes the planning service in order to expand the business from transportation to travel planning.
President Transnet Corp.	Through the multi-national carrying from the place of production, it establishes the new cooperation model in international trade as well as enhances the image of Chinese Taipei's special products.
Grimm Press Ltd.	It pushes ahead with the applications of culture and creativity in multi-domains and overseas markets in order to promote the international exposure of Chinese Taipei's publishing.
Ai-Nung Enterprise Co.,Ltd	It assists the indigenous peoples in building up the linkage between culture and industry and then develop the learning ability of modern operating management.
Makalot Industrial Co.,Ltd.	In order to expand the business(from OEM/ODM to OBM), it tries to manage multi-brands clothing through the strategic alliance and establishing their own sales channel.

3.2.2 Achievement of Chinese Taipei "Logistics & Supply Chain Management Service Initiative" in 2008

To promote and support Logistics Service Providers (LSP) to enhance business scales and service capabilities in global marketplace, the Ministry of Economic Affairs led and sponsored the " Logistics & Supply Chain Management Service Initiative". The Ministry encourages LSP to consolidate with each other and develop value-added logistics services and supply chain solutions by adopting ICT technologies, enabling them to meet the ever-increasing needs of the enterprises whose business environments have changed dramatically. So as to enhance supply chain efficiency, lower inventory level and overall supply chain operational costs, and eventually to be more competitive in managing global supply chain.

In 2008, Department of Commerce supported 6 projects, including 3 logistics alliances, and 3 niche logistics services, and 4 public e-logistics hubs. Totally 117 LSPs and 73 enterprises have joined theses e-logistics hubs to conduct freight document exchange、 On-line Booking、Route Optimization、Cargo Tracking,、VMI、Order Management、RMA、 and Billing process electronically. The government's " Logistics & Supply Chain Management Service Initiative" has significantly enabled LSP to provide integrated logistics services, to exchange freight information efficiently, and provide timely shipments and inventory visibility along the supply chain. In additions, LSPs have increased NT$135 million investment in ICT and e-logistics services. It essentially helps to upgrade the level of service as well as the competitive edge of Chinese Taipei logistics industry. The service features that e-Logistics Hubs provide are illustrated in Table 6.

☐Table 6：The Service Features of e-Logistics Hubs in 2008

e-Logistics functions	Type of e-logistics Hubs	No. of supported Hubs	Led by LSP Companies	No. of LSPs participated
1. e-Documents 2. e-Booking 3. e-VMI 4. Order Management 5. Route Optimization 6. Cargo Tracking 7. e-Billing 8. RMA	Logistics Alliance	3	1. EVERGREEN Logistics Co., Ltd. 2. T.V.L GLOBAL Logistics Co., Ltd. 3. TOP EXPRESS Inc.	51
	Niches Logistics	3	1. DG Specialty Ltd. 2. CENTRAL FREIGHT TERMINAL Co., Ltd. 3. ACS WORLDWIDE EXPRES Inc.	66

Furthermore, Department of Commerce has developed 59 XML standard documents for logistics operations, fully complying with United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) ebXML、UMM、CCTS(Core Component Technical Specification)、and NDR(Naming and Design Rule). Up to 2008, the standard documents have been adopted by 2,807 LSPs. This infrastructure not only expedites the deployment of e-logistics service among Chinese Taipei logistics industry, but also ensure the interoperability with global logistics community in the near future.

3.3 Environmental Protection

Chinese Taipei Environmental Protection Administration (TEPA) has been developing a number of environmental-related data standards and information systems for environmental data exchange and sharing. The preliminary results in the past year are summarized as follows.

1. Environmental Quality Geographic Data Standards (DRAFT)

In order to promote the circulation of environmental quality monitoring data and integrate heterogeneous geospatial data, TEPA is drafting a data standard about environmental quality monitoring following the international standards that Open Geospatial Consortium and international standard organizations have set. TEPA unified the content and format with Geography Markup Language (GML) to accelerate the electronic data exchange of environmental quality monitoring data. The standards also encourage the integration with geographic information system and get more value-added application. There will be about 20 items of environmental quality geographic data standards be drafted in 2009. All are about air quality monitoring data and water quality sampling data. The processes of consulting with scholars, specialists, industries and other organizations are being carried out. Finally the standards can be announced. The environmental quality monitoring data will be well defined and formatted. Exchange and application of environmental quality data will be more convenient.

2. Chinese Taipei Environmental Data Warehouse System (TEDWS)

In order to integrate various environmental information into Chinese Taipei Environmental Data Warehouse System(TEDWS), TEPA constructs an integrated data repository to consolidate and reconcile information from across disparate TEPA units and separate systems, including the Air Pollution Control System, the Water Permit Database, the Hazardous Waste Control System, and the Toxic Release Database. The TEDWS exchanges data through the usage of Web Services technology, XML file, with

30 different information systems which are mentioned above, to make the exchange process easier and more reliable. The data extracted from heterogeneous sources can be transformed into a standard format so that it can be easily accessed by the public. Furthermore, the Data Warehouse can also create a powerful analytic platform for strategic decision-making.

3. TEPA Certifications for Customs Clearance Checking System (CCCS)

In line with the Facilitation and Networking of Trade Project, the TEPA has established a system that connects with the Customs system for cross checking of the Permit and the Customs declaration to facilitate the cargo clearance procedures. The system can access the existing systems of the Department of Waste Management and the Department of Environmental Sanitation & Toxic Substance Management, in order to acquire permits information. This system also checks the customs declaration data (X801) against the relevant data items of the concerned permit to ensure the consistency between declaration and the permit of the cargo. Having done the checking, the system will return a message of X802 to the Customs system. The Customs system can proceed its following procedures with the X802 message. Through the checking process the cargo clearance can be completed without any paper work involved.

4. Water Quality Data Exchange System (WQDES)

The purpose of this system is to provide a platform for water quality data exchange, integration, and sharing in Chinese Taipei. Currently, there are many organizations and agencies, including federal government agencies and local communities, involving the work of water quality monitoring. It is very difficult to share water quality data since the information typically resides on geographically disparate and heterogeneous databases in different data formats and semantic. WQDES adopted XML as a standard for water quality data exchange among different agencies and implemented a number of software toolkits that can assist each agency to transform their data to a XML file, making the data exchange more efficiently.

3.4 Transportation

3.4.1 The Ministry of Transportation & Communications (MOTC) launched the "Maritime Transportation Net (MTNet)" since 2002, which acts as the integration architecture to be a key channel for business parties' information exchange of marine transport and seaport stevedoring. Figure 4 shows the current structure of MTNet.

<Figure 4：Structure of MTNet>
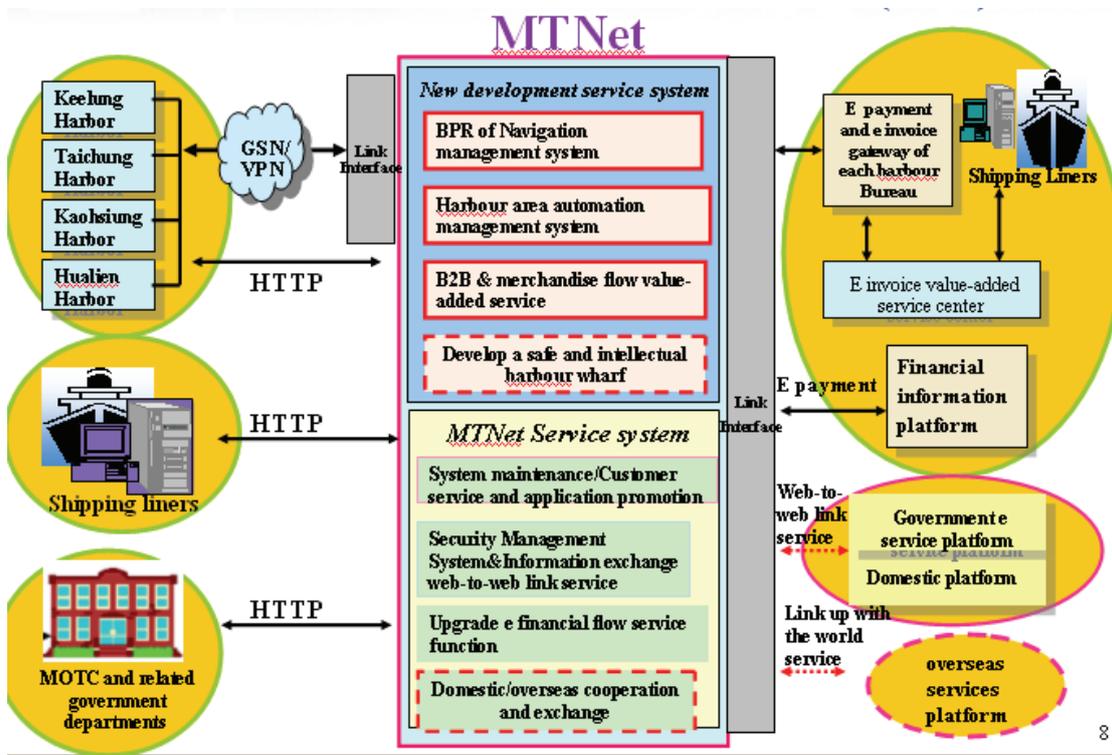
3.4.2 The "e-Payment and e-Invoice system" is implemented under the MTNet for developing a network service application which users are able to complete payment operations in a single application entry point. This year, Kaohsiung port, Hualien port, Taichung port , Keelung port and Su-Ao port on line will promote to more users. Taipei port and Anping Port are implemented in operations.

3.4.3 The "Navigation Administration Control" of MTNet has used Business Process Re-engineering (BPR) method to build a "customer orient" administration system to save the time of application process. The "Shipping Industry Management System" of MTNet will offer users managing the institution of Shipping Industry, registration of changes, management of ship line, freight rate controlled. Its purpose is to preserve methodical marine transport. The"Entry and Departure Port Clearance Management System" of MTNet has offered users to apply for vessel Entry and departure port clearance , verify every certificate of vessel, document of seaworthiness and amount of crew to dispose for safety, indeed check on shipping safety.The "Vessels Management System" of MTNET has offered MOTC and Harbor Bureau officers efficiently to manage Vessels of Chinese Taipei on ship purchasing/building, ship registration, S.I.(Ship Inspection) and certification issues. The "Marine Technologist Management System" of MTNET has offered users to maintain and manage training records, serving experience on ships, hiring qualification/permission, and issuing certification of Marine Technologists.

3.4.4 The "E-Delivery-Order System" of MTNet will finish pilot run and promote more users this year.

3.4.5 The "National Habor and Stevedore Services integrated system" of MTNet will offer users integrated interfaces and to follow   the controls of most of harbors and stevedore service functions that are currently different from harbor to harbor.

3.4.6 The "Port Access Passes system" of MTNet will offer users applying for port of Keelung, Taichung, Kaohsiung and Hualien long or short-term access passes.

3.4.7 The IMO FAL Form Dangerous Goods Application System for Kaohsiung port, Hualien port, Taipei port will be in operation this year.

3.4.8 The MTNet starts to plan for the integration and interfacing with the Nation Single Window System for Chinese Taipei.

3.5 Customs

There are two major engineering programs in our Customs modern history on Customs clearance. One is the Full Scaled Customs Clearance Automation from 1990 to 1995, via which Trade-van was established to handle the data exchanging between the Customs and the related trading partners including Customs brokers, licensing agencies, shippers, airliners, warehouses, banks, etc. The other program is the collaboration of Customs and 16 licensing agencies via setting up FTNet (Facile Trade Net) in 2005 to provide integrated services to the traders. Once the Customs receive green light from licensing agencies, it neglects the paper review requested by licensing agencies. That mechanism reduces more than 40 percent of paper work and shortens cargo release time. For example, more than 90% export air cargoes are released without Customs officers' documents review and physical examine comparing to 80% in 2005.

While making efforts to offer facilitative services by a way of advance information system, the Customs also carefully secure information operation environment. In March 2009, the Customs passed external audit, and gained a certificate on ISO/IEC 27001:2005 regarding clearance system, EDI system, etc. Every half year the Customs has to be continually assessed so as to keep the certificate effective. Every passage proves the Customs' capability to provide favorable and secure environments for both the Customs officers and the traders.

To carter for the world's trend, our Customs is planning to adopt WCO SAFE framework, WCO Data Model 3.0, Revised Kyoto Convention, and UN/CEFACT recommendations. The Customs is launching a plan to integrate existing three network systems including CCAS network (Customs, Ministry of Finance), FTNet (Bureau of Foreign Trade, Ministry of Economics) and MTNet (Ministry of Transportation and Communications). Before the end of 2012, a single window will be built. The single window will be a common portal for the traders to file their applications. At the same time, a central repository will also be designed to allow the related government agencies to share import and export data. The single window is ultimately to become the bridge connected to the other economies.

This is a year of "Pre-planning" for the Customs. Five sub-projects including "Single window", "Cargoes' advanced declaration", "AEO implementation", "Safety of cross-border cargoes' movement" and "Modernization of cargo inspection" are elaborately prepared for the further planning, development and execution. These five sub-projects are the milestones for the Customs to move forward to a new era. Although complex and difficult, the Customs are confident to fulfill the promise to create a more efficient environment before 2012 for the assistance from the superior administration, fellow government agencies and the stakeholders had never been more ample like today.

3.6 Finance

3.6.1 Current Status of Financial EDI Standards Application：

Refer to UN/CEFACT/EWG electronic data exchange standards：

Application System	Related Messages	Indexes
Payment process	PAYEXT、CREEXT、DEBADV、BANSTA、AUTACK	D.95A
Control	CONTRL	D.94W
Cross-bank payment process	FINPAY BANSTA	D.95 Draft D.95A
L/C process	DOCAPP、DOCINF、DOCADV、BANSTA、DOCAMR、DOCAMI、DOCAMA、DOCARE、AUTACK	D.95B
Lump-sum payment process	PAYMUL、DIRDEB、DEBMUL、CREMUL、BANSTA、FINPAY、CREMUL	D.95A
Foreign currency payment process	PAYEXT、CREEXT、DEBADV、BANSTA、AUTACK	D.95A
Notice process	APERAK	D.95A

3.6.2 Current Status of Finance Development Using EDI：

Subscribers:

- Financial organizations：22

- Clients: around 12000 users in the field of Electric、Information Service、Transport、Trade、Medicine、Pharmaceutical Industry、Chemical Industry、Finance and so on.

3.6.3 Transaction Statistics：

- In 2008, cross-bank transactions through Financial EDI reached 3200862 deals in

total, the total amount of money was 90,422 million US dollars and the average amount per deal was USD 28,249.

	Transaction	Total amount of money	Average amount per deal
2005	2,617,142	82,150 million US dollars	US$ 31,400
2006	2,774,598	81,092 million US dollars	US$ 29,300
2007	3,012,961	91,145 million US dollars	US$ 30,300
2008	3,200,862	90,422 million US dollars	US$ 28,249

3.6.4 Message Development of Financial XML Standards：

Regarding the development of e-Commerce financial messages, the following XML messages are designed for electronic data exchange between clients and banks. The messages are based on IFX (Interactive Financial Exchange) XML Implementation Specification v.1.4.

Base services: Service Account Inquiry Request/Response

       Service Profile Inquiry Request/Response

Bank services: Account Inquiry Request/Response

       Balance Inquiry Request/Response

       Deposit Account Statement Advise Request/Response

       Deposit Account Transaction Inquiry Request/Response

Pay services: Payment Add Request/Response

       Checksum Add Request/Response

       Payment Modification Request/Response

       Payment Cancellation Request/Response

       Payment Audit Request/Response

       Payment Synchronization Request/Response

       Payment Inquiry Request/Response

Account aggregation: Balance Inquiry Request/Response

Deposit Account Statement Advise Request/Response

Financing/Factoring: Credit Line Add Request/Response

Reimbursement Account Add Request/Response

Reimbursement Account Modify Request/Response

Reimbursement Account Cancel Request/Response

Reimbursement Account Inquiry Request/Response

Account With Bank Modify Request/Response

Account With Bank Inquiry Request/Response

Financing Bank Inquiry Request/Response

Credit Line Inquiry Request/Response

Financing Document Add Request/Response

Financing Document Cancel Request/Response

Financing Document Input Request/Response

Document Inquiry Request/Response

Financing Document Verify Request/Response

Financing Document Inquiry Request/Response

Draw Down Add Request/Response

Draw Down Cancel Request/Response

Due Payment Notice Request/Response

Reconcile Input Request/Response

Supplier History Inquiry Request/Response

Notification: Financing Synchronization Response

Notification: Payment Synchronization Response

Funds Transfer: Transfer Add Request/Response

Transfer Synchronization Request/Response

Transfer Audit Request/Response

The Bill Presentment Service:

Biller Inquiry Request/Response

Bill Inquiry Request/Response

Bill Status Modification Request/Response

3.6.5 Current Status of Finance Development Using XML:

There are 16 banks provide XML services to their customers.

3.6.6 Transaction Statistics:

- In 2008, cross-bank transactions through Financial XML reached 210998 deals in total. The total amount of money was 2,121 million US dollars and the average amount per deal was USD 10,052.

	Transaction	**Total amount of money**	**Average amount per deal**
2005	32,069	454 million US dollars	US$ 14,200
2006	57,214	646 million US dollars	US$ 11,300
2007	105,365	1,202 million US dollars	US$ 11,400
2008	210,998	2,121 million US dollars	US$ 10,052

The Bankers Association of The Republic of China participates in IFX activities actively - not only participating in Banking /Branch banking / Web services working groups also represent in the Steeling Group. We wish to introduce IFX standards into Asia to help promoting electronic data interchange between trading partners and facilitating e-business.

3.7 Construction and Planning

Implementation of Public Construction Information System

A five-year plan initiated in 2002 to build a "Public Construction Information System (PCIS)" has been accomplished in FY 2008 . The goal of this plan is to establish an integrated cross-ministerial implementation mechanism, set up strategies related to electronic operations, set common data-exchange standards, and build a public construction data bank and other IT infrastructure, so as to effectively implement the e-procurement and e-management of public constructions. These efforts are aimed to make the procurement and management of public construction works more transparent,

fair, efficient and effective. Major achievements are summarized as follows:

1. Data exchange standards: By the end of 2008, with the creation of 14 new data exchange standards, there are now 60 XML-based data exchange standards developed under this PCIS plan. The 60 standards, as listed in Table 1, which cover mainly 2 categories – government procurement and construction management, including e-Tender Management, e-Tender Notice, Common-Supply Purchase Order Management, B2G Engineering Progress Control, G2G Engineering Progress Control, PE and Engineering Firm Management, Engineering Documents' Metadata and Transport Protocol. Besides, 184 engineering terms were added to the Public Construction Data Dictionary (DD) in 2008, accumulating the total number of definitions to 1,245. It contributes a lot to the uniform use of the vocabulary of construction and promotes the e-enabling of construction information systems. Some terms defined in this plan in the past years are also revised in order to be harmonized with UN/CEFACT's Core Components.

2. B2G data exchange promotion: In the effort to build up a public construction data sharing mechanism and promote the value-added application and sharing of data among systems, so as to upgrade the performance of construction management and extend exchange standards for engineering daily report, guidance was provided to a total of 138 units (including 28 public sectors and 110 private sectors) and 262 bid cases. At the end of 2008, total tender value of more than NT$90.9 billion was related to the exchange standards for engineering daily progress report.

3. PE and engineering consulting firm management: Guidance was provided to 8 consulting firms in carrying out the introduction and transmission of annual business report data of a total of 1,799 items. This helps in reducing the time required for completing reports from days to five minutes and saving each consulting firm up to 320 man-hours per year.

4. Wide-spreading Data Exchange Standard: Knowing that data exchange standards are to be shared, most of the data exchange standards and data dictionary items developed under this plan have been released through GPL-like mechanism. Not only schemas but also source codes for some applications can be freely downloaded from Open Source Software Foundry (OSSF) in Chinese Taipei.

Both public and private sectors are now benefiting from the convenience and efficiency of using public construction data exchange standards. With all these efforts devoted to the development and extension of exchange standards, we expect to see more successful applications covering the life cycle of construction projects.

Table 7：Standards Announced for Data Exchange in Public Construction in Chinese Taipei as of Dec 31, 2008

Category	Type	Standard Item
Government Procurement	e-Tender Management	(1) Instruction for Tendering (2) e-Tender (3) Tenderer's Statement (4) Joint-Tendering Agreement Template (5) Construction Work Contract (6) Service Contract (7) Property Contract (8) Tender Log for Tendering Opening / Prize Negotiation / Award / Failure of Tendering Opening / Failure of Award (9) Document Structure of Solicitation / Tendering (10) Document for Solicitation / Tendering / Contracting
	e-Tender Notice	(1) Open Tendering Notice (2) Limited Tendering Notice (3) Selective Tendering Notice for Specific Procurement (4) Selective Tendering Notice for Establishing a list of Qualified Suppliers (5) Selective Tendering Notice for Inviting Qualified Supplier (6) Tender Award Notice (7) Tender Failure Notice (8) Efficiency Analysis Notice for Large Procurement (9) Debarred Supplier Notice (10) Suspended Debarred Supplier Notice (11) Outstanding Supplier Notice (12) Jointly Guarantee Supplier Notice (13) Experts and Scholars Listing for Procurement Evaluation Committee (14) Teachers for Procurement Training Courses (15) Professional Procurement Officers

	Common-Supply Purchase Order Management	(1) Demand Inquiry (2) Procuring-Entity Registry (3) Procuring-Entity Demand (4) Supplier Registry (5) Product Specification (6) Inter-Entity Supply Contract (7) Purchase Order (8) Notification

Construction Management	B2G Project Progress Control	(1) Construction Daily Report (2) Supervision Daily Report (3) Progress Report by Week / Month (4) Progress Payment
	G2G Program Progress Control	(1) Program Control (2) Project Control
	PE and Consulting Firms Management	(1) Annual Business Report (2) List of Professional Engineers (3) Certification Data of P.E. (4) Training Data
	Engineering Documents' MetaData	(1) Document Index (2) Meta- General Engineering (3) Meta- General Engineering Volume (4) Meta- Contract (5) Meta- Construction Specification (6) Meta- Construction Plan (7) Meta- Completion Report (8) Meta- General Engineering Drawing (9) Meta- Design Drawing (10) Meta- As-Built Drawing (11) Meta- General Engineering Record (12) Meta- Minutes of Meeting (13) Meta- Engineering Photo (14) Meta- Engineering Tape (15) Attribute of Drawing (16) Review Comment List
Others	Transport Protocol	(1) e-Envelope

3.8 Trade Facilitation Plan

In response to worldwide trends in trade facilitation and simplification of trading procedures, Chinese Taipei launched the "trade facilitation plan" in 2003. The plan, which is managed by the Bureau of Foreign Trade, was derived from the "Barrier-free Customs Clearance Project" of the "Operation Headquarters Development Plans" in the "Challenge 2008: National Development Plan", to develop "Facilitation and Digitization of Trade Processes". The "Trade Facilitation Plan" plays a vital role in providing trade-related businesses with an integrated environment of trade management, customs clearance, licensing and inspection; moreover, it improves Chinese Taipei as one of the most facile countries in global trading. Businesses are no longer limited by time, locations and level of digitalization. Overall customs clearance time is substantially shortened, related costs, such as inventory and logistics costs, are reduced as well.

To realize the objectives of the "Trade Facilitation Plan", Chinese Taipei established Facile Trade Net (so called FT-Net), which integrates 16 government agencies/authorities to build the on-line application system, in 2005. Businesses can now apply electronically for import/export permits, certificates of origin, documents required for inspection, and quarantine-related documents either from BOFT, the Bureau of Standards, Metrology and Inspection (BSMI), the Bureau of Animal and Plant Health Inspection and Quarantine (BAPHIQ), or any other 13 relevant agencies. This FT-Net has not only speed up application procedures, but also customs clearance operations, and represents a big step toward realizing the goal of "paperless trade". Currently, over 90% of import/export applications are applied for via paperless process (either by FT-Net or by the government website)

Once businesses apply for licensing and customs clearance via FT-Net, FT-Net automatically sends the applications to the related governmental agencies. If validation is needed from different governmental agencies, FT-Net sends the case to Customs first for validation and then distributes it to the related agencies for final approval (as shown in the figure 1). Via FT-Net, along with supports from enterprises, we can efficiently integrate related governmental agencies and international trading partners and build up a facile trade e-environment to reduce barriers.

＜**Figure 5：Facile Trade Net (FT-Net) Framework**＞
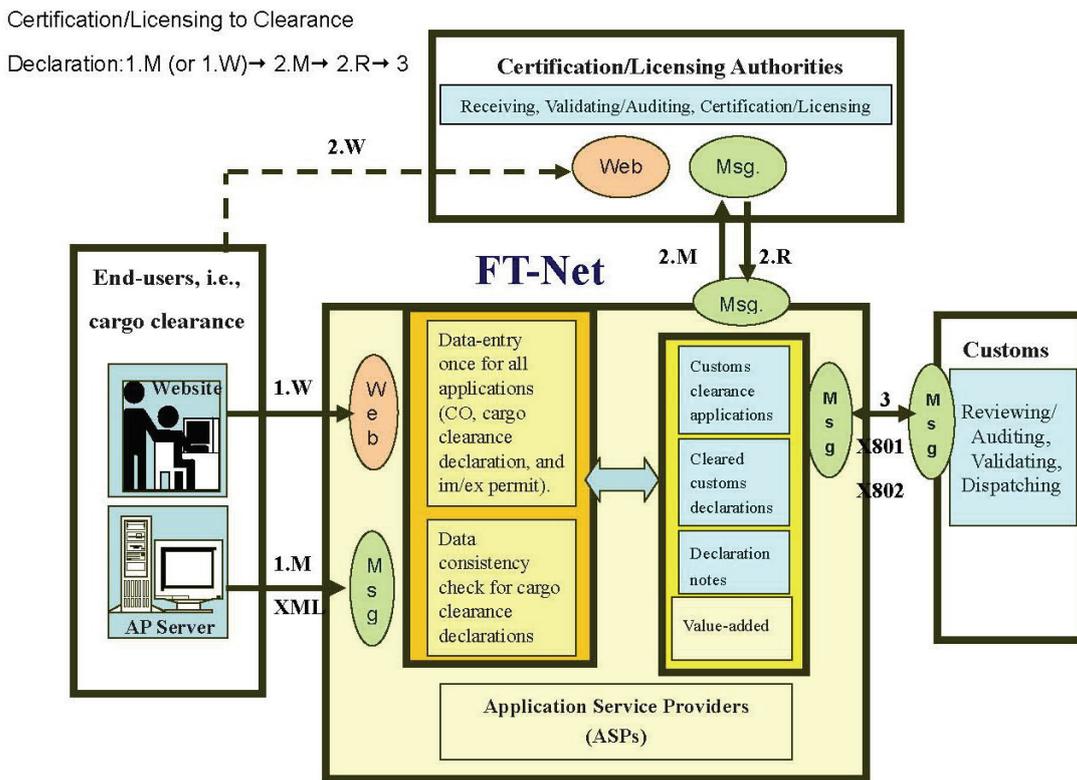
Note：*W stands for Web Submission, M stands for XML Message Application,*
and R stands for Application Response.

The benefits and results that the Trade Facilitation Plan and FT-Net have achieved can be enumerated as follows:

1. Benefits of simplification: Simplified rules and regulations help reduce the inspection time by 50%. (e.g. Quarantine document review from 3~7days to 32 hours; animal medicine certificates and permit documents from 12 days to 7 days; plant medicine certificates and permit documents from 14 days to 10 days). About 11,000 licensing documents are decreased every year.

2. Benefits of digitization: Completed the design for 36 XML standard messages. Completed 7 common messages including messages between the customs and licensing agencies. From March 2005 to July 2009, those using electronic

applications numbered 3.6 million (about 91.74% of total), saved operation time of 17.666 million hours. (Time saved for businesses, for licensing agencies and for customs clearance.)

3. Benefits of paperless trade: Direct benefits: All 16 licensing agencies put e-trade operations on line by year 2008, and 90.36% import/export applications were via paperless process, saved 7,297 million pieces of paper. Indirect benefits: decreased many kinds of documents audited manually, and saved costs in document storage.

The Trade Facilitation Plan has been elaborating the overall capability over the years. Chinese Taipei depends heavily on trade development, so trade facilitation generates results. Further and ongoing simplification and modernization of customs procedures and building a barrier-free electronic customs clearance environment can reduce trade costs and increase our businesses' international competitiveness which is our constant goal.

INDIA Progress Report

**eTrade Division
Department of Commerce
Ministry of Commerce & Industry
Government of India
New Delhi**

2009 Members Progress Report : INDIA

SECTION I – GENERAL CONDITION UPDATE

1.1 Electronic Commerce (EC)/Electronic Data Interchange (EDI) Users

Over the years telecommunication activities in India have improved significantly and India continues to be one of the fastest growing major telecom markets in the world. The governmental as well as non-governmental organizations have also helped the Internet infrastructure to become stronger in India. Sweeping reforms introduced by successive Indian governments over the last decade have dramatically changed the nature of telecommunications in the country.

Internet adoption continues to grow at a rapid pace in India. The majority of Indian Web sites are now being registered in the Indian domains like .in or .co.in. The registration for a two year contract costs just $99. E-commerce and growing demand for .in domain registrations are also the factors influencing the number of the online users. The broadband policy and other conducted initiatives of Ministry of Communications and Information Technology has encouraged increased adoption. A monthly broadband subscription costs as little as $4.50. The Ministry's initiative to make computers available for purchase under 10,000 rupees (or $205) is one more important factor. Also, the development of language fonts and localization of contents has been promoted to great extent by working with hardware manufacturers to remove the financial barrier for households in India.

All this has lead to a significant 1,520% growth during the period of 2000-2008. In 2000 just 0.5 % of the population (or 5,500,000) appeared to be Internet users. In the year 2006 the number was 40,000,000. According to the Internet Service Providers Association of India (ISPAI) in 2006 broadband usage in India was growing 20% per month, hence in 2008 the number doubled and the amount of people got an Internet access reached 81,000,000. Totally the number of users in India makes up 12.5% of the whole Asia.

As per a survey all most all (99%) B2B suppliers across India use internet for communication purpose.

1.2 EC Market size & Growth

As per Manufacturers' Association for Information Technology (MAIT), the industry body for IT hardware manufacturer's in India, IT Industry annual performance review 2008-09, the total

PC sales between April 2008 and March 2009, with desktop computers, notebooks and netbooks taken together, were 6.79 million units, registering a decline of seven per cent over the previous year. IT consumption in 2008- 09 was severely impacted, especially in the second-half of the fiscal year, by the slowdown in economy. The cumulative average growth from 2003-09 is 17%.

Total PC (Desktops & Notebooks) sales: 2003-2009
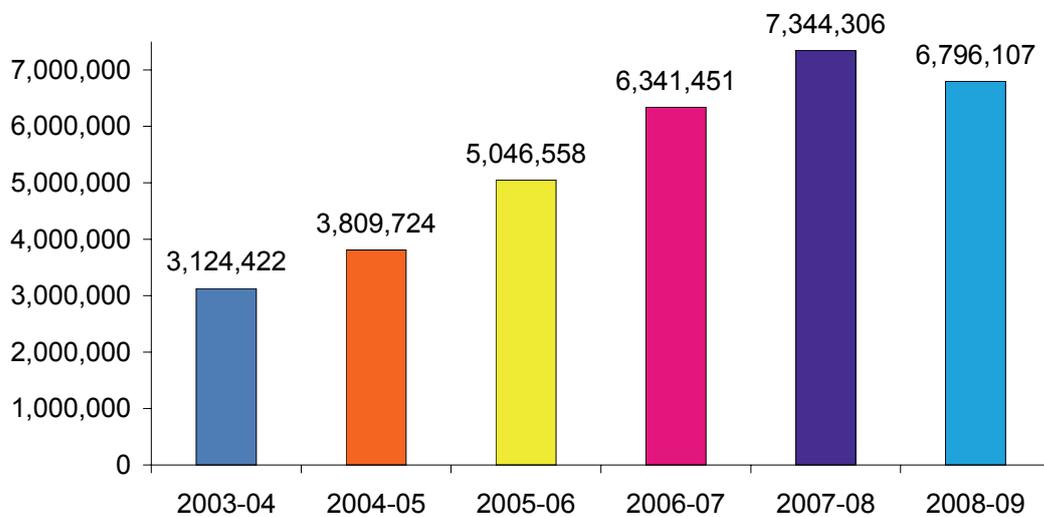
Active Internet entities: (March 2009)   '000 Units
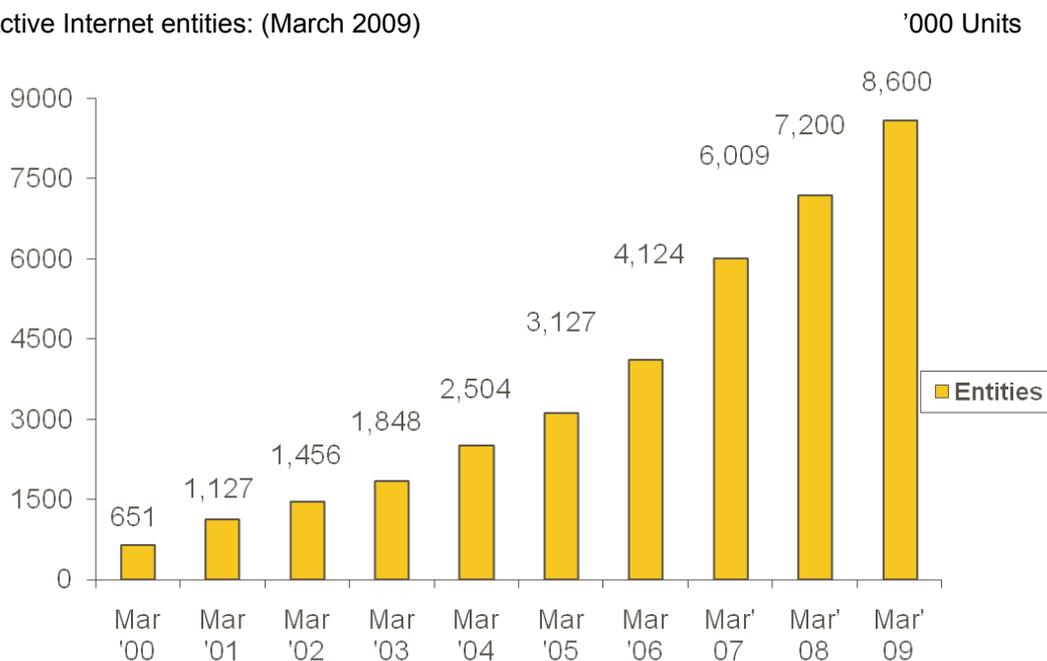
This translates to 60 million internet users (Entities are establishments/individual with internet connection; an entity may house/ be multiple user/s). The overall entities with internet grew by 20% over March 2008.   The businesses accounted for 28% of the entities growing 14% while Households accounted for 72% growing 22%.

Internet penetration: (March 2009)

Internet Penetration by Town class among Top 22 Cities of India

	Business Segment	Home
Overall	47%	24%
Top 4 Metros	52%	28%
Next 4 Metros	40%	20%
Other 8 Metros	47%	20%
Remaining 6 Metros	32%	14%

Mode of Internet access in Businesses: (March 2009)

Internet connections - Contribution to the total by Access type	March 2008	March 2009
Dial up	16%	31%
ISDN	18%	11%
Leased line	7%	7%
DSL/Cable Link	43%	45%
VSAT	2%	1%
Data Card	12%	4%
Others	2%	1%

Going forward, with signs of revival in the domestic economy, we expect positive growth for PCs and other IT products for the fiscal 2009-10.

As per Telecom Regulatory Authority, as of 31st March 2009, the figures for wire line, wireless telephone/mobile and internet subscriber base are as given below:

Telecom Subscribers (Wireless +Wireline)	
Total Subscribers	429.72 Million
% Growth during quarter	11.68%
Urban Subscribers	309.43 Million (72%)
Rural Subscribers	120.29 Millions (28%)
Overall Teledensity	36.98
Urban Teledensity	88.66
Rural Teledensity	14.80
Wire line Subscribers	
Total Wire line Subscribers	37.96 Million
% Growth During Quarter	0.15%
Urban Wireline Subscriber	27.38 Million (72.13%)
Rural Wireline Subscribers	10.58Million (27.87%)
Village Public Telephones (VPT)	5.61 Million
Public Call Office (PCO)	6.20 Million
Wireless Subscribers	
Total Wireless Subscribers	391.76 Million
% Growth During Quarter	12.93%
Urban Wireless Subscribers	282.05 Million (72%)
Rural Wireless Subscribers	109.71 Million (28%)
GSM Subscribers	297.26 Million (75.88%)
CDMA Subscribers	94.50 Million (24.12%)
Internet & Broadband Subscribers	
Total Internet Subscribers (including Broadband)	13.54 Million
% Growth During Quarter	5.30%
Broadband Subscribers	6.22 Million
Wireless Data Subscriber	117.82 Million

There are 13.54 million Internet subscribers at the end of March 2009 as compared to 12.85 million Internet subscribers at the end of December 2008 registering a growth of 5.30%. This growth rate is higher as compared to the growth rate of 5.01% at the end of December 2008.

Besides above, there are 117.82 million wireless data subscribers at the end of March 2009 (capable of accessing data services including internet through mobile handsets (GSM/CDMA)).

As per industry body NASSCOM in Financial Year 2008-09

- Total IT-BPO industry to reach USD 71.7 billion accounting for 5.8% of India's GDP; software and services revenues aggregated to about USD 60 billion

- Software and Services export revenues estimated to grow over 16-17% to reach USD 47 billion

- Direct employment expected to reach nearly 2.23 million, an addition of 226,000 employees, while indirect job creation estimated at around 8 million

- India's fundamental advantages abundant talent and cost are sustainable over the long term. With a young demographic profile and over 3.5 million graduates and postgraduates that are added annually to the talent base, no other country offers a similar mix and scale of human resources

- Seven Indian cities account for 95 per cent of export revenues, focus on developing 43 new locations to emerge as IT-BPO hubs

- Higher growth in European/Asian market

As regard future outlook, NASSCOM indicates:

- Despite the unprecedented economic downturn the industry will witness sustainable growth

- The global technology related spending is expected to grow from 2010 onwards led by growth in outsourcing adoption.

- Greater focus on cost and operational efficiencies in the recessionary environment is expected to enhance global sourcing

- India Inc would remain focused on tactical measures to achieve cost savings and greater productivity

- Services and software segments are estimated to cross USD 1.2 trillion by 2012. This is more than the 5.2 per cent growth expected in the total IT spending

- The industry will continue to diversify in terms of geographies, verticals and service lines

- Lack of working age population in the developed economies and a significant long

term cost arbitrage indicates India's sustained cost competitiveness

- Service providers are expected to enhance focus to domestic market to de-risk business and tap into the local growth opportunities

According to Internet and Mobile Association of India (IAMAI), a trade association that presents the e-commerce and mobile content and advertising industry, Indian citizens use Internet for a number of activities including e-mail and IM - 98%, job search – 51%, e-banking – 32%, bill payment -18%, stock trading – 15%, and matrimonial search – 15%.

E-commerce industry has touched $ 1919 million (Rs. 92100 million) as per the survey conducted by the IAMAI and Indian Market Research Bureau (IMRB)

- Online Travel Industry: growth rate of 30% to $ 1458 million (Rs 7,0000 million) by end FY08 (from $ 1146 million (Rs. 55000 million) in '07)

- Online Classifieds: reached $ 171 million (Rs 8200 million) by end FY08

- Online retailing/auction (eTailing): $ 230 million (Rs 1,1050 million) industries by end FY08 (from Rs 8500 million in FY07).

- Digital downloads (i.e. downloading from Internet to mobiles using wap phones or web) and paid content (research/exclusive videos/articles etc) for the rest.

Market size for the year	2006-07 (Figures in Rs. Million)	2007-08 (Figures in Rs. Million)
Online Travel Industry	55000	70000
Online Non-Travel Industry	15800	22100
- eTailing	8500	11050
- Online Classifieds	5400	8200
- Paid Content Subscription	200	300
- Digital Downloads	1700	2550
Total B2C/C2C E-Commerce market	**70800**	**92100**

Source : IAMAI and IMRB Analysis Report

As per survey, the major triggers of e-commerce in India were:

- Saves time and efforts

- Convenience of shopping at home

- Wide variety / range of products are available

- Good discounts / lower prices

- Get detailed information of the product

- You can compare various models / brands

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 Awareness and Education Programs

2.1.1 12th National Conference on e-Governance

At a time when many key technology and management strategies also are transforming the way government gathers, shares and gleans knowledge from the explosion of information available to policy makers and practitioners, the 12th National Conference on e-Governance based on the theme of "e-Governance: Breaking Barriers, Building Bridges", held from 12-13 Feb., 2009 in Goa India explored how government departments are working collectively to simplify access to public information, ensure the accuracy and privacy of the information they share, and analyze large data repositories to support actionable decision-making especially at the lowest level of governance in Gram Panchayats and Municipalities.

2.1.2 eINDIA 2009

The event was held in Hyderabad from 25-27 Aug. 2009. eINDIA 2009 is a unique platform for knowledge sharing in different domains of ICT for development and facilitates multi-stakeholder partnerships and networking among governments, industry, academia and civil society organisations of different countries, including the host country- India. The objective is to bring together ICT experts, practitioners, business leaders and stakeholders of the region onto one platform, through keynote addresses, paper presentations, thematic

workshops and exhibitions. The conference and exhibition is organised by Centre for Science, Develpment and Media Studies (CSDMS) and Elets Technomedia Pvt Ltd and has the Ministry of Communications and Information Technology as its co-organiser. eINDIA 2009, through its five seminal conferences, focused on five emerging application domains of ICT for Development - e-Government, ICT in Education, ICT and Agriculture, and ICT enabled Health services.

2.2 Message Development Activities

A project entitled "Electronic Commerce (EC)/Electronic Data Interchange (EDI) for Trade (eTrade)" is being pursued by the Department of Commerce to facilitate the electronic mode of transacting business in the area of international trade. The project is pursued in agencies/organizations like Customs, Ports, Airports, Directorate General of Foreign Trade (DGFT), Banks, Container Corporation of India (CONCOR), Export promotion organisations etc who form part of the community partners of the project eTrade.

As part of the project, Port Community System (PCS) has been implemented, which provides all the stakeholders, including the business, players and the government agencies, the facility to securely exchange the electronic documents/information with respect to the maritime transport chain in real time through the centralized intelligent electronic exchange components, such as Messaging Hub (for messaging), Transwork (for translation), and Maestro (for Business Process Routing). The stakeholders can transact and send the information securely and reliably to each other in structured EDI (TXT)/XML/EDIFACT message formats.

The stakeholders can transact and send/receive messages securely and reliably to each other in the following formats:

1. XML(Message Specifications and Schemas are provided to all stakeholders)

2. EDI(TXT)

3. UN/EDIFACT(United Nations Electronic Data Interchange For Administration, Commerce and Trade)

sers can exchange the documents using protocols like HTTP, HTTPS, Secure FTP (MHX) and EDIINT AS2. Following messages have been developed:

SL NO	Message ID	Messages / Functionality	Message Formats (PCS supports)
Vessel Module			
1	VESPRO	Vessel Profile	XML, TXT
2	CALINF	Voyage Registration	XML, TXT
3	CALINV	VCN Allocation	XML, TXT
4	PAXLST	Crew /Passenger List	XML, TXT
5	BERMAN	Berthing Application	XML, TXT
6	BERALT	Berth Allocation	XML, TXT
7	IFTDGN	Hazardous Cargo	XML, TXT
8	DGNACK	DGN Acknowledgement	XML, TXT
9	UNBERT	Reberthing	XML, TXT
10	RESREQ	Resource Requisition	XML, TXT
11	ALORES	Resource Allocation	XML, TXT
12	STOPLN	Stowage plan	XML, TXT
13	TPFREP	Terminal performance Report	XML, TXT
14	MOVINS	Stowage Instruction	XML, TXT
15	BAPLIE	BayPlan	XML, UNEDIFACT
16	VESDEP	Vessel movement.	XML, TXT
17	PLTMEM	Pilot Memo (New Message)	XML, TXT
18	ACKPLM	Pilot Memo Acknowledgement (New Message)	XML, TXT
19	PAISPS	Pre Arrival Notification (New Message)	XML, TXT

SL NO	Message ID	Messages / Functionality	Message Formats (PCS supports)
Container Module			
20	*COARRI*	*Container Loading / UNLOADING*	*XML, TXT, UNEDIFACT*
21	*GOCOFR*	Gate Open Report	*XML, TXT*
22	*COPARN*	Empty Container Release Order	*XML, TXT*
23	*COEDOR*	Container Stock Report	*XML, TXT*
24	*EICREP*	Equipment Interchange Report	*XML, TXT*
25	*JOBORD*	*JOB ORDER*	*XML, TXT*
26	*CLPMSG*	*CONTAINER LOAD PLAN*	*XML, TXT*
27	*COAHOR*	Container Spl Handling Order	*XML, TXT*
28	*COSTOR*	Container Stuffing	*XML, TXT*
29	*COPRAR*	Container Loading and discharge Order / Adv. Container List	*XML, TXT*
30	*COSTCO*	Container Stuffing / De-stuffing report	*XML, TXT*
31	*CARREQ*	Carting Request	*XML, TXT*
32	*CARCFN*	Carting Permission	*XML, TXT*
33	*CODECO*	Container / Cargo Gate-in Gate-Out Report	*XML, TXT, UNEDIFACT*
Finance Module			
34	*PDABAL*	PD Account Balance Details	*XML, TXT*
35	*PAYORD*	Pay Order	*XML, TXT*
36	*DLYSUM*	Daily Transaction Summary	*XML, TXT*
37	*REQVAC*	Assessment of Charges - Vessel	*XML, TXT*
38	*REQCAC*	Assessment of Charges - Cargo	*XML, TXT*
39	*REQCTC*	Assessment of Charges - Container	*XML, TXT*

SL NO	Message ID	Messages / Functionality	Message Formats (PCS supports)
40	REQCOC	Assessment of Charges - Containerised Cargo	XML, TXT
41	REQSAC	Assessment of Charges - Stevedoring	XML, TXT
42	CNFASC	Confirmation of Advance Assessment Charges	XML, TXT
43	INVOIC	Invoice	XML, TXT
44	REFORD	Refund Order	XML, TXT
45	PAYSTS	Payment Status	XML, TXT
Transport Module			
46	RAILRE	Rail Receipt	XML, TXT
47	RMLMEM	Removal Memo from Rack	XML, TXT
48	COPINO	Inland Way Bill	XML, TXT
49	CONTPE	Pendency of Container	XML, TXT
50	RAILSC	Train Schedule	XML, TXT
Cargo Module			
51	RLOENT	Application for Log Entry	XML, TXT
52	GLOENT	Log Entry Permission	XML, TXT
53	MATREC	Mate Receipt	XML, TXT
54	AGDORD	Bill of Lading/Agent Delivery Order	XML, TXT
55	STPCGO	Stowage Plan for Cargo (New Message)	XML, TXT

Also the messages for exchange with regaulatory agencies like Customs have been developed and integrated into the system.

SECTION III – e-Readiness and e-Application -- eGovernment/eBusiness Related PROJECT UPDATES

3.1 Regulatory Sector

3.1.1 Directorate General of Foreign Trade

3.1.1.1 Nature of Project

Directorate General of Foreign Trade (DGFT) is an organisation under Department of Commerce, Ministry of Commerce and Industry engaged in formulation of Foreign Trade Policy of the country and its administer. All types of licenses required for export and import within the country are issued by this organisation. The interface with trade and industry is provided by the 35 offices of DGFT scattered through out the country. EC/EDI implementation stipulates day to day electronic interface with trade and industry and related organisation for electronic delivery of services.

3.1.1.2 Status

Basic purpose of EDI initiatives is to improve services for DGFT user community, thereby achieving greater transparency of operations and reducing transaction costs by decreasing processing time for obtaining Authorizations from DGFT. DGFT has implemented an automated environment for electronic filing, retrieval and authentication of documents based on agreed protocols and message exchange with its community partners including Customs and Banks at all the 35 offices of the DGFT. The web based electronic application filing system facilitates on-line submission and processing of application in all the offices. Payment of licence fee is made through the electronic fund transfer mode (EFT).

Digital Signature have been integrated into the license application processing. Electronic data pertaining to Importer Exporter Codes, Duty Entitlement Pass Book (DEPB) shipping bills, DEPB licences, Advance Authorisations and Export Promotion Capital Goods Scheme (EPCG) Authorisations are being exchanged with Customs. This has also obviated the need for verification of Authorisations before allowing clearance. The message exchange system with Customs is being extended to cover all categories of shipping Bills relating to different export promotion schemes.

Directorate General of Foreign Trade
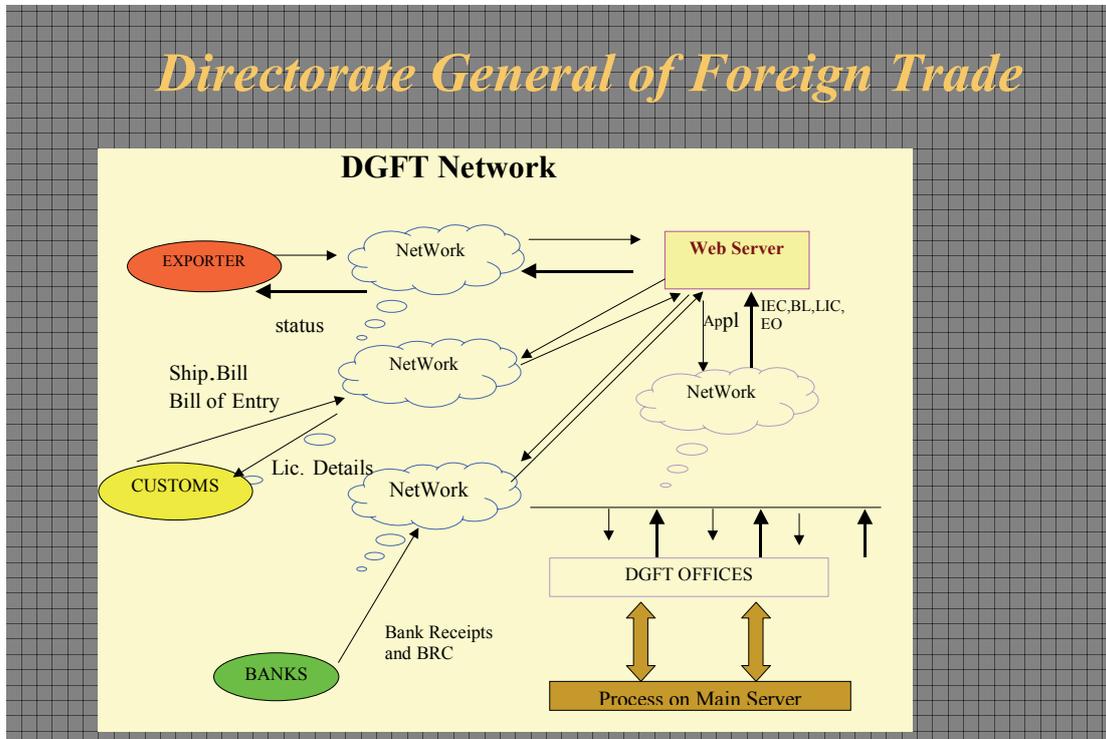
3.1.2 Indian Customs EDI System (ICES)

3.1.2.1 Nature of Project

ICES is a customs clearance system providing paperless transactions in the Customs House. The system is integrated with users and Bank. Import/export documents, Clearance messages are transmitted over the network to/from the Custom House Agents (CHAs) and trading community.

3.1.2.2 Status

ICES is now operational at 40 major customs locations handling nearly 75% of India's International trade in terms of import and export consignments. ICES has two aspects:

- Internal Automation of the Custom House for a comprehensive, paperless, fully automated customs clearance system that makes the functioning of Customs clearance transparent.

- Online, real-time electronic interface with the trade, transport and regulatory agencies concerned with customs clearance of import and export cargo.

ICES is designed to exchange/transact customs clearance electronically using Electronic Data Interchange (EDI). A large number of documents that trade, transport and regulatory agencies (collectively called trading partners are required to submit/ receive in the process of live customs clearance are now being processed online.

□Table：Customs EDI Trading Partners: Summary

Sr. No.	EDI trading partner	Nature of information exchanged through EDI	No. of messages (approx.)
1)	Importers/ Exporters/ CHA	Bills of Entry/ Shipping Bills and related messages	13
2)	Airlines / Shipping Agents	Manifests and cargo logistics messages	26
3)	Custodians (Airport / Port Authorities / CONCOR)	Cargo logistics messages	Airport – 17 Port – 30 CONCOR –12
4)	Banks	Financial messages – duty drawbac disbursal and customs duty payment	30
5)	Apparel Export Councils	Export quota information	8
6)	DGFT	License, shipping bills and IE Code data	13
8)	RBI	Forex. Remmittance data	1
9)	DGCIS	Trade statistics	2
10)	Directorate of Valuation	Valuation data	2

Three Systems are major Components of Custom automation and EDI

- The ICES running at 40 locations. ICES has to automatically receive and process all incoming messages. ICES generate all outgoing messages automatically at the appropriate stage of the clearance process.

- The Message Exchange Servers (MES). These are computers installed in the custom houses alongside the ICES computers and play as intermediate stations holding incoming and out going messages.

- ICEGATE & ICENET – which stand for the Indian Customs & Central Excise Gateway and Indian Customs and Central Excise Network respectively. ICENET is a network of all ICES 40 locations, CBEC, Directorate of Valuation, NIC and DGRI.

ICEGATE is a portal that provides e-filing services to the trade and cargo carriers and other clients of Customs & Central Excise Department (collectively called trading partner). At present, about 8500 users are registered with ICEGATE.

ICEGATE is an infrastructure project that fulfils the department's EC/EDI and data communication requirements. Through this facility the department offers a host of services, including electronic filing of Bill of Entry(import goods declaration) and Shipping Bills (export goods declaration) and related electronic messages between Customs and the trading partners using communication facilities (E-mail, Web-upload & FTP) including the communication protocols commonly used on the internet. The airlines and shipping agents can file manifests on the internet filed using this facility. Besides, data is exchanged between Customs and the various regulatory and licensing agencies such as DGFT, RBI, Ministry of Steel and DGCIS. The National Import database (NIDB) and Export Commodity Database (ECDB) for Directorate of valuation are also being serviced through ICEGATE. All electronic documents/ messages being handled by the ICEGATE are processed at the Customs' end by the Indian Customs EDI System (ICES), which is running at 40 customs locations. Department has embarked upon Centralization of its infrastructure and in due course all customs locations will be shifted to centralized infrastructure hosted at Data Centre. 5 Custom locations at Dadri have already been moved to the Data Centre.

The ICEGATE also provides for 24X7 helpdesk facility for its trading partners. To ensure secure filing, it is proposed to use digital signatures on Bill of Entry and other documents/ messages to be handled on the gateway.
ICEGATE is working through a MPLS based Wide Area Network (under implementation), linking 582 department's buildings all over the country.

Customs

Institutional User
EG. DGFT

NRMS
National Risk Control

ICENET

DB link
SQL net

LRMS
Transaction Risk Processing
FTP of Flat file
over LAN

Other Small Apps
viz. in Chennai

ICENET

DB link
SQL net

Updation Server
'Kandla' server for directory updation

ICES
Core Transaction
Processing

Customs
Officer
On LAN

Flat file FTP
over LAN

Service Centre
Server for hosting the Application

FTP

Internet

Multiple
Protocols

ICEGATE
EDI messaging and Web Services

ICENET

FTP of Flat file
over WAN

MES
Message Exchange with
Banks & Custodians

File upload
HTTP, SMTP

Flat file FTP
over LAN

Trade User
Files EDI messages

Banks   Ports

3.2 Port sector

3.2.1 Port Community System (PCS)

3.2.1.1 Nature of Project

Port Community System (PCS) is intended to integrate the electronic flow of information across the trading partners involved in maritime transport chain through a common interface.   The PCS, will function as the centralized hub for all the major ports of India and other stakeholders like Shipping Lines/Agents, Surveyors, Stevedores, Banks, Container Freight Stations, Government regulatory agencies, Customs House agents, Importers, Exporters, Transporters, etc. for exchanging electronic messages in secure manner.

The main objectives of the PCS are

- Develop a centralized web-based application, which act as Single Window, for the port community members/stakeholders to exchange messages electronically in secure fashion.

- Reduce transaction time & cost in port business

- Achieve paperless regime in port sector

- Implement an e-commerce portal for port community

- Data repository for research and analysis

3.2.1.2 Status

The Centralised Port Community web based system has been operationalised   for the first phase consisting of 31 messages covering vessel and container related messages among Ports, Shipping Agents, Shipping/Container Lines, Container Freight Station and Customs House Agents.   This phase went live on 31/12/2007.

The second phase covering Transport and Cargo related messages went live on 31/3/2008, Finance (Assessment) related messages went live during March 2009 and e-payments with few Banks will be made live during August 2009. Three additional stakeholders viz. Container Corporation of India/ Pvt. Carriers, Stevedores and Banks are covered in it.

The third phase consists of around 50 messages covering Customs and other regulatory agencies (i.e. MMD, PHO) have already been developed. Testing of MMD and PHO related messages have been completed and will be made live shortly.

Around 25,000 messages are being exchanged every month through PCS. The system is capable of accepting messages in various formats including EDIFACT, XML etc.

PCS is a comprehensive, highly secure extensible and scalable solution that meets the requirements of the trade community, Ports, Banks and Government Agencies and seamlessly integrates them over the internet coordinating all the activities in and around Port and beyond.

Primary outcome of the PCS is to achieve excellent level of enterprise integration for different players across different ports, thereby increasing the business value for all the players in the Port Community.

The diagram shows the following elements:

Top row: Shipping Line/Agent, Importer/Exporter, Shipper / Freight Forwarder, CHA, Govt / Coast Gaurd Inspection Officer, CFS

SECURE AUTHENTICATION AND AUTHORIZATION
PORT COMMUNITY SYSTEM

Terminal Booking Services, Content Management, User Management, Data Document Repository, Goods Decloaration, Document Management, Notification & Alerts, MESSAGING & TRANSLATION HUB, Audit trail, Payment & Billing services, Vessel Data & Arrival Information submission, Search& Enquiry Realities, Transport related documents, Passenger & crew declaration, Cargo/Container Track & Trace, Customer Service System

SECURE AUTHENTICATION AND AUTHORIZATION

Bottom row: E-government Applications, Banking Systems, Financial System / Vessel Information & Control System / Termianl Operations System / Personnel Information System / Cargo Container Management System, ICEGATE Other Customs Management System, Transport Operator System

Government Agencies -PHO, MMD, etc; Banks / Financial Institutions; Public and Pvt Port / Terminal Operators; Customs; CONCOR, Railways, Pvt Rail Operators etc...

3.2.2 Container and Cargo Logistics System (CCLS)

3.2.2.1 Nature of Project

This project is a web based application of CCLS system (Container and Cargo Logistics System) being operational at Inland Container Depot - Tughlakabad, New Delhi. Through this software, any importer/exporter/shipping agent can file his documents including billing and take necessary print out's through internet from anywhere. Various Queries and Reports are also part of this web based software to keep track of containers at every stage and also to find out due amount to be paid to CONCOR. Application has also been integrated with major banks, so that customers can directly credit their PDA accounts through net banking facility.

3.2.2.2 Status

In order to achieve total computerization of different processes in CONCOR, three main applications have been developed namely CCLS (Container and Cargo Logistics System), ETMS (EXIM Terminal Management System) and DTMS (Domestic Terminal Management System) to cater to different segments of commercial / operational working of various EXIM / Domestic terminals.

CCLS system was the first one to be developed for ICD/TKD working. Various functionalities have been integrated into the CCLS system like Wireless Radio Data Terminals, EDI Linkages with Customs, Electronic Transmission of IWB's etc., making it most comprehensive and complete system for ICD/TKD working. In order to make the CCLS system, more customer friendly, Web Interface of it was developed so that any customer can file his documents electronically through Internet, at his convenience without coming to ICD/TKD.

Radio Data Terminals using standard RF Technology are being used at all major ICD's to capture online container movements. At all major ICD's, Data is being exchanged online with Customs and other related agencies under standard formats of EDI in order to avoid duplicity and also to get accurate information. Customers are sent automated emails at regular intervals regarding their Container Arrival /Departure information, transaction report of their Pre-Deposit Account etc under standard format.

The E-Filing Project Infrastructure including connectivity to backup site is represented below.

Project Architecture

CONCOR

Bank Server's

Client Pc's

E-Token

Digital Certificate

Internet Cloud

Firewall

ONCOR Web Server

CONCOR Database Server
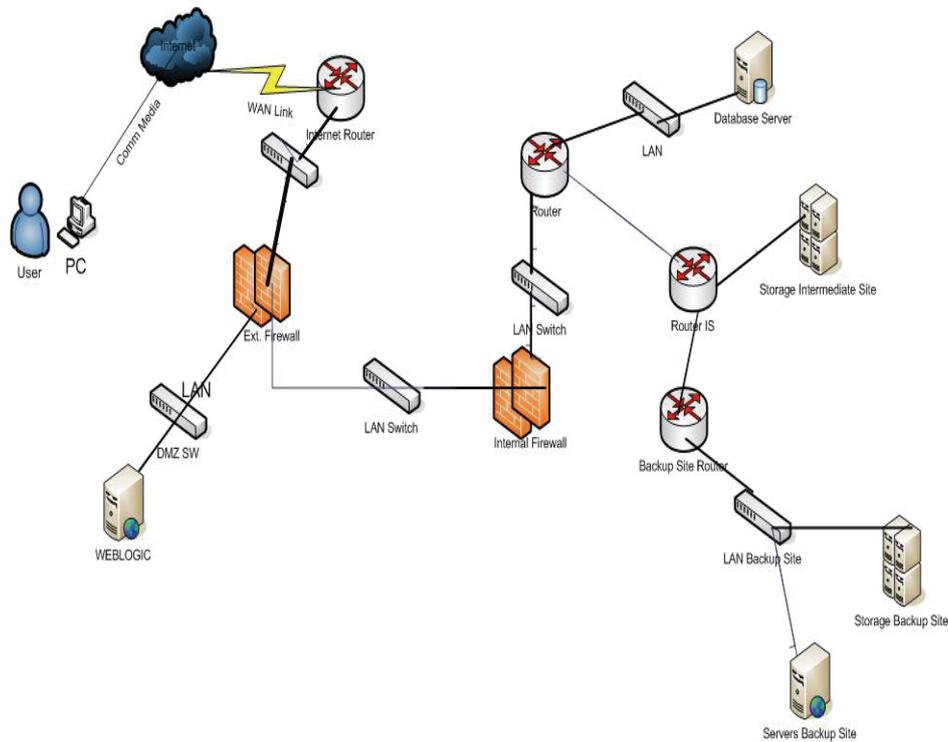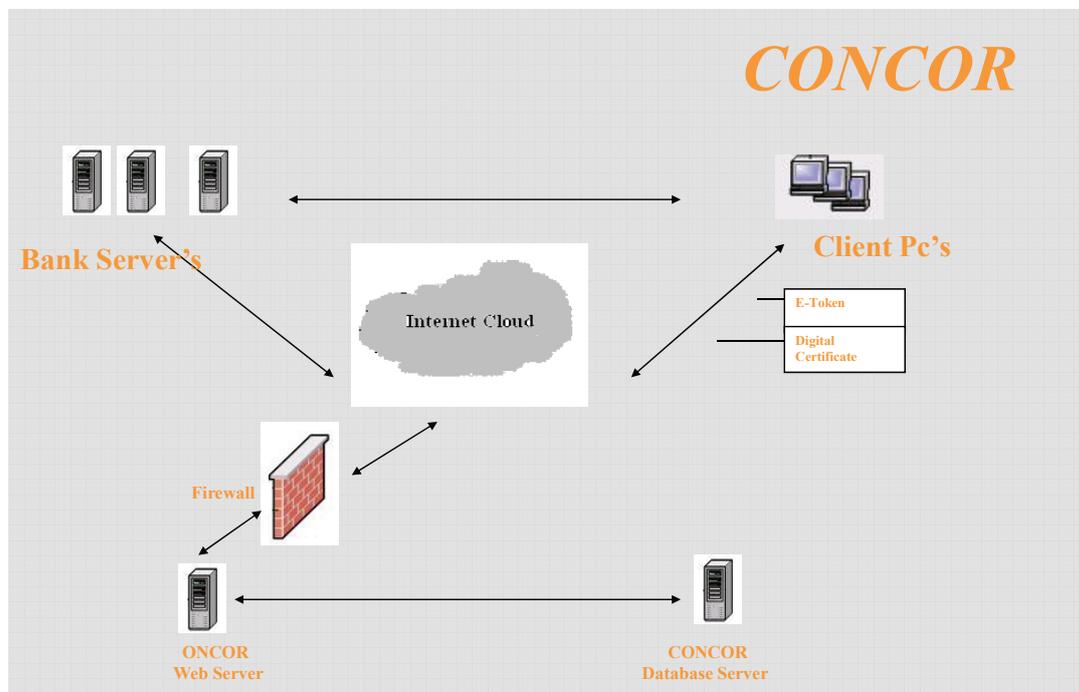
3.3 Air Sector

3.3.1 Nature of Project

EC/EDI system is a pilot project to transact business electronically among the Air Cargo Industry stake holders and the same is being implemented in three phases. In the first phase the Customs and Custodian EDI was implemented. The messages originated at Customs end were integrated at Custodian end for Import and Export Cargo processing. Under the Second phase of Web/EDI implementation, all Cargo handling agencies and Airlines were associated and a web based Cargo Community System was developed by AAI to transact between these partners thereby furthering the concept of paperless transaction. Under Phase-III the Barcode integration was implemented at IGI, Mumbai and Chennai Cargo terminals for instant data capturing and online updation of import and export cargo without manual intervention.

The community partners in Air sector facilitates EC/EDI based processing into the clearance of export and import consignments. The community partners in this case are custodian of cargo called Airports Authority of India (AAI), Airlines, Customs, Banks, Agents etc. The EDI based cargo handling system and Electronic interface between trading partners is to be established. Barcodes are also integrated for the handling of import and export cargo for instant data capturing and online updation without manual intervention.

3.3.2 Status

The seven major airports at Delhi (DIAL), Mumbai (MIAL), Kolkata (AAI), Chennai (AAI), Hyderabad (GHIAL), Bangalore (BIAL) and Trivuvananthapuram (KSIE) have established electronic message exchange with Customs. A web based system developed by respective custodians for processing of Cargo at airports through electronic interface with its community partners like Airlines, Agents, Bank is operational and working satisfactory. All export transactions at Delhi, Mumbai, Chennai, Kolkata and Trivandrum airports are done through the system. The import transactions have also been started through this system at Delhi, Mumbai, Chennai & Kolkata (under process). The payments of Custodian's Terminal / Handling Charges are also being made conveniently through web based EDI system. The cargo transactions are carried out electronically by the community partners from their offices itself.

Bar Code system for faster and automatic data capturing in export for acceptances of Export cargo at Truck dock gate, bonded gate & unitization stage and at the Import flight segregation area has also been implemented. This updates the movements of the cargo during warehousing and processing of Import cargo instantly. State of art equipments like HHRDT i.e. Hand Held Radio Data Terminal, VMRDT – Vehicle Mounted Radio Terminal and Barcode Printers are being used to undertake the smooth implementation of Barcode system. The implementation of EC/ EDI in Air Cargo Sector has been proved a step toward faster and transparent processing which would ultimately lead to the scenario where agencies would be required visit Cargo Terminal only for physical tendering of their export cargo or taking deliveries of their import cargo.

Phases	Description	Status
Phase I	Between Custodian and Customs through direct connectivity.	Implemented
Phase II	Between Custodian and other trade partners i.e. Airlines / Exporter / Importer / Agencies & Banks, through web based EDI.	Implemented at metro airports.
Phase III	Introduction of Barcode System (the automatic data capturing system).	In advance stage of implementation at IGIA Cargo Terminal.

For disposal of un-cleared / Un-claimed Import cargo lying at cargo terminals in a more transparent and faster way, Delhi & Mumbai Airports have also implemented a system for 'e-Auction'.

NETWORK LAYOUT FOR EDI PHASES
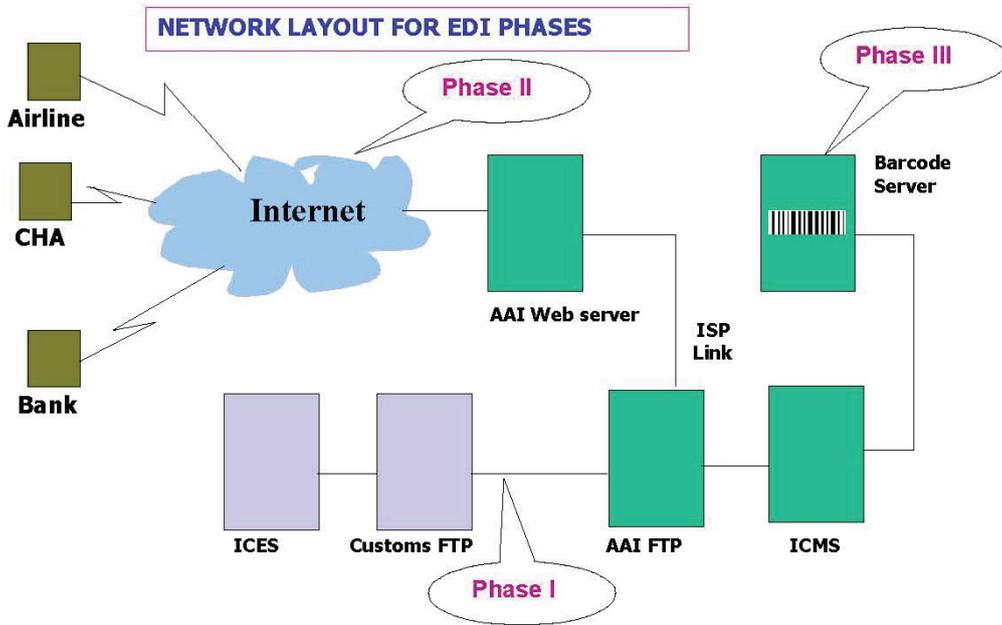
HARDWARE & SOFTWARE SPECIFICATIONS
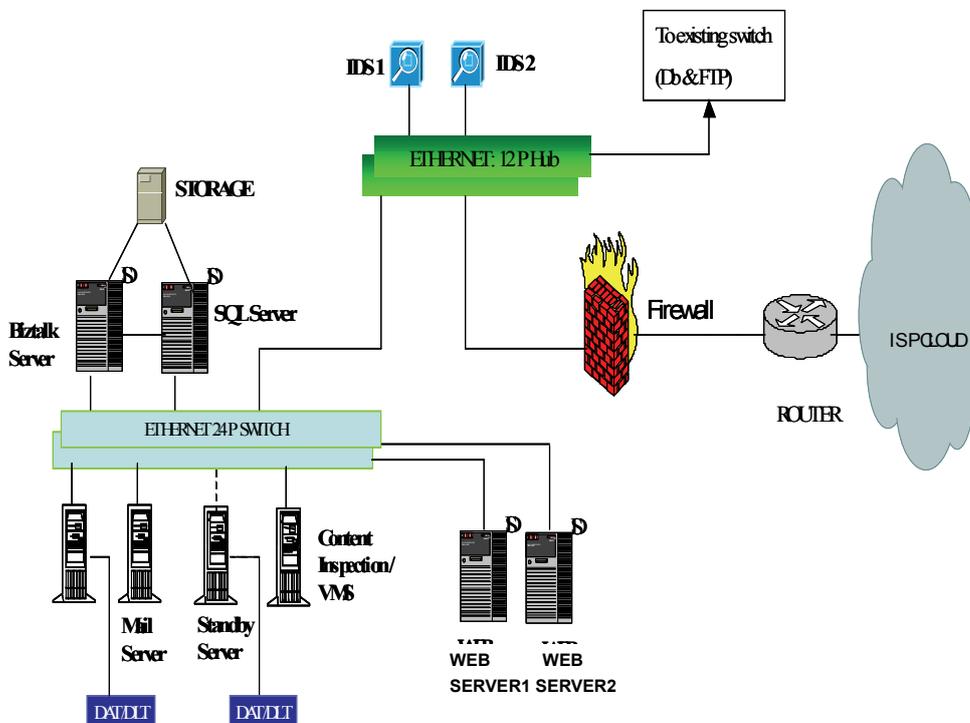
3.4 Financial Sector

3.4.1 Single Core Banking Enabled Account of exporter/importer for all receipts/payments at national level

3.4.1.1 Nature of Project

The project is for implementation of intra-bank, inter-bank, and bank-user electronic interface establishment for facilitation of electronic receipts/payments enabling exporter/importer to transact with various agencies using a single core banking enabled bank account.

3.4.1.2 Status

Banks have established electronic message exchange with major players in International Trade like Directorate General of Foreign Trade, Customs, Ports, Airports, Container Corporation of India etc. The Real Time Gross Settlement (RTGS) has been made operational by Reserve Bank of India. The volume of transactions of remittances is also poised to increase with the popularization of RTGS/NEFT services set to promote a paperless settlement of payments among beneficiaries. The drawback payments have also been brought on net banking and drawback payments are made by customs authorities in exporter's account in any core banking enabled branch/bank throughout the nation.

Most of the banks have implemented Core banking solution, which refers to a common IT solution wherein a central shared database support the entire banking application. Core Banking Solution is an integrated application that supports real time, multi-banking and multi channel strategies. The single biggest achievement of implementing the Core Banking Solution is that each customer is truly the customer of the bank and not just the customer of the branch, where his/her account is maintained. This facilitates anywhere anytime banking to the customer.

The future of banks rests on the development of virtual banking facilities by creating new business models on improved delivery channels like more intensive use of internet banking, mobile banking, phone banking, ATMs, Smart Card and bio-metric ATMs. Presently 67 per cent of bank branches operate on Core Banking Solution mode while the number of fully computerized branches has touched 93.7%, thus putting more banking services on computerized mode.

The quality of customer service in banks has significantly improved due to multiple factors of which entry of IT is a critical one. Moving banking from manual mode to any where electronic banking environment of today has been a tectonic shift creating value proposition that reflects the resilience of banks to adopt to fast changes. The bank

account now moves with customers transcending the limitations of distance across the country removing the hassles of movement of funds.
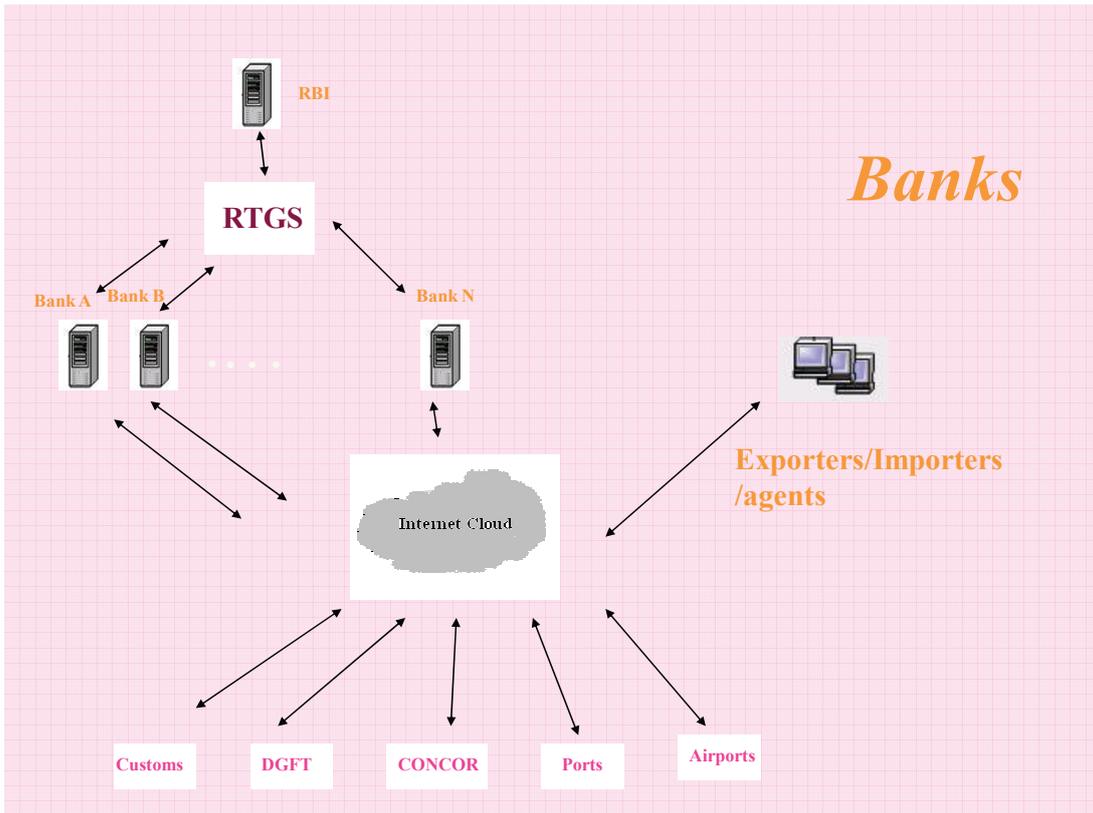
Section IV – Other IT – enabled Service (ITeS) in Trade and Industry Sector

4.1 GrapeNet Traceability System

4.1.1 Nature of the Project

GrapeNet is an internet based traceability software system, for monitoring fresh grapes exported to the European Union from India upto the farm level and major deliverables included systems to put in place an end-to-end system for monitoring pesticide residue, achieve product standardization and facilitate tracing back from retail shelves to the farm of the Indian grower, through the various stages of sampling, testing, certification and packing. All stakeholders namely Farmers, State Government Horticulture Departments, The testing laboratories, Agmark Certification Department, The Phyto-sanitary department, Pack houses, Exporters etc. participate in the project.

4.1.2 Status

This has been a great success during the last three years, with a consignment to farm traceability established for all exports of fresh grapes from India to European Union. It has helped to introduce and implement global standards in the areas of pesticide residue monitoring, grading, product and company identification. It has also resulted in better revenue realization for farmers and exporters.

The first task was to put in place, a Government of India regulation, to clearly spell out the procedures to be followed by all stake holders in the Grapes Sector, train them to fulfill the requirements of the regulation, co-opt the monitoring agencies in the Government and Private Sector and finally generate the necessary documentation trail for the importers. Thus was born, a path breaking regulation called the Regulation of Export of Fresh Grapes from India through monitoring of pesticide residues. Today, this regulation has been put in place

- Standards to meet international market demands
- Agencies to test compliance with these standards
- And no export of fresh grapes can happen to European Union without adhering to this system.

Then it was taken up to IT enable the regulation, compliance and monitoring. The challenge was to design integrated monitoring software, integrating all the stakeholders in the supply chain of Grapes export from India, with a centralized database.

Result Achieved/ Value Delivered to beneficiary of the project:

- Every consignment of fresh grapes during the last season from India to European Union was monitored through this system and no consignment was rejected due to quality reasons.

- The volume of export of fresh grapes from India to European Union increased by 176% in the last five years.

- The per unit realization for exporters directly and farmers indirectly went up from previous years due to the stringent standards defined and monitored in the grapes sector in India.

- Farmers earned 40 % more value.

- FOB realization rose from 8 Euro to 11.5 Euro per carton of 5 kg.

- Benefits went to 40,000 farmers and more than 150 exporters.

Other distinctive features/ accomplishments of the project:

- The software can be easily used - anywhere, anytime, 24 by 7, by all authorized stakeholders, supported by a dedicated call center, with turnaround time of 2 to 10 minutes. All they need to use is a commonly available web browser through their internet connection in a secured environment.

- Zero paperwork, Zero mistakes and Zero transaction costs.

- Completely credible, transparent and foolproof

- No document can be issued without going through the software.

- It has virtually reduced duplication in data capture and enables instant reference of previous steps in the supply chain.

- The inbuilt checks and balances in the software ensure that the succeeding step can be carried out only if the preceding steps were successfully complied with.

- Real time information on each export consignment sent from the country

- Finally and most importantly, APEDA can trace details of the consignment right up to the plot level. Quite simply, it adds up to a fool-proof tracking system for grape exports from India to the European Union.

4.2 eProcurement

4.2.1 Nature of Project

The project envisages faster adoption of electronic procurement in government, at central/ state levels through adequate facilitation and enabling. Though an integrated procurement

cycle comprises of all the three process stages – Pre-procurement [viz: Indenting, Requirement consolidation], Procurement [viz: Tendering, Bidding, Bid Opening & evaluation and Award] and Post Procurement [viz: payment-processing, Contract management etc.] processes – currently the project primarily concerns with electronic facilitation of the 'procurement processes per se', i.e. Tender preparation & publishing, Fee payment & Bidding, Bid Opening/ decryption, Tender evaluation and Award of contract.

With the aim to ensure that the benefits out of the initiative really flow to the stakeholders, attempts have also been on first going through BPR exercises (to standardize processes & forms) in selective cases and then developing/ implementing solutions around those standardized processes.

4.2.2 Status

Government initiatives towards implementation of electronic procurement have been taken at central as well as various state government levels. While independent state level initiatives have been concentrating on finalizing and implementing eProcurement solutions for their own departments/ agencies; the initiatives taken at Central government level have been targeting a multi-pronged approach as below: -

- Taking up a few pilot state & central government departments to undertake their detailed studies till finalizing RFPs and then also funding the subsequent implementation of eProcurement system by them. This approach is being pursued through an eGP Mission Mode Project Team of Ministry of Commerce.

- Assessing the government's e-procurement needs at a generic level and attempting to work out e-Procurement solution(s) to fulfill the common requirements of various departments having similar procurement processes. National Informatics Centre, Department of IT, is spearheading this approach.

- Taking initiatives to facilitate various enablers of e-Procurement for faster adoption, like: i) Providing secure back-end infrastructure for hosting e-Procurement solutions within government domain at central/ state levels, ii) providing support for change management in states/ center through NIC, iii) Use of e-Payments in government transactions, iv) Preparing framework guidelines on security, audit-trail and archival needs for e-Procurement etc.

Apart from Government, a number of successful e-Procurement initiatives have also been taken by public / private sector entities, notably BHEL, ONGC and Tata Steel to name a few, in view of it's obvious benefits. Many of them have also adopted electronic auctions very fruitfully, both Forward and the Reverse Auctions for extremely competitive buying and selling of bulk or high value goods.

Objectives, current thrust:

Though both, the government and private initiatives on e-Procurement, primarily target to achieve significant cost and process efficiencies through the exercise, equally important objectives being aimed at by government agencies are – maximum transparency through dissemination of information at every stage and ensuring wide and equal access to tender opportunities overcoming all barriers created by vested interests. These objectives are constantly being pursued and monitored by the Central Vigilance Commission (CVC), a government body, which advocates e-procurement as an effective tool to achieve these.

Status and spread:

Government has also been putting thrust on formulating comprehensive capacity building programs in the area across different states/ organizations, for faster adoption of eProcurement and is inclined to initiate procurement policy reforms/ standardization, work out procurement frameworks & guidelines for uniform adoption/ adherence and similar other measures.

- Electronic publication and dissemination (on government procurement portals) of procurement information (e.g. Tender notices/ details/ documents, Contracts/Orders etc.) has been made mandatory in the government sector.

- Electronic Procurement has being made mandatory above a decided threshold value of procurement, in many of the state/ central government departments.

- National Informatics Centre (NIC) has successfully developed and rolled out a generic e-Procurement solution (GeP), for wide and easy adoption by any intending Government department/organization. The solution has already been widely implemented within government in several states like Orissa, Tamilnadu, Uttar Pradesh, West Bengal and Haryana and also being actively considered by some of the public sector units (PSUs) like Mahanadi Coalfields Ltd (MCL) and Rural Electrification Corporation Ltd (RECL). NIC-GeP with standardized templates for quotations is also being actively considered for all 'Works' procurement under "PMGSY" – an intensive central government program for rural roads being pursued in 15-16 states of India.

- E-Procurement, as a Mission Mode Project, is to be implemented in pilot states of Kerala and Himachal Pradesh. Various other State & Central government departments, organizations and PSUs are also steadily adopting eProcurement.

- Several other states, like Andhra Pradesh, Madhya Pradesh, Gujarat, Karnataka, Delhi, Chhattisgarh etc. have finalized and successfully implemented eProcurement solutions on their own, with the help of various private solution providers.

- In Central Government --- Railways have adopted electronic procurement in a big way. They have already implemented in North-Eastern, South-Eastern, North-West and

East-Central Railway successfully and going ahead in others. Among other early implementers are DGS&D, Indian Ordinance Factory etc.

- The lead implementers among Public Sector Units are --- Oil & Natural Gas Commission, Oil India, Bharat Heavy Electricals Limited, Gas Authority of India Ltd., Indian Oil Corporation Ltd., Bharat Petroleum Corporation Ltd., Steel Authority of India Ltd., National Informatics Centre Services Inc.(NICSI) etc. A good example in co-operative sector is Indian Farmer & Fertilizer Co-operative Ltd (IFFCO). Many of them have also implemented Electronic Auctions as well.

4.3 eIPO (Intellectual Property Office)

4.3.1 Nature of Project

The project is to improve interface and interactions among Indian Patent, Design, Trade Mark Registry (TMR) and Geographical Indications (GI) Offices, customer, citizens, business & industry. The scope of the project is

- To effectively deliver the customer services ;

- To establish a single-window mechanism integrating the customer centric on-line services;

- Re-engineered work processes for effective and efficient delivery of services;

- To enhance transparency, speed and responsiveness;

- To automate workflow in IPOs Front-end and Back-end operations;

- To establish automated systems for e-filing of Patent and Trade Mark applications integrated with payment gateway & PKI solutions, delivery of customer centric services through Internet during pre-registration, registration and post-registration stages of Patent and Trade Mark applications;

- To enable event-based, on-line G2B and G2C interactions and transactions;

- To eliminate paper based activities and switch to paperless working;

- Accession to International Treaties which would involve data exchange with International IP offices;

- Introduce Video Conference   facilities to conduct hearings;

- Creating a knowledge base / digital library for Intellectual Property

- To create International Searching Authority and an International Preliminary Examining Authority (ISA/IPEA) under the Patent Cooperation Treaty (PCT) of World Intellectual Property Organisation (WIPO)

4.3.2 Status

The "IPINDIA Computerisation Project" is an outcome of the Department of Industrial Policy and Promotion (IPP), Ministry of Commerce and Industry for simplifying rules and procedures in the area of Intellectual Property, digitization of old records, making for e-centric, promoting on-line transactions and reaching out to IP stakeholders through Internet. Indian IPR offices are modernized by providing infrastructure support and strengthening by way of computerization and re-engineering work practices, and elimination of backlog of patent and trademark applications.

New integrated Intellectual Property(IP) Office buildings with state-of-the-art ICT infrastructure are commissioned in Delhi, Kolkatta, Chennai and Mumbai in the year 2005-06. Statutory Timelines for Grant of Patents have been reduced to 52 months from 104 months. With the introduction of simplified and computer based re-engineered work processes, a patent can be granted in the earliest possible time of 9 months. An amendment to the Patent Rules was also notified on June 2, 1999 to simplify the procedural aspects.

The IPINDIA Computerisation project services are available 24x7 anytime & anywhere through IPINDIA portal "https://ipindia.gov.in ". The e-filing service of the patent and trade mark applications in India was launched in July' 2007. With the launch of e-filing facilities, the applicants can file their patent and trademark applications from anywhere in the world at any time at their convenience through Internet. Payments can also be made through the Payment Gateway of authorised bankers, which would save time and money and the hassles involved in visiting and filing the applications in the offices. e-filing provides the facility to i) receive a Patent application and trade mark   number immediately ii) on-line verification to assure error-free filing and obtain your filing date iii) speed up the registration process iv) print the completed application data and receive fee acknowledgement v) save the data locally in your PC and vi) be able to recall your contact details for subsequent applications.

It is possible to conduct a prior clearance search in order to determine whether any conflicting marks exist in the Indian Register of Trademarks. On-line search interface also enable   to determine the possible marks which may pose a threat for our mark proceeding towards registration and to plan opposition strategies well in advance in the event of any opposition by a third party.

Digital database of over 1.35 lakh patent records and 22,000 design records has been created and made available in searchable mode on the website of Intellectual Property Office "http://ipindia.gov.in". Time for issuing the Examination reports of the patent applications after filing the request for such examination has been substantially reduced which earlier used to take more than five years. Due to massive computerization efforts in IPOs, the Indian Patent Office has granted a record number of 15,262 patents during the

financial year 2007-08. This is more than double the number of patents granted (7539) during the previous year and almost eight times the number of patents granted just three years ago in 2004-05 (1911). The number of patents granted during 2007-08, the first year of the 11th Five Year Plan (FYP) compares well with the total number of patents granted during the entire 10th Five Year Plan period which was 17,618 only. The patent filings also crossed the 35,000 mark during 2007-08.

Due to massive computerization and establishment of digital database of patent records, Indian Patent Office has been recognized as an Internal Searching Authority and an International Preliminary Examining Authority(ISA/IPEA) under the Patent Cooperation Treaty(PCT) of World Intellectual Property Organisation (WIPO), which is a specialized agency of the United Nations in the field of IPRs in October, 2007, joining an exclusive group of 15 countries/organizations, which have so far been recognized so.

The operational requirements for an ISA/IPEA would require establishment of digital database of patent records, access to major patent databases and modern search engines. Computer training has been imparted to Officers and staff of Intellectual Property Offices. The computer training includes conducting of sensitization programmes to Applicants, Agents and Attorneys for e-filing of Patent and Trademark applications.
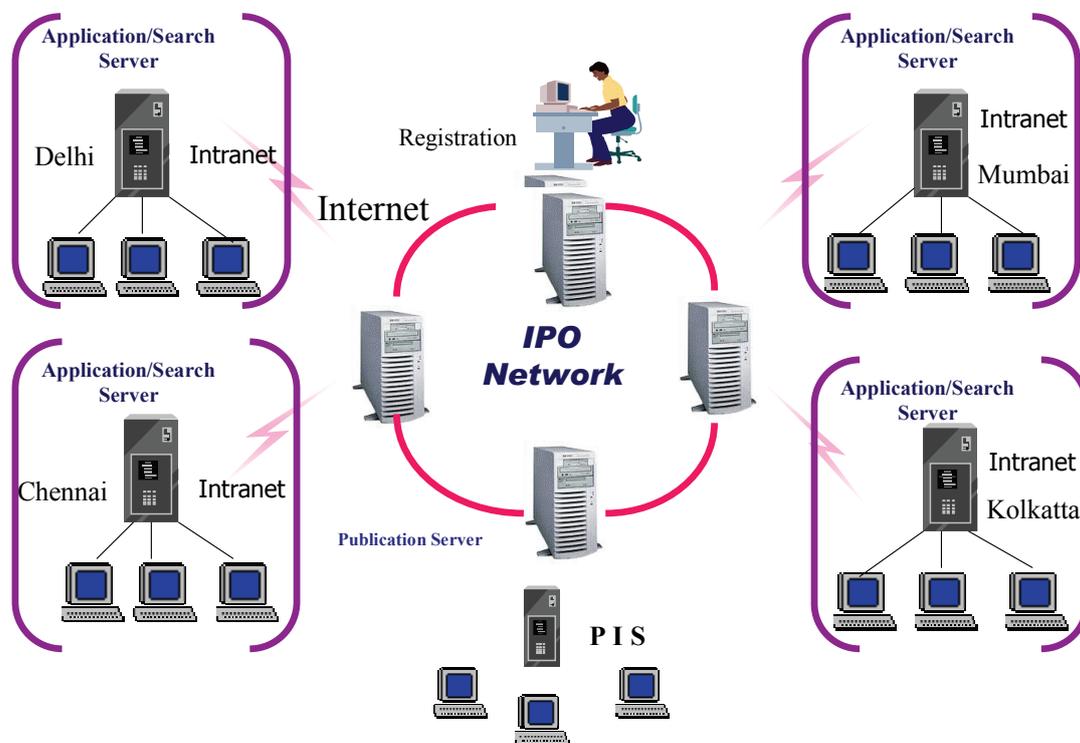
Implementation Platform - Application Architecture

Rise in Patent Grants

Trends in TMR Applications

India

Trade Marks Registered
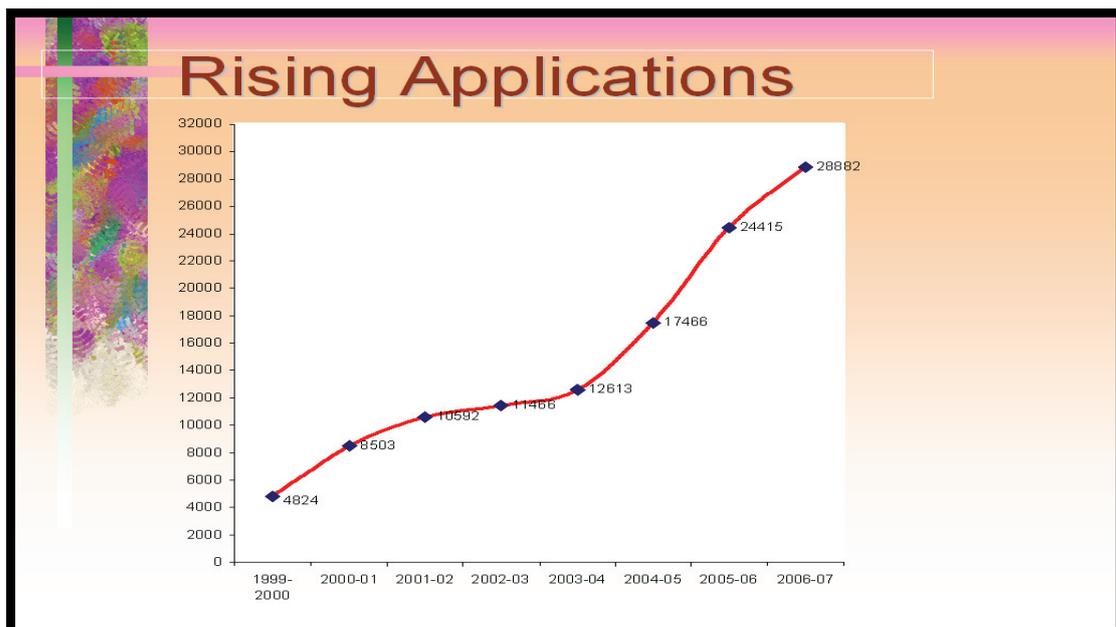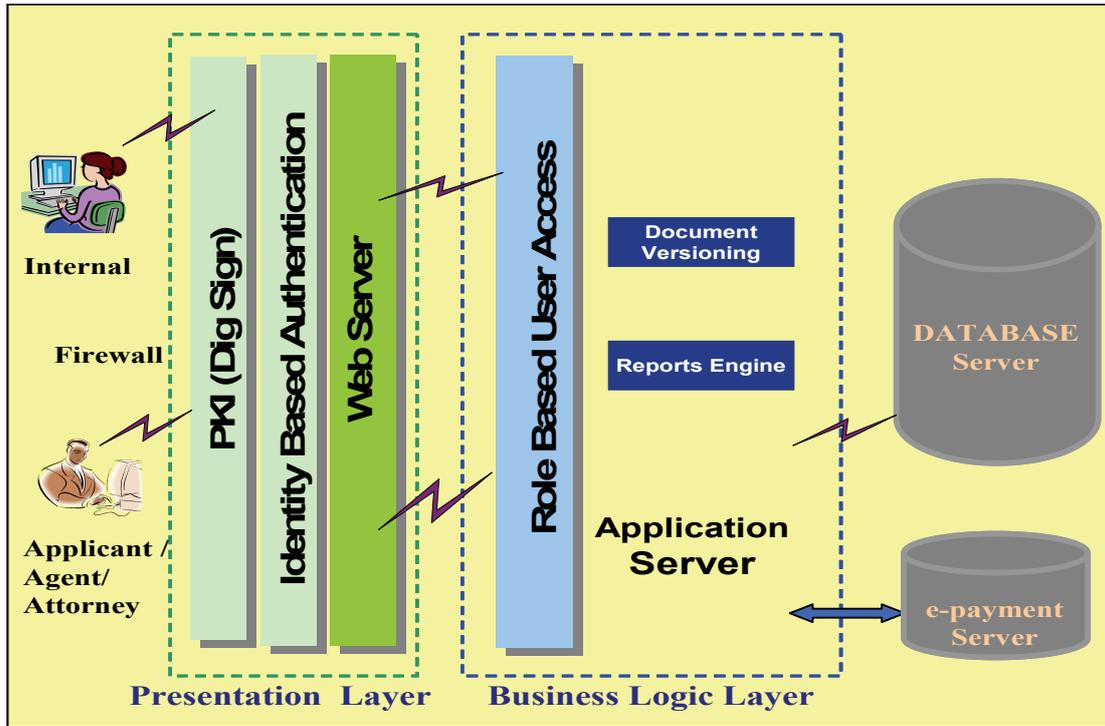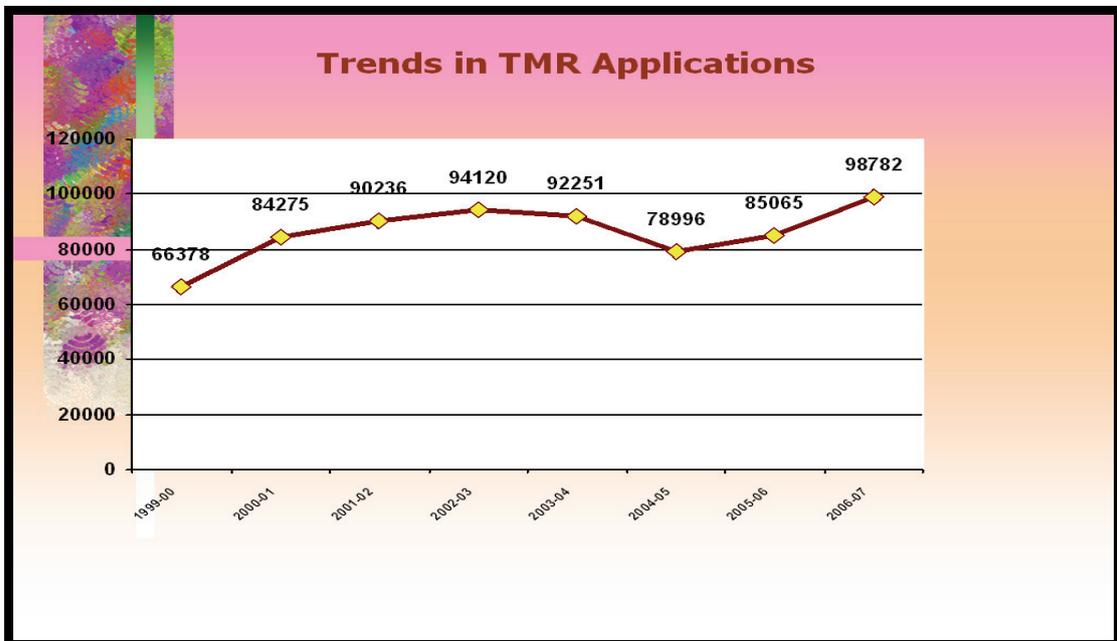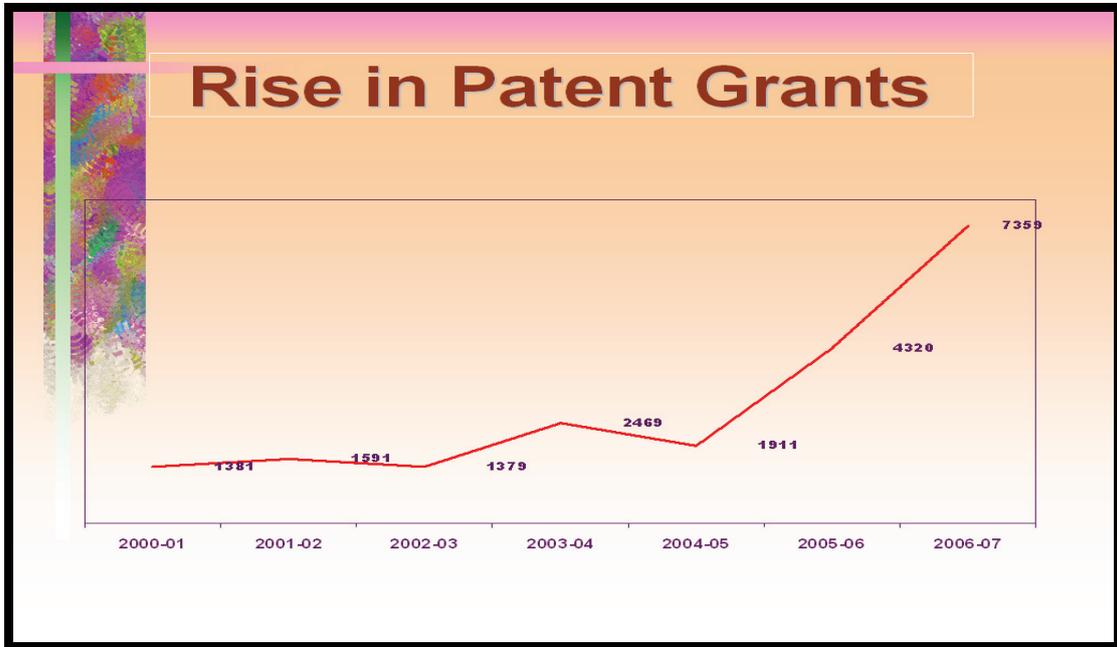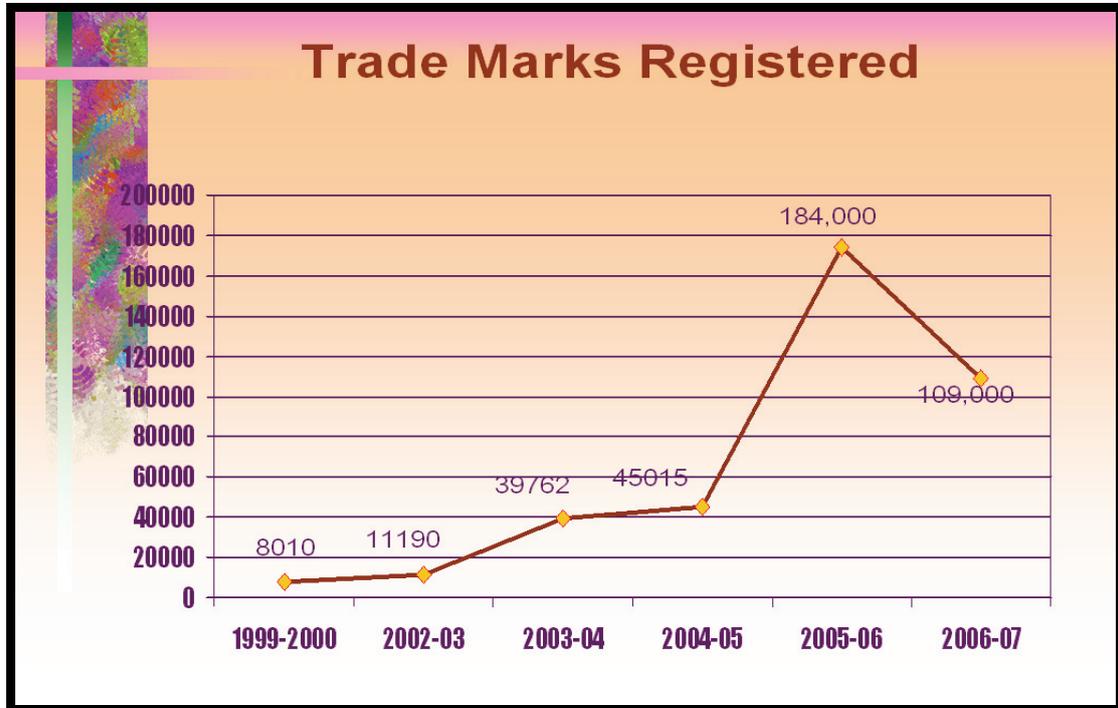
4.4 eServices of Ministry of Corporate Affairs (MCA21)

4.4.1 Nature of the Project

Ministry of Company Affairs (MCA), Government of India (GoI) has initiated MCA21 program, for easy and secure access to MCA services in a manner that best suits the businesses and citizens. The program goals have been set as follows keeping in mind stakeholders' needs:

- Business enabled to register a company and file statutory documents quickly and easily

- Public to get easy access to relevant records and effective grievances redressal

- Professionals to be able to offer efficient services to their client companies

- Financial Institutions to easily find charges registration and verification

- Employees to ensure proactive and effective compliance of relevant laws and corporate governance

- MCA21 is envisioned to provide anytime and anywhere services to businesses. It is a pioneering program being the first mission mode egovernance project being undertaken in the country. This program builds on the Government of India vision to

introduce a Service Oriented Approach in the design and delivery of Government services, establish a healthy business ecosystem and make the country globally competitive.

4.4.2 Status

The implementation of Front Offices (FO) is done in two ways. These can be called as Virtual Front Office (VFO) and Physical Front Office (PFO).

The VFO is what the citizen has in front while accessing the MCA21 portal. The PFO will be a replacement to the existing counters. The PFO will also accept paper documents. However, these will be converted into electronic documents by customer service agents manning PFO. Also, the authorised person(s) will have to sign these documents digitally. Consequently the authorised signatories for a given document will need to appear in person at the PFO for the purpose of digitally signing the document.

The user can avail the following services on MCA21 portal

- eFiling
- Viewing public document
- Requesting certified copies
- Registering investor complaint
- Tracking transaction status

The back office is what MCA employee has in front which accessing back office portal. The back office process relates to:

- Dynamic routing of documents that have been electronically filed to the concerned official within MCA based on the type of service request.
- Electronic workflow systems to support speed and certainty in service delivery
- Supporting all routine tasks such as registrations and approvals
- Storing of all approved documents of companies as part of electronic records, including provision of access to electronic records for the stakeholders
- Enhancing identification of defaulters
- Increasing efficiency of Technical Scrutiny
- Ensuring close follow-up on matters related to compliance management including prosecutions
- Enabling quicker responses to investor grievances

- Providing alerts when the tasks are not carried out within stipulated period

MCA21 seeks to fulfill the requirements of the various stakeholders. The key benefits of MCA21 project are :

- Expeditious incorporation of companies

- Simplified and ease of convenience in filing of Forms/ Returns

- Better compliance management

- Total transparency through e-Governance

- Customer centric approach

- Increased usage of professional certificate for ensuring authenticity and reliability of the Forms / Returns

- Building up a centralised database repository of corporate operating

- Enhanced service level fulfillment

- Inspection of public documents of companies anytime from anywhere

- Registration as well as verification of charges anytime from anywhere

- Timely redressal of investor grievances

- Availability of more time for MCA employees for monitoring and supervision

IRAN Progress Report

Islamic Republic of Iran
Ministry of Commerce
Deputy Ministry for Planning and Economic Survey
Iran Centre for eCommerce Development (ICED)

2009 Members Progress Report：IRAN

Introduction

E-Commerce as its physical environment can be view as a puzzle which all pieces should be integrated to each other. Trade facilitation in Iran has started with separate automated systems. It is going to integrate all related systems. In this report we tried to show five programs and systems with key roles at trade facilitation briefly. Some other programs such as Port Communication System is planning now.

Iran Centre for eCommerce Development

Iran Centre for eCommerce Development (ICED) was established in 2008 with the aim of establishment, implementation & development of eCommerce by using national & international tools & standards.

The ICED has an national independent legal entity and it depends to ministry of commerce form governmental point of view.

Before ICED, an office was in charge of planning and promotion of e-Commerce. The ICED now has national authority and accountability for planning, implementation, and development of e-Commerce including trade paper less solutions.

The main working groups of ICED are: public infrastructure & promotion of eCommerce applications, certificate authority, standards & international relations.

The main duties of ICED are as follows:

- Policy making and planning for eCommerce establishment in country
- Planning and implementation of eCommerce projects across the country
- Planning and implementation of eCommerce infrastructures
- Compilation of eCommerce legal issues and regulations
- Coordination of national eCommerce projects
- Sponsoring eCommerce researches
- Public training and institutionalization of eCommerce
- Trade facilitation by using eCommerce tools, models & standards & establishment of trade single window

International activities plays an important role in ICED & according to the statute of ICED, the centre should provide national & international interactions in eCommerce.

Government root certification authority

The public key infrastructure project started in Iran according to part one, article 4 of the executive bylaws of article 32 of eCommerce law (2003). Government root certification authority (GRCA) started to operate on December 2007. In Islamic Republic of Iran due to hierarchical architecture, the public key infrastructure is trusted as the root & has a governing role in this area. It also has inspection responsibility regarding to other centers.

Now in addition to root centre, an intermediate centre with the name of Commerce Intermediate Certification Authority has been established. The commerce intermediate certification authority started to operate on March 2008. It is the custodian of certificate issue in government & public sector. Applications presented in commerce intermediate certification authority include client, digital signature, secure email authentication & so far 70,000 certificates has been issued for public & private use.

Government root certification authority has taken necessary actions to educate & giving information about certificate usage areas in eCommerce & e-Government areas for public & private organizations. In this regard we can mention the activities done to promote usage of public key infrastructure & guiding the potential users of the system.

In order to manage certificates within the same government action, different assurance levels in public key infrastructure of Islamic Republic of Iran has been defined. According to the mentioned assurance levels, four levels of certificate for digital certificate & confidential certificate has been described. Thus the service providers will use a specific level according to their needs & the existing risks in their activity areas.

E-certificate policy making council ratified the administrative instruction of organizing the intermediate certificate issuing canters in a meeting dated May 2009. Thereby the required technical & legal ability to establish electronic certificate authorities for all public & private organizations according to guide directions has bean provided.

Import Registration Management System

In order to control the import of commodities (cargoes) to the country, a special procedure has been executed in the past years by Ministry of Commerce. Based on this procedure, all real and legal persons are obliged to receive the approval to import their relevant cargoes. For this approval, importer should submit Performa invoice and shall fill out the import registration form.

This process until last year was done manually. But now it is automated through Import Registration System (www.ioms.ir).

This system is start point of import procedure and it has a key role for government to manage and monitoring imports.

Importers can request required service (24x7) through internet and no need to attend physically.

Shipping Container Supply Management

Islamic Republic of Iran Shipping Lines (IRISL) owns a fleet of 115 oceangoing vessels with more than 3.3 million DWT along with 7000 highly efficient employee both at sea and ashore and being able of transporting 22 million tones of cargo annually.

Total solution software (ContSoft) implemented in IRISL in 2006 and since now it's operational in more than 200 agent offices in all over the world. Processes of this software begin from identification of customers and rate negotiation in origin to delivery of container in destination with the final target of door-to-door container carrier. This software has been designed in three below sections:

A) Customer relation:

In this section customers are able to sign up, request for container carriage and trace their container from origin to destination.

B) Documentation and container movement:

In this part , all information about carriage documents, bill of ladings, booking letters , manifests ,.... besides containers movements will be enter to the system by UN/EDI standards(such as CODECO and COARRI) and ebXML[1].

C) Managerial Reports and controls:

Since all the information from all IRISL agents in all over the world are integrated in ContSoft data repository, SCSCo has been extracted an MIS[2] and DSS[3] subsystem from existed data warehouse so that these subsystems has been facilitated all kind of analyzing , planning and making decision for optimizing processes and activities.

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[1] E-Business Extensible Markup Language

[2] Management Information System

[3] Decision Support System

Another benefit of these integrated data is ability for controlling the quality of activities and their supervision for their performance in aligned with increasing quality for customer services.

Designing, implementing and testing phases of ContSoft started since 3 years ago and it has been operational from beginning of April for Iranian and Asian and from beginning of July for European agents.

Some important features of this system are as following:

1. Modular designing

2. Ability for competition in similar software in global market

3. Knowledge based oriented approach

4. Ability to data interchanges by using ebXML and UN/EDI standards.

5. Proposing value added services to customers.

E-Customs Automation

Upgrading for e-Customs ASYCUDA ++ to ASYCUDA World (integrated with Trade Single Window)

Implementation of Automated System for Custom Data (ASYCUDA) of all procedures related to import and export for trade single window.

In an effort to streamline and harmonies the customs procedure with other public and private partners, the government of Islamic republic of Iran has selected ASYCUDA World as a tool for its custom administration in order to move toward e-commerce and e-customs. This project is a technical cooperation between the Islamic Republic of Iran Customs Administration (IRICA), UNCTAD and UNDP. Through this project, UNCTAD will provide appropriate technical services and other resources for the implementation of e-customs solutions through the latest state of art management information system ASCUDAWORLD. With such a tool, IRICA will establish a transparent clearance processing mechanism with a Document Tracking Utility available for all agents and will expand its Direct Trader Input (DTI) through the internet. The ASYCUDAWORLD system is based on a state of the art IT technology (Rich-Client, Java, XML …) that can be used as the core element of the implementation of e-government and e-business in the country. The duration of the project will be at least 24 months and will be implemented in two phases. Phase I – prototyping and piloting of the system in Customs Headquarters and at a designated pilot site, and Phase II – rollout of the system to all Customs offices and fiscal points with connection and data exchange will UNCTAD will undertake, through technical and functional training will a view to ensure IRICA the ownership of the system and to create self sufficiency and independence from external technical assistance in the future …

Goals and Objectives:

Improvement in revenue control

Reduction of clearance time

Accurate customs and trade statistics

Standardization of procedures and codification

Risk management techniques

Exchange of data with other organizations

Simplification of procedures and more transparency

e- Banking

The Central Bank of Iran has considered quantitative and qualitative development of the electronic payment instruments as the essential solution for the problems arising from paper money and cheque payments. To this end it arranged long term programs with the help of the Banking system and the private sector. Some of the developments are as follows:

1. Expansion of the payment instrument issuance and appliance:

Issued cards with a 64% growth in 2008 reached 38.5 million. The number of ATM terminals had a 34% growth in the same period. Investment on POS network development was also emphasized in 2008.

Card acceptance equipment in the Banks branches had also appropriate growth in 2008. By the end of 2008 the number of installed POS was more than estimated 300000.

2. Expansion of the electronic equipment installation:

Access to the equipment of electronic interchange is of essential importance. The banking network done it in three directions:

2.1. Expansion in the no. of POS and making a revolution in the payment of people through independent and direct use of card as payment instrument:
- Setup of POS terminals began in mid 2004. Its number grew 24 times in 2007 compared to 2005 or one for 168 person. Though comprehensive development of POS terminals and avoiding their overlap in the goods and services delivery centers is one of the serious challenges in this area.

2.2. Development of ATM network:

Concerning rapid growth of payment instrument issues and increasing various services presented through ATM terminals, banking system made provisions to procure, install and operate ATMs in 2007. Though it seems that ATM numbers are not proportionate to issued cards. The gap should be filled rapidly.

2.3. Offering of Value- added services through PIN-Pads:

Using PIN-Pads as electronic transaction accepting equipment in the Inter-bank network began at 2007. The funds transfer service is done by card identification through PIN-Pad connected to teller computers. This can be considered as the first full electronic online Inter-bank draft system of the country. PIN-pads had appropriate increase against fixed number of the bank branches in 2006.

Number of transactions done through electronic terminals of the country				
Time	ATMs	POSs (Shopping centers)	PIN-pads (Branches)	Total
2006 (nine months)	334,991,608	10,400,199	15,241,143	360,632,950
2007 (nine months)	480,128,129	28,935,868	25,576,273	534640270
2006-2007	612,574,983	33,794,283	31,937,686	678,306,952

3. Central Bank provisions to develop payment systems and Electronic Banking:

Integrated and compatible regulations, standards and instructions concerned with banking payments and electronic money facilitates, easier and cheaper Inter-bank transactions, preventing parallel and non-standard activities, saves expenses and investments of the banking system. This gives the possibility to allocate resources to further expansion of the infrastructures and improvement of services quality. Following realization of the shortcomings and regulation constraints, serious actions has been done from 2002. Necessary updates made in the regulations and standards, especially those concerned with value-added services of SHETAB. In this regard the Central Bank and its Payment Systems Department operations are as follows:

3.1. Facilitating private sector participation in development of the electronic payment (Payment Service Providers)

3.2. Development of the inter-bank settlement and large-value funds transfer system "SATNA".

3.3. Development of the cross-border and international card-based network via SHETAB.

> 3.3.1. Connecting of the SHETAB switch to the Qatar switch and development of international connections of card payment network.
>
> 3.3.2. Making negotiations and preparing preliminaries of linking to switch system of the United Arab Emirates and the Saudi Arabia through Bahrain GCC switch. It has important outcome for the cardholders.
>
> 3.3.3 Negotiations with the central bank of Kuwait on connection to the switch system of that country led to an agreement.

3.4. Developing and notifying guidelines, specifications and execution procedure of applying "SATNA" for customer to customer (C2C) and customer to bank (C2B) transactions.

3.5. Authorization of electronic bill payment transactions using POS terminals to increase level of access to E-banking through more than current 500000 terminals in the country.

3.6 Defining mobile phone as authorized terminal in the banking network makes payments of bills and purchased goods and services possible.

JAPAN Progress Report

JASTPRO

Japan Association for Simplification of International Trade Procedures

2009 Members Progress Report：JAPAN

SECTION I – Governmental ICT Strategy of Japan in 2009

1.1 Overview

According to the white paper published in 2009 by the Ministry of Internal Affairs and Communications, Japan keeps the leading position in respect of ICT infrastructure, especially internet users in Japan have been enjoying economy of large scale investment in broadband internet services. However, adoption ratio on internet and cellular phones need to be improved.

Average of standard deviations on KPI

Japan
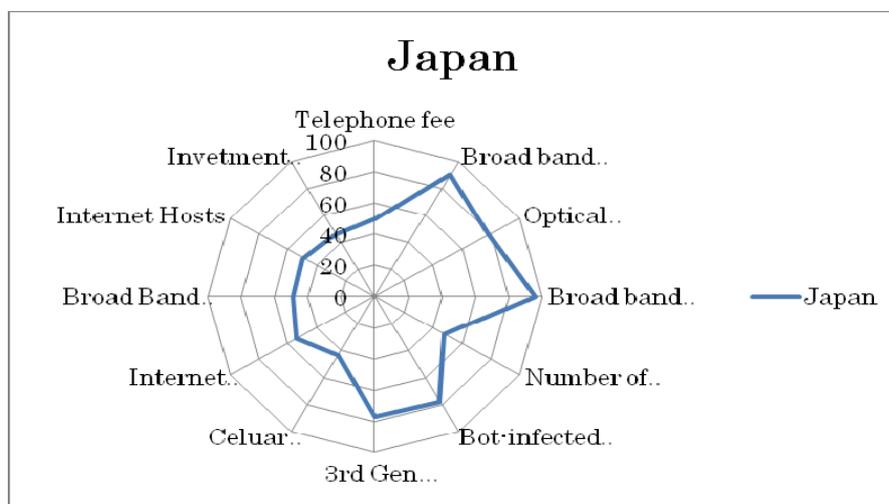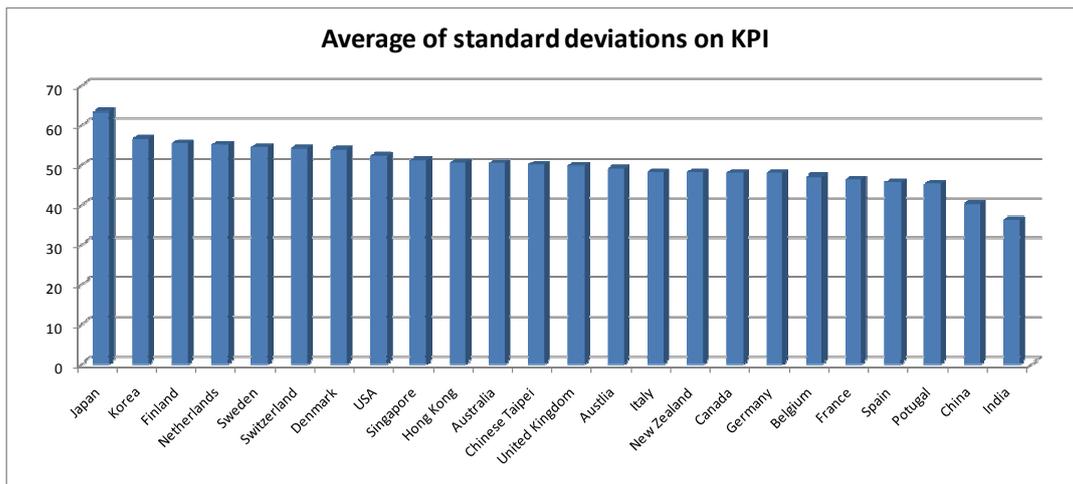
Economy wise statistics of KPI on ICT infrastructure (by Standard Deviation)

Economy wise statistics of KPI on ICT infra structure (by Standard Deviation)

Economies	Telephone fee	Broad band Internet service fee	Optical Fiber Service ratio	Broad band width	Number of secure intenet servers	Bot-infected computers	3rd Gen. celular phone share	Celuar phone adoption rate	Internet adoption rate	Broad Band Internet Service adoption rate	Internet Hosts	Invetment in ICT	Average of standard deviations
Japan	50	90.8	78.9	96.3	48	78.1	76.8	43.5	53.4	48.7	49.5	46.7	63.4
Korea	57.8	52	75.5	50.8	51.1	50.5	70.8	45.6	57.3	58.5	37.7	73.2	56.7
China	40.6	47.6	50.8	46.1	35.3	42.3	32.1	29.3	25.8	28.7	37.8	67.5	40.3
Singapore	76.3	52	45.7	47.3	46.7	43.2	56.7	60	52.9	46.5	44.5	44.2	51.3
Chinese Taipei	81.3	47.6	51.9	46.4	44.8	42.2	44	50.9	51.1	47.3	46.2	48.2	50.1
Italy	45.1	52	46.5	46.8	37.6	46.1	50.7	66.3	45.8	43	49	48.5	48.1
Canada	48.6	45.4	44.5	47	61.1	46.6	46.4	36.1	55.5	55.1	43.4	44.9	47.9
Austlia	49.1	43.9	44.7	47	48	53.5	56.7	55	52.4	45.5	50.5	42.4	49.1
Netherlands	45.9	65.6	45.7	48.8	60.1	58.5	47.3	54.6	61.3	62	63.4	47.4	55.1
Finland	51.3	52	44.5	51.3	52.6	78.1	54.9	53.9	58.7	58.7	65.8	44.6	55.5
Switzerland	52.9	46.1	45.3	47	61.1	47.8	46	52.1	55.3	59.8	55	80.3	54.1
Australia	51.7	43.8	44.5	47.3	61	45.7	55.4	49.7	45.6	50.1	57.9	53.2	50.5
France	47.4	52	44.7	50.8	39.8	42.7	45.9	45.5	44.2	52.3	46.4	46	46.5
USA	45.9	52	47.3	48.3	69	46.6	52.9	44.2	55.3	49.7	78	38.5	52.3
New Zealand	42	44.1	44.5	47	61.6	49.5	43.2	49.4	54	46.7	53.2	42.4	48.1
Potugal	40.4	44.4	44.6	47.3	38.1	41.9	55.7	57.7	38.3	39.9	44.2	51	45.3
United Kingdom	48.9	47.6	44.5	47	59.3	44.6	48.7	55	55	52.9	42.7	52.1	49.8
Hong Kong	48.3	45.4	67.1	47	43	53.5	49.7	65.2	46.1	53.6	42	46.7	50.6
Germany	46.1	47.6	44.5	48.3	49.9	43.2	45	54.7	55	50.6	48.1	42.4	47.9
Spain	45.4	43.5	44.7	48.3	39.8	41.2	52.1	51.9	44.6	44.2	40.2	52.8	45.7
Belgium	45.9	45.4	44.5	46.8	41.4	50.5	39.9	49.7	52.4	53.2	51.4	43.9	47.1
Denmark	50.3	44.2	51.4	50.8	60.9	55.6	42.6	54.1	59.7	64.9	63.2	48.2	53.8
Sweden	52.1	52	59.1	50.8	54.4	55.6	53.9	53.4	59.2	64.9	52.6	44.6	54.4
India	36.5	43.2	44.5	45.8	35.3	42.5	32.4	22.3	21	23.2	37.5	50.3	36.2

Definitions

Definitions	
Telephone fee	Monthly telephone fee devided by GDP per capita
	Data source: WORLD ECONOMIC FORUM 「The Global Information Technology Report 2008-2009」
Broad band Internet service fee	「Lowest sampled cost US$ per 100Kbit/s 2006」? GNI per capita by World Bank 「Key Development Data & Statistics」
	Data source: ITU 「WORLD INFORMATION SOCIETY 2007」
Optical Fiber Service ratio	Percentage of fiber connections in total broadband(Dec 2008)
	Data source: OECD "Broad Band Statistics"
Broad band width	Fastest advertised connection available among all surveyed operators, by country (Mbit/s) (Sept 2008)
	Data source: OECD "Broad Band Statistics"
Number of secure internet servers	Number of secure internet servers per 1 million population
	Data Source: The World Bank 「World Development Indicators Online Database」
Bot-infected computers	Bot-infected computers per 100 broadband subscribers December 2006
	Data source: OECD "Broad Band Statistics"
3rd Gen. celular phone share	Number of 3rd generation celuar phone per 100 subscribers
	Data Source: Pyramid Research Inc
Celuar phone adoption rate	Mobile cellular subscribers; per 100 inhabitants 2007
	Data Source: ITU "ICT Statistics Database"
Internet adoption rate	Intenet users per 100 inhab. 2007
	Data Source: ITU "ICT Statistics Database"
Broad Band Internet Service adoption	Broadband Intenet subscribers per 100 inhabitants 2007
	Data Source: ITU "ICT Statistics Database"
Internet Hosts	Internet hosts 2008
	Data Source: World Bank "Data Statistics, Country profiles" & CIA "The 2008 World Factbook"
Invetment in ICT	Investment in telecommunications 2006
	Data Source: IMD "World Competitiveness Yearbook 2008"

1.2 From "e-Japan Strategy" to "i-Japan Strategy 2015"

e-Japan Strategy

Since 2002, when the Government of Japan had decided and propagated "e-Japan Strategy" in order to become "the world's most advanced IT nation," followed by the revised one "e-Japan Strategy II," which were implemented under the leadership of the IT Strategic Headquarters.

As a result, Japan attained the highest global standards, as demonstrated in our nation's improved broadband infrastructure and its widened use, by the greater utilization of state-of-the-art cellular phones, and by the improved electronic commerce environment and its dramatic increase in transaction size. Dramatic progress at both the infrastructure and consumer levels resulted in the world's highest standards in its market and technological environment. Japan is now transitioning from taking a following position to such foremost countries as the United States, which pioneered the IT revolution, to becoming a front-runner in leading the world to create an IT society for the next generation.

New IT Reform Strategy

Under the New IT Reform Strategy set out by the IT Strategic Headquarters within the Cabinet, in January 2006, focus was put on the ability of IT to reform the social structure. Not only will this characteristic of IT be used to benefit national life from a user-standpoint and improve industrial competitiveness, but also to reform the major societal challenges Japan faces, and to disseminate the achieved results to the world.

Ideally, our nation should primarily aim to achieve a ubiquitous network society, whereby "anybody, can use IT anywhere, at anytime," while taking care to assure security and protect privacy. And secondly, by this means, continue to be the most advanced IT nation with the world's highest-level of infrastructure, potential applicability and technological environment.

Priority Policy Program 2006

The Government also had set out "Priority Policy Program 2006" in July 2006 to explicitly identify the policy package to make all the Government to carry out the program with PDCA cycle continuing to assess achievements and speeding up the measures stated in this program, the Japanese Government aim to create a society where "anybody, anywhere, at anytime" can experience the benefits of IT.

Priority Policy Program 2007

Succeeding to the Priority Policy Program 2006, the IT Strategic Headquarters in the Cabinet

has been developing "the Priority Policy Program 2007.

The revised one is constructed by the following policy packages:

> ➢ Policies to enhance productivity and efficiency both in the Government and the private sectors.

> ➢ Those to realize the safe and reliable society

> ➢ Those to develop a platform for innovation

> ➢ Those to attempt structural reforms by means of ICT

> ➢ Those to promote structural reform to enhance business competitiveness through establishment of management by utilizing ICT

> ➢ Enhancement of the presence of Japan in the international competitive society by the provision of valued Information to the world.

1.3 The ICT Policy Roadmap 2008

On 25th January 2008, the Fukuda Administration which was established in September 2007, set out the Governmental Strategy captioned "Direction and Strategy for the Japanese Economy" propagating the Growth Strategies based on "Networking Ability and Environmental Prowess," in which showing the three goals as follows:

> ➢ Goal 1: An open country which develops together with the rest of the world

> ➢ Goal 2: A country where people can live without anxiety into their 90s

> ➢ Goal 3: A country that sustains economic growth even with a declining population

In accordance with the said Strategy, the IT Strategic Headquarters in the Cabinet has set out "ICT Policy Roadmap" in June 2008 (herein-after called "the Roadmap") , in order to reinforce the realization of the goals of both in "New ICT Reform Strategy" and the above mentioned Governmental Strategy.

The Roadmap showed prioritized item of National projects in three categories:

> ➢ To realize so-called "one-stop service" by e-Government both in central and local, especially in health care and social security sectors, which should be user-orientated.

> ➢ To be safe and reliable society harmonized with the Environment

> ➢ To realize the economic development by Networking Ability opened to the World

1.4 The Priority Program 2008 (Final Draft)

In June 2008, the IT Strategic Headquarters in the Cabinet had released the final draft of the Priority Program 2008 (here-in-after called "the Program"), which was compiled as an annual plan for the fiscal year of 2008, to carry out the policy programs shown in the Roadmap.

Among the the policy packages, most of which are succeeded from the Priority Program 2007, the Government initiated the following new projects:

1.4.1 Cyber Specific District

To develop a virtual community to invite concerned industries for which a special privileges to enable participants to carry out innovative trial of services over Internet.

1.4.2 e-Space

To incubate high-value added e-commerce space, pilot projects to deploy innovative ICT over the Nation.

1.4.3 The Digital Cultural Enlightenment

To serve the Nation digitized information services to disclose any and all the intellectual properties kept in public, such as in the National Diet Library, the National Archives of Japan, all the Governmental Offices both in central and local, major libraries, National Museums, and universities.

1.4.4 Digital Fusion to incubate innovative industries

To initiate pilot projects to constitute a new ICT frontier, which can be a platform for new innovative industries.

1.5 i-Japan 2015

In July 2009, the IT Strategic Headquarters in the Cabinet has published the whitepaper named "i-Japan 2015 --- Towards Digital inclusion & innovation of the people by the people for the people."

In its vision, "the Digital Inclusion" means ICT should include all the nation like air and water fairly. On the other hand, "the Digital Innovation" should support the inclusion by ICT innovation which enables sustainable development of economy with solutions for the environmental issues.

Under this strategy, the Government of Japan has set the following three pillars to solve the National challenge to which we Japan will face in 2015: That is to say, decreasing income and productivity owing to the diminishing birth ratio and the world's fastest aging society, which will result in lack of competitiveness to be enhanced by activeness of the society:

> ➢ ICT at people's hand: It shall be available for every people like air

> ➢ Breakthrough by BPR on older practices which prevent application of ICT in every sectors.

> ➢ Development of confidence on the application of ICT by means of effective control of ICT security to ensure the privacy and to guard against the risks of ICT.

Under the above mentioned strategy, it is set the following prioritized sectors , to which the implementation of the i-Japan is going to be carried out:

i)   e-Government both the central one and the local one

ii)   e-Medical care and e-Health

iii)   e-Education & Capacity Building

iv)   Development of new industry and re-vitalization industries and local economies

v)   Further development ICT infrastructure

SECTION II – UN/CEFACT STANDARDS DEVELOPMENT

2.1 Single Window System of Japan

2.1.1 The current Single Window System

After the merger of the Port & Harbor EDI for Japan Coast Guard and the Port Authorities in October 2008, Nippon Automated Cargo Clearance Systems (NACCS) completed the development of the Single Window System in Japan, which has interface with the following systems:

FAINS (Sanitary Inspedtion)

JETRAS (Import/Export Control)

ANIPAS (Animal Qurantine)

PQ-Networks (Plant Qurantine)

Immigration Procedure System

2.1.2 Nippon Automated Cargo Clearance Systems (NACCS)

(1) NACCS

Japan has two automated customs clearance systems named "the Nippon Automated Cargo Clearance Systems for sea-cargo (Sea-NACCS) and for air-cargo (Air-NACCS)". These systems are operated by NACCS Center.

NACCS promptly and accurately handle customs procedures, legal procedures related to non-customs systems (e.g. food, plant quarantine, animal quarantine, trade control, port EDI) and other tasks related to international cargo and shipment handling.

NACCS is an on-line network system, composed of a computer system used in communicating with the center, and a terminal system located in each of the customhouses, customhouse brokers and other related industries connected with telecommunications lines. NACCS structure date exchange with inter-corporate systems on the EDI method. Now NACCS process approximately 95 % of all import and export customs declarations.

(2) Sea-NACCS

Sea-NACCS process customs procedures and private companies related services for import and export cargoes by sea. For imported cargoes, the on-line process begins with the arrival of a vessel in a port and continues through the unloading of sea cargoes from a vessel, import declaration and the approval of import. For exported cargoes, the on-line process is applied to a series of customs procedures and private companies related services including the delivery of sea cargoes to the Customs area(e.g. Customs warehouse), export declaration, the approval of export, the loading of cargoes to a vessel and departure from a port.

Sea-NACCS adopted UN/EDIFACT in submitting arrival report and list of loaded cargo, application for departure, etc. UN/EDIFACT Messages used in Sea-NACCS are as follows:

CUSRES (Customs response message)

CUSREP (Customs conveyance report message)

CUSCAR (Customs cargo report message)

PAXLST (Passenger list message)

CODECO (Container gate-in/gate-out report message)

COPARN (Container announcement message)

IFTMIN (Instruction message)

APERAK (Application error and acknowledgement message)

CONTRL (Syntax and service report message)

In addition, WCO customs data model was introduced into Sea-NACCS about export declaration (EX1) in December, 2005.

(3) Air-NACCS

Air-NACCS process customs procedures and private companies related services for import and export cargoes by air.

For imported cargoes, the on-line process begins with the arrival of an aircraft in an airport and continues through the unloading of air cargoes from an aircraft, import declaration and the approval of import. For exported cargoes, the on-line process is applied to a series of customs procedures and private companies related services including the delivery of air cargoes to the Customs area(e.g. Customs warehouse), export declaration, the approval of export, the loading of cargoes to an aircraft and departure from an airport.

2.1.3 The Next Generation Single Window System

Under the Priority Policy Program 2006, the Government had decided to implement the Government Common Portal, which will serve nation one-stop services for all the online system of each Ministries. As to International trade affairs, the following online systems will be redeveloped by 2010(See Diagram 2 attached herewith):.

Next Version Sea-NACCS	October 2008
Next Version Air-NACCS	February 2010
Next Version FAINS (Sanitary Inspection)	January 2010
Next Version JETRAS (Import/Export Control)	October 2008
Next Version ANIPAS (Animal Quarantine)	April 2010
Next Version PQ-Networks (Plant Quarantine)	April 2010
Next Version Immigration Procedure System	October 2008

2.2 Other EDI Activities

2.2.1 Japan Electronics and Information Technology Industries Association (JEITA)

JEITA is a new industry organization established in November 2000 by merging the Japan Electronic Industry Development Association (JEIDA) and Electronic Industries Association of Japan (EIAJ) to enter the 21st century. Its activities cover both the electronics and information technology (IT) fields. Within the JEITA, the EDI Center plays

the role of promoting standardization which has been executing activities together with the vendors and buyers, focusing on the EIAJ-EDI Standards in order to exchange business transactions.

JEITA uses EIAJ-EDI Standard based on CII syntax rules, a domestic business protocol standard, developed by the Center for the Informatization of the Japan Information Processing Development Center. The EIAJ-EDI Standard was established for promoting electronic ordering of materials in the electronic manufacturing industry, and has been revised as appropriate every two to three years. The latest version was issued in December 2001.

In December 2003, JEITA released "ECALGA (Electronic Commerce Alliance for Global Business Activities)" as EDI brand for the new era. "ECALGA" is intended to widely offer the solutions to the changing needs of new EDI in the Electronic industry, through newly developed messages which are to reflect the real time exchange of a forecast and stock information. At the same time, "ECALGA" changes EIAJ-EDI Standard to the ebXML base. "ECALGA" seamlessly combines all the business processes among the enterprises in the various fields including, but not limited to, the business segment of planning, designing, development, production, distribution and sales.

2.2.2 The Distribution Systems Research Institute (DSRI)

DSRI, a member of GS1, facilitates EANCOM (UN/EDIFACT subset) as the industry EDI standards for Japanese retail and distribution industry since 1997. Since 2000, DSRI has been developing XML/EDI Distribution Standard messages for the grocery industry. In 2004, message development and preparation of Reliable Messaging Protocol guideline have been carried out as follows:

1) Development by XML schema of returns message.
   (12 messages were developed by 2000 – fiscal year 2004)

2) Review and classification of necessary data items, based on data items for JEDICOS.

3) Preparation of XML tags in Japanese and English languages, taking into consideration international standard specifications.

2.2.3 Financial Sector

Since March 1996, a function for financial EDI has been available in Zengin System, an electronic payment system mainly used for domestic credit transfer. Payer firms can attach a twenty-digit matching key, with which beneficiary firms can reconcile commercial and payment date, to payment instructions sent through Zengin System.

This function has been succeeded to its fifth-generation system, which start   operation in

November 2003. In parallel with the development of the new system, a working group of Japanese Bankers Association examined the possibility to introduce a scheme for financial EDI using XML. However, it has decided not to introduce such a scheme for the time being as there are legal and technical issues to be addressed.

MT103 Remit, which is a new message type of SWIFT's FIN for customer payment and has the financial EDI capability, is widely used in Japanese banks. By using MT103 Remit, payers can attach EDI data of up to 9,000 digits and of any type of formats including EDIFACT to a payment instruction. However, Japanese banks use SWIFT messages mainly in cross-border transactions, partly because the protocol and formats for most Japanese payment systems are incompatible with those for SWIFT.

Turning to C2F area, electronic methods to transfer money between individuals' bank accounts are widely used in Japan. According to a survey conducted in March 2005, funds transfer services are provided through the Internet by 79.2 percent of the 456 respondent banks. In addition, services using mobile terminals (e.g., mobile phones) are provided by 80.3 percent of the respondents.

2.2.4 Travel, Tourism and Leisure (TT&L)

The initial EDI activity in the travel related industry in Japan started in 1992 soon after the establishment of TT&L work group in UN/EDIFACT. In order to internationally sell Japanese travel products, more than 30 travel related companies and associations have kept working in the name of EC Promotion Organization for Travel Industry to normalize the travel business processes and data by using XML/EDI based on the standards and specifications of UN/CEFACT Forum and OTA (Open Travel Alliance). The first working results on the Japanese original hotels (Ryokan) undertaken by the Organization were submitted to the Forum last year to be facilitated in the Small Scaled Lodging House Information Project and are now in its harmonization process. The second submission will be ready to the Forum during this year.

The TT&L EDI meeting with Taiwan TT&L industry has been held yearly either in Taipei or in Tokyo and in Dec, 2005 this was held in Taipei with the industry members of the two countries. The visit Japan campaign in Japan has been undergone to promote Japan to the foreigners and the EDI standard activity is also activated these days.

2.3 Education and Awareness Programs

2.3.1 JEDIC (Japan Electronic Data Interchange Council)

JEDIC has conducted the survey on the EDI status for 59 industry associations in Japan.

The result says that 59.4% of the companies are doing EDI in the procurement process and 53.9% of the companies are doing EDI in the area of marketing.

JEDIC publishes the EDI news letters and holds the EDI seminars regularly. Also JEDIC started the new promotion program for ebXML including the hands-on trainings.

2.3.2 ECOM (The Next Generation Electronic Commerce Promotion Council of Japan)

ECOM organized the research and the promotion for Electronic Commerce and RFID in Japan. The research report includes How to promote RFID in the various industries, How to build up the information models for the product lifecycle management based on the UN/CEFACT Modeling Methodology, and How to establish the Registry and Repository for ebXML.

2.4 Status of ebXML Development

For implementing the e-Business Collaboration based on ebXML, the Model Sharing among the related business entities is the key. The Next Generation Electronic Commerce Promotion Council of Japan (ECOM, Chairman: Takuya Goto, Chairman of the Board, Kao Corporation) is performing activities which contribute to decision of the technical standard about a "core component" and the "modeling methodology" of ebXML. Furthermore, the activity for spreading use of ebXML technology through the actual business of Japan and Asian countries is also carried out.

In order to promote ebXML among the Small and Medium sized Enterprises, ECOM developed and submitted the new specification of ebXML Messaging Service which can provide the Solution for Client-Server System to OASIS.

2.5 Working Groups and Committees

2.5.1 JEC

Japan EDIFACT Committee (JEC) was established in July 1990 as a supporting organization for UN/ECE/WP.4 (currently UN/CEFACT) and Asia EDIFACT Board (currently AFACT). JEC is composed of committee members representing various field of industry, which includes trade, finance and manufacturing. JEC sends delegates to AFACT meeting every year.

At the Plenary of JEC held 25th June 2007, it was renamed to UN/CEFACT Japan

Committee (Abbreviation is same as now i.e. "JEC")

2.5.2 Japan Committee for UN/CEFACT Standards

At the Plenary of JEC held 25th June 2007, it was resolved that TAG (Technical Assessment Group) and Japan Committee for UN/LOCODE shall be united and reform the captioned committee, which has the following two functions:

2.5.2.1 TAG (Technical Assessment Sub-Group) Function

With regard to the development of UN/EDIFACT standard messages, TAG has been playing a key roll in technical support by making technical assessment of DMR(Data Maintenance Request) from UN/EDIFACT users in Japan.

2.5.2.2 UN/CFEACT Code Promotion function

UN/LOCODE has been in use in Sea-NACCS and Port EDI system since 1999. For the purpose of successfully introduce these systems, the ex UN/LOCODE Japan committee was established in 1997. Currently the number of the registered UN/LOCODEs for Japan counts 1,616 in comparison with 400 at the beginning. The roll of the new committee is to maintain the codes and make a request for new codes in Japan. In the future, it is intended to enhance the roll of the committee to encompass UN codes other than locations.

The new function is to promote any and all the code systems compiled and published as UN/CEFACT Recommendations, such as, but not limited to #3, #9, #20, #21, #22 etc

2.5.3 Special Committees of JASTPRO

(1) Special Research Committee on Reinforced Security Environment after 9.11

In the aftermath of the September 11 terrorist attacks in the United States, demand for the measures to assure tighter security is rapidly increased. Under such circumstances, to satisfy the needs of the international trade environment in terms of efficiency and security becomes universal concern among the parties involved. Since Japan fully rely on trade activities with other part of the world, it is an ultimate issue for Japanese trade community to find the solution to obtain adequate security without interfering efficiency in trade.

In the work program of this committee for this year, primal focus is placed on the research of security measures by US CBP, so called "10+2," and "SFI (Secure Freight Initiative" to plan 100% screening of sea-going containers destined to USA. Analysis and evaluation is

given to the effect of such measures onto the efficient trade flow. Security measures initiated in the private sector is also studied.

By gathering and sorting out all these available information, some directive condition for effective implementation of security measures in the trade procedure will be sought.

(2) Trade Procedures for XML/EDI Implementation Research Committee

XML/EDI using internet is the hottest theme in EDI business. XML/EDI is regarded the next-generation EDI that resolves the problems in legacy EDI and Web-based (Internet) EDI. JASTPRO launched this committee in order to study possibility of introducing XML/EDI concept into trade procedures. This approach is important to re-use resource of UN/EDIFACT and to keep inter-operability between UN/EDIFACT and XML/EDI. The committee continues to extend their efforts to simplify tag name for data element in UN/EDIFACT and explores the area of trade procedures based on object-oriented model.

KOREA Progress Report

Nation IT Industry Promotion Agency

2009 Members Progress Report：KOREA

SECTION I – GENERAL CONDITION UPDATE

In Korea, the effort to promote e-Business implementation has continued by both public and private sectors to accelerate the digitalization of traditional Korean industries. A recent focus of Korean effort is on the maximum utilization of IT and e-Business for its application to industrial and sectoral domains to improve their competitiveness and to create new and innovative industries.   The year 2008 marked an increase of e-commerce ratio to total trade to 30% from 25.4% in 2007.

1.1 User Status

1.1.1 Internet Users

As of December 2008, the number of Internet users totaled 35.36 million, which is 77.1% of population aged over 6. Compared to the number in December 2007, there is an increase of 540,000 internet users.   Analysis by Gender shows that 81.6% of males and 71.5% of females use the Internet.   Analysis by age reveals that more than 98% of those ages 10s, the 20s and the 30s use the Internet.

□Table 1：Internet Usage Rate in Korea by Age in 2008

Age	3-9	10-19	20s	30s	40s	50s	60s
Usage Ratio (%)	82.2	99.9	99.7	98.6	82.0	48.9	19.0

Source：National Internet Development Agency of Korea, Feb. 2009

1.1.2 Broadband Penetration

As of December 2008, 80.6% of Korean households are found to have Internet access at home. 83.3% of Korean households access Internet by using xDSL, 24.8% by Cable modem, and 15% by Apartment LAN.

1.2 e-Commerce Market Status

1.2.1 e-Commerce Trade Volume

The trade volume of e-Commerce market in Korea grows every year as shown in Table 2. The total e-Commerce trade volume in 2008 was 629,967 million US Dollars.

☐Table 2：e-Commerce Trade Volume in 2008 (Unit: Billion USD, 1USD≈1,000Won)

Year	Total	B2B	B2G	B2C	Other
2006	413.58	366.19	34.44	9.13	3.83
2007	516.51	464.46	36.80	10.22	5.03
2008	629.97	560.14	52.27	11.67	5.91

Source：Korea National Statistical Office, Feb. 2009

1.2.2. Cyber Shopping Malls

Trading volume of cyber shopping malls is around 18 billion US Dollars in 2008. Trading volume of general retailers accounted for 71% of the total volume of cyber shopping malls while specialized retailers accounted for 29%.

☐Table 3：Sales of Cyber Shopping Malls (Unit: Billion USD, 1USD≈1,000Won)

Total	Commodity type		Operation type	
	General	Specialized	Online	On/Off-line
18.14	12.96	5.18	12.06	6.08

Source：Korea National Statistical Office, Feb. 2009

1.2.3 G2B Market

The total trade volume of G2B e-Commerce is 52,266 million US Dollars as of December 2008, showing gradual annual growth pattern. Out of total G2B trade volume, 58% was made through purchase of goods & services and 42% was through public work contract.

□**Table 4：G2B Market Size in 2008 (Unit: Million USD, 1 USD≈1,000Won)**

Year	Total	Purchase of Goods & Services	Public Work Contract
2006	34,435	19,385	15,972
2007	36,801(100)	19,585(53.2)	17,216(46.8)
2008	52,266(100)	30,306(58)	21,960(42)

Source：Korea National Statistical Office, Feb. 2009

1.3 Streamlining of ICT Promotion Organizations

In Korea, there are various public organizations specialized in specific focus areas of ICT based on the enactment of laws. For example, KIEC was the specialized public organization for the promotion of e-Business on the basis of the Framework Act on Electronic Commerce. In 2008, the Korean Ministry of Knowledge Economy resolved to integrate three ICT promotion public agencies under its auspices - the Korea Institute for Electronic Commerce, the Korea IT Industry Promotion Agency and the Institute for Information Technology Advancement – to streamline government effort for ICT promotion.

After going through various consultative and preparatory stages in addition to the enactment of the IT Industry Promotion Act, the National IT Industry Promotion Agency (NIPA) was officially established on Aug. 24 2009. The NIPA has inherited all the promotion works of the three previous organizations and will develop other work programs in support of government for the advancement of Korean IT industry.

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 Implementation of UN/EDIFACT/XML based Standard

In Korea, KEC (Korea E-Document Standard Committee), a legal committee under the Korean government, manages all the electronic documents standardization. KEC standard is a Korean national standard which ratifies and customizes UN/CEFACT specifications. As of 2009, 683 types of electronic documents have been registered as KEC standard with circulation of about 300 million documents for a year. Table 5 shows the details on the current status of KEC standards.

KEC examines, approves, revises and abolishes Korean standard e-documents and collects the opinions from industries and recommends policies to the government. KEC is in the process of going through an organizational transition to encompass the standardization of wider scope on information and communication technology.

2.2 Implementation of ebXML Standard

To develop and promote ebXML Standard in Korea, the NIPA puts effort on both international and domestic activities. The NIPA maintains a focal point of UN/CEFACT in Korea and a membership in OASIS. The NIPA contributes to international ebXML standardization by participating in UN/CEFACT Plenary and Forum meetings as well as OASIS TC meetings. Korea B2B/A2A Interoperability Testbed (KorBIT) is going through upgrade to accommodate the certification of KEC standard electronic tax invoice compliant systems. For domestic promotion of e-Business, KIEC - the predecessor of NIPA, organized an international e-Business interoperability conference in October 2008 by aligning it with AFACT EDICOM conference and WfMC Asia Promotion Tour.

□Table 5：Korea Standard Electronic Documents in Aug. 2009 (Unit: EA)

	EDI	XML/ EDI	XML	Library	KECT	KECR	Sub-total
Trade	37	27	25	0	0	0	89
Insurance	4	4	8	0	0	0	16
Sea Transport	38	0	3	0	0	0	41
Land Transport	6	0	6	0	0	0	12
Finance	31	0	57	0	0	0	88
Healthcare	11	0	0	0	0	0	11
Customs	39	0	131	0	0	0	170
Distribution	19	0	0	0	0	0	19
Iron & Steel	11	0	5	0	0	0	16
Procurement	0	0	65	0	0	0	65
Electronic	20	0	0	0	0	0	20
Automobiles	22	0	0	0	0	0	22
Ship-building	21	0	0	0	0	0	21
Textile	0	22	0	0	0	0	22
Electricity	0	0	53	0	0	0	53
Common	3	0	3	2	6	1	20
Stationary	0	0	12	0	0	0	12
Total	262	53	368	2	6	1	**697**

Since REMKO, Korea ebXML Central Registry & Repository, was developed in 2001 to facilitate ebXML based electronic transaction and to enhance e-business interoperability in Korea, REMKO has managed all standard electronic documents including EDI, XML/EDI, XML, and ebXML contents such as CPP, CPA, ACC, ABIE. Currently there are 2,771 electronic documents in REMKO. REMKO also provides ebXML contents search system and is linked with other industrial information services for information searching. REMKO is continuously enhanced for improved user-friendliness and functionality.

Since introducing a certification service for standardized electronic TAX invoice in May 2005, KIEC certified 62 electronic Tax invoice systems from 53 companies and organizations until August 2008. In 2009, the NTS (National Tax Service) revised the Value-added Tax Act and introduced 'Standard electronic Tax invoice' system which will be in operation from January 2010. From January 2010, all the registered businesses having the status of legal person must use only electronic tax invoice. To support the innovative government policy on value-added tax, the KEC developed standard electronic Tax invoice with the participation of the NTS and all the stakeholders. The certification system and self-test validation system for verifying the conformity of electronic tax invoice systems to the KEC standard electronic tax invoice is in development by the NIPA and is scheduled to open the service in October 2009.

SECTION III – e-Readiness and e-Application -- eGovernment/eBusiness Related PROJECT UPDATES

3.1 e-Government

3.1.1 e-Government

Korean government started informatization of government from 1987, establishing National Basic Information System, which digitizes administrative data such as resident, vehicle and land registers. Projects on Informatization of Government Agencies were promoted from 1997 to 2000.

After e-Government Act was enacted in 2001, Korean government aggressively pursued the development of world's best e-Government in Korea. 11 key Initiatives including G4C, e-Procurement, Home Tax Service were implemented in 2001 and 2002. In 2003, Korean government established e-Government Roadmap composed of four areas of innovation, 10 agendas and 31 projects for the period of 2003 - 2007. Advancement of

e-Government services was promoted in 2007. With this effort, Korea has ranked sixth in the UN e-Readiness Index in 2007.

3.1.2 G4B System

G4B is a government one-stop service hub portal for businesses which provides integrated information needed for entire process of business from foundation to cessation of company. G4B was selected as one of 'Enhancing Citizen Service' projects of Korean e-Government Roadmap in 2003. Phase 1~2 projects were completed and serviced in 2004~2007, and Phase 3 project was completed in January 2008 and now in service.

G4B provides 4 main services; corporate civil administration service with guidance of details for 3,732 types of civil appeals for businesses, latest industrial information service with contents of 185 sites, integrated information service about company support businesses of government and its policies, and business portal service that provides knowledge exchange, news, forms and education.   From July 2009, 'Business Economic Support' System, which includes how to start home based business and to establish a legal person, is in development.

3.2. Trade Facilitation

3.2.1 U-Trade Hub

Korean government is committed to promote e-Trade as a measure to increase the competitiveness of Korean business in borderless global trade environment of the 21st Century.   Therefore, The Korea Paperless Trade Center established in KITA (Korea International Trade Association) to prepare an e-Trade infrastructure has built and promoted uTradeHub as an online single window.   After the uTrade Hub officially opened its service in July 2008, the uTradeHub project including electronic Bill of Lading (e-B/L) system, and electronic Negotiation (e-Nego) system was implemented from 2007 to 2008. uTradeHub allows swift and effective implementation of all trade related process for international trade such as marketing, import/export licensing, logistics, customs clearance, banking and negotiations. The upgrading project, ISP(Information Strategic Planning) was conducted in the first half of 2009 and now, e-Nego (electronic negotiation) pilot project is ongoing to make the system more feasible and practical.

＜**Figure 1：uTradeHub**＞
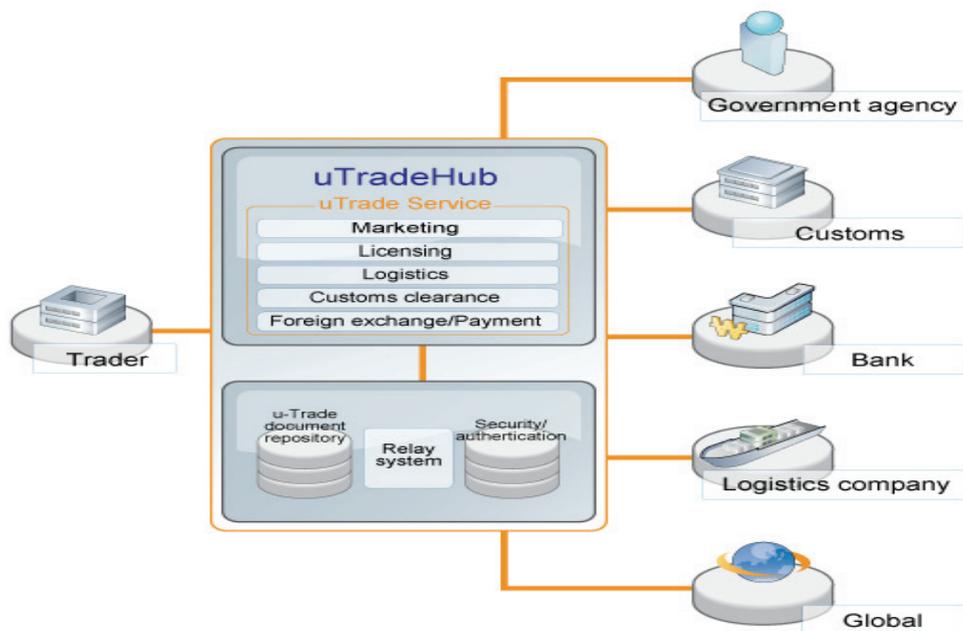
3.2.2 e-Negotiation Pilot Project

Since January 2009, e-Negotiation pilot project in Korea has been implemented with the goal to take a step forward in Paperless Trade.   Especially, it is the good motivation that Korea's major automobile maker, Hyundai Motors Co is one of the most supportive partners, leading the international trade companies in this area.   With this factor, Korea Paperless Trade Center has promoted many other co-partners in each sector such as Banking, Logistics and Insurance service to participate in the project to achieve the mission successfully.

Furthermore, electronic negotiation is the key process for trade-involved companies and organizations as well as international trade companies in the light of the importance of financial settlement which is closely connected with e-L/C, e-B/L, e-I/P and e-C/O, etc. The commitment of the e-Negotiation pilot project team is expected to make an encouraging result at the end of this year by reformatting work process and figuring out technical problems.

<＜Figure 2：the concept of e-Negotiation＞>
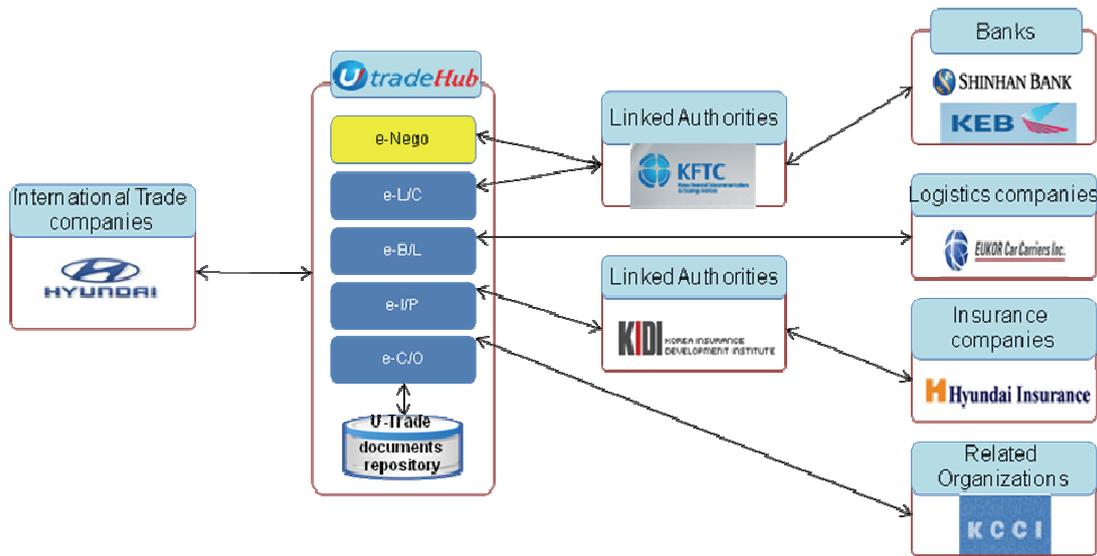
3.2.3 UNI-PASS

Since UNI-PASS, the electronic custom clearance portal system, was opened in November 2005 by the Korea Customs Service (KCS), Korean traders can use either EDI Clearance service or Internet Clearance service depending on their business environment. UNI-PASS provides all related customs administration such as export/import clearance system, duty collection system, export/import cargo management system, duty drawback system, and the clearance Single Window. In 2007, UNI-PASS won the 2nd e-Asia Award administered by AFACT as best practice in the 'trade facilitation' field.

Since its opening, there is a significant increase in the use of the Internet customs clearance portal. Also, as UNI-PASS is recognized as an advanced customs clearance system, many foreign countries have requested benchmarking on it and many cooperative projects have been performed. In 2007, Korea Customs Service (KCS) signed MoU with Department Customs of Nepal to perform Feasibility Study for development of e-customs system in Nepal, signed MoU with Philippines for Customs Data Exchange Project, and signed an audit & consulting contract with Dominica Customs for the establishment of UNI-PASS in Dominica. In 2008, KCS together with CUPIA (Korea Customs UNI-PASS Information Association) signed MoU with Tanzania Revenue Authority on the feasibility study project for customs administration informatization and conducted feasibility study on customs modernization for Customs Authoriy in Lao PDR.

3.3 e-Business

3.3.1 e-Learning Promotion Program

e-Learning has been focused as one of key industries for next generation in Korea. Since e-Learning Industry Development Act has been enacted in 2004, Korean government implemented various programs and projects to promote e-Learning.

For e-Learning policy development, survey on actual conditions of e-Learning industry and publication of 2007-2008 e-Learning Whitepaper were carried out in 2008. For the e-Learning standardization, KIEC operates domestic e-Learning Standardization Group consist of 10 experts from public and private sectors, and participates in international standardization organization such as ISO/JTC1 SC36 and LETSI(Learning, Education and Training System Interoperability). After KIEC established Korea ADL Partnership Lab, KIEC entered into MoU on SCORM Certification with the U.S ADL in August 2007.

For the human resource development, training program method and courses have been diversified for the target trainees and for the purpose of the training courses. New training courses including 'e-Learning consultant', 'e-Learning project leader' have been developed, and introduction of e-Learning certification program was studied in 2007. For the promotion, 2008 e-Learning Expo was held in September 2008, e-Learning Biz -Matching events with China (Shanghai & Guangzhou) were organized in November 2008, and Korea e-Learning exhibition booths were installed in GITEX 2008 and in Worlddidac Vietnam 2008.

Furthermore, Korean government established 'Building e-Learning Qualification Certificate System and Infrastructure Plan' in January 2007 to set up a national level of comprehensive e-learning qualification certificate system. In December 2007, the standard on e-Learning qualification certificate and designation of Certificate organization were announced by the government.

3.3.2 e-Business Human Resource Development Program

To foster and develop e-Business human resources, KIEC operated two major programs until 2008: Financial Support program for university & college with e-business training courses, and e-business Human Resources Center program.

In 2008, 4 colleges and 3 universities trained 600 people by support of KIEC financial support program for universities & colleges. Also, 24 colleges, universities and graduate schools opened 74 intensive courses for CEO/CIO and trained 2,300 people. Besides the financial support to schools, KIEC studies on systematic education & training program, and operates e-Business Resources Center. There were 29 e-business on & offline training

courses with 1,452 trainees in 2008.

For the development of overseas human resources, KIEC managed e-business training course in July 2008 and e-learning training course in October 2008, trained 16 people from 13 countries for each course. In March 2009, KIEC organized e-business training course with 18 trainees from 12 countries. The training course is a two weeks course on e-business or e-learning lectures with company visits with field trip.

3.3.3 CeDA (Certified e-Document Authority)

In Korea, there is a rapid increase in the use of electronic data message in every sector of society as e-Business implementation grows ever more. However, in the current business environment, the private sector has also kept a hard copy on paper in compliance with rules on preserving electronic data message for its legal validity while using electronic data message. To redress this issue, Korean government has prepared relevant provision in the Framework Act on Electronic Commerce through the revision in 2005. Under this Act, a trusted third party is designated as the Certified e-Document Authority for reliable preservation, authentication, and circulation of electronic data message. The data message preserved in CeDA is legally binding; its authentication is guaranteed by law, and it can be circulated.

As the NIPA is designated as a support agency for CeDA program, the NIPA promotes various activities including the development and revision of related laws and regulations, designation and management of CeDA, advancement of CeDA archiving technologies, and promotion of CeDA program.

In 2007, Framework Act on Electronic Commerce was revised to give legal effect on digitalized document. Regulation on the procedure and method of producing a digital document was also announced. KIEC applied for domestic patent on 4 types of archiving technical specifications for CeDA as well as applied for overseas patent on CeDA business model in 2007. For the advancement of CeDA technology, user system technical specification was newly established and 3 other technical specifications were revised in 2007. Intensive education and training courses on digitization of document that has legal effect were developed in 2007 as well.

As of August 2009, seven companies (KTNET, LG CNS, Samgsung SDS, KDN, HANAINS, uPOSTBank, Koscom) were designated as CeDAs.

＜**Figure 3-1：Basic service model of CeDA**＞
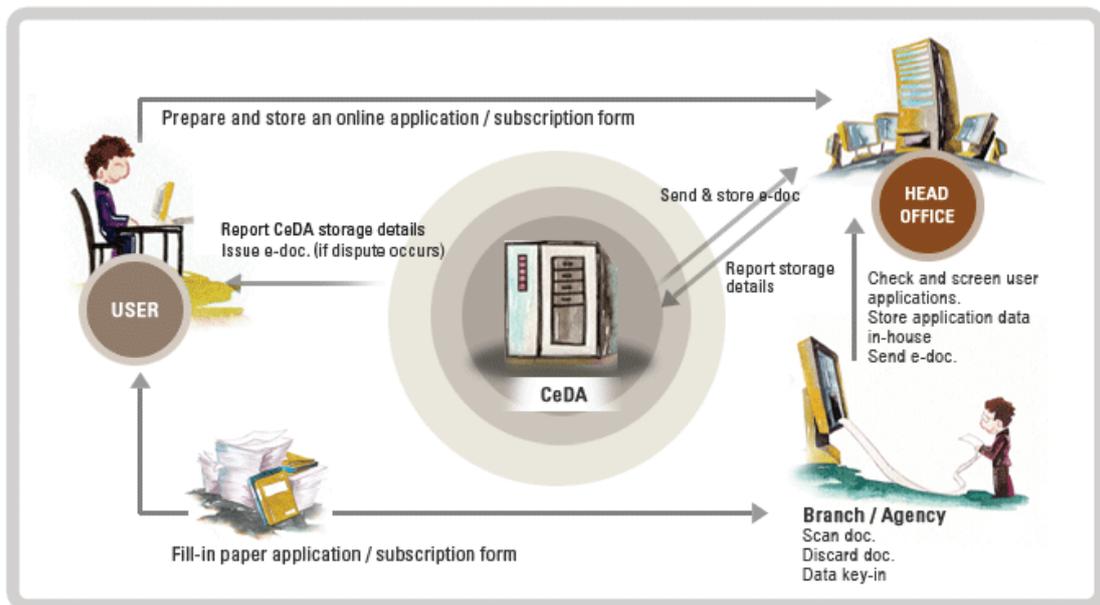
＜Figure 3-2：Supplementary services model of CeDA＞

- Retrieval-oriented service (e.g. prescription)

Diagnosis and treatment in a hospital

Send and store prescriptions

Visit and receive the prescribed medicine

CEDA

HOSPITAL

DRUG STORE

Prescription retrieval service
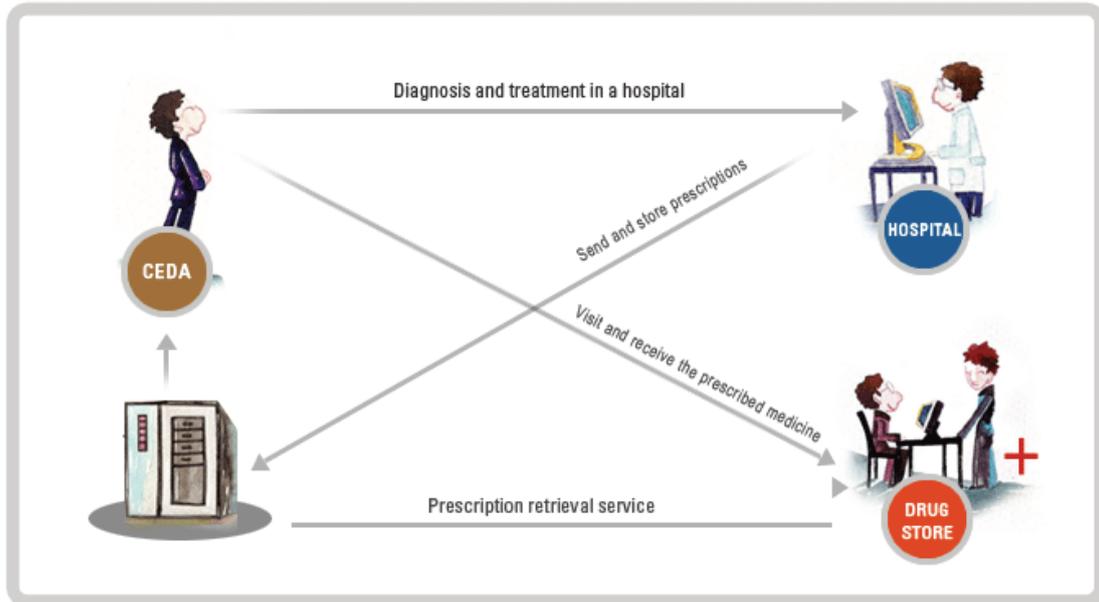
3.3.4 Other programs/projects

Other e-Business programs include eTrust certification program for consumer protection in e-Commerce, the Electronic Commerce Mediation Committee (ECMC) for alternative dispute resolution of e-Commerce dispute, Research on digital innovation policy, and the Knowledge service industry program.

As of August 2009, there are 107 commercial websites certified with eTrust Mark.   For the year 2008, the number of disputes received and mediated by ECMC was 3,631, which was about 36% increases compared to 2,668 of the previous year. In 2008, 'the e-business and IT use survey of Korean companies' were carried out, and 'IT Innovation 2012' was established.   The knowledge service industry program was launched in January 2007 to foster the knowledge service industry as new growth engine.   Various projects for knowledge service industry were implemented since 2007 such as support for R&D on strategic technology of knowledge-based service, establishment of strategy on knowledge service industry, and development and distribution of knowledge based service business model.

SECTION IV – Other advanced applications - IT - enabled Service (ITeS)

4.1 U-City

Recently, rapid ubiquitous IT technology development such as RFID/USN, BcN, WiBro, have raised awareness and increased expectations of u-Society in all around the worlds. In December 2006, Korean government established u-City development master plan to build safe, healthy, convenience and comfortable city. u-City is ubiquitous sensor network based city where IT infrastructure, technology and service are integrated into housing, economy, traffic and other facilities. In 2007, 6 u-City testbed projects were selected to develop standard u-service model, and Guideline for development of u-City infrastructure was established.

9 u-City testbed projects including u-Tunnel management and u-Subway were implemented in 2008 and 9 projects including management of cultural properties and migratory bird management were added in 2009. U-City guideline has been published and distributed to local autonomies, and international events on u-City were organized to share ideas and know-how.

4.2 RFID/USN

Ubiquitous Sensor Network (USN) is constructed by allowing an electronic tag, which is attached to objects to sense the surrounding environment. It manages real-time information through a network. The end result is a unified BcN (Broadband Convergence Network) and ultimately a Ubiquitous Network. USN technology is the combination of wired and wireless networks consisting of an electronic tag, reader, middleware, and application platform. RFID Technology will become a core technology that can be used widely in the fields of logistics, distribution, pharmaceuticals management, and military logistics in the future.

Korean government established a finalized U-Sensor Network (USN) Construction general plan in 2004 and promoted RFID and USN projects. In 2007, RFID Expansion Projects, USN Pilot Projects, and u-Service Pilot Projects were launched.

＜**Figure 4：Ubiquitous Sensor Network**＞
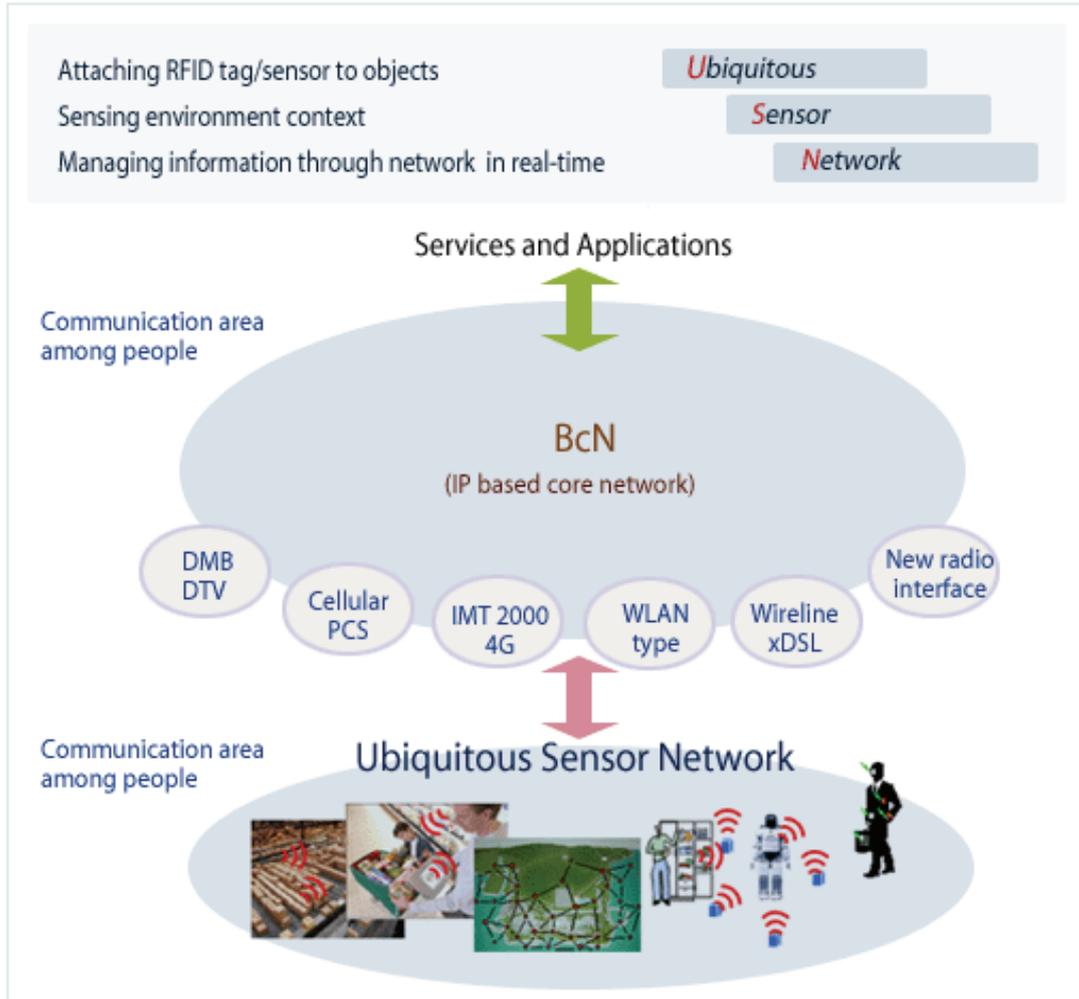
For the comprehensive RFID/USN industry revitalization, 'RFID/USN industry development vision and strategy' based on the results of testbed projects was established in 2008, and is in implementation.　It includes the creation of demand, development of core technologies, establishment of 'RFID/USN cluster', and cultivation of human resources by 2017.
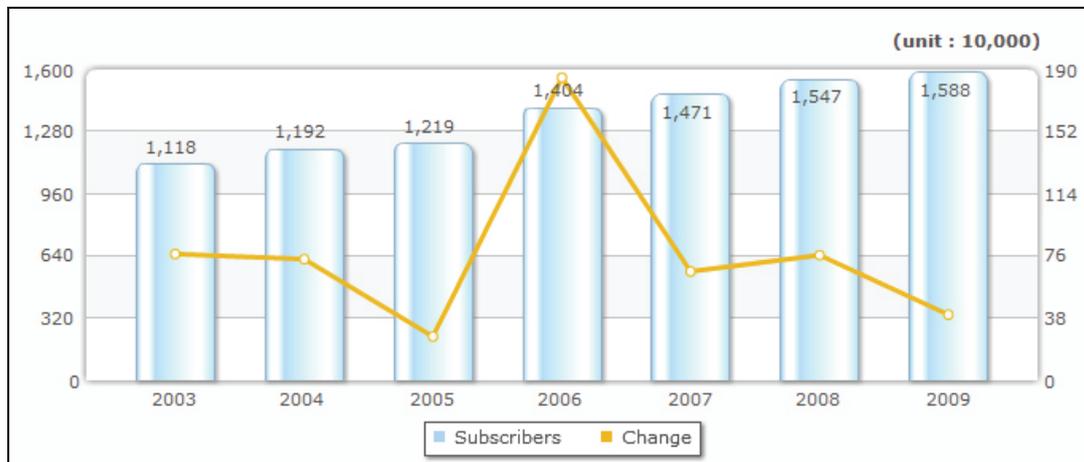
Appendix

Indicators of Information Readiness – Basic Infrastructure

- Internet users (unit: %, thousand)
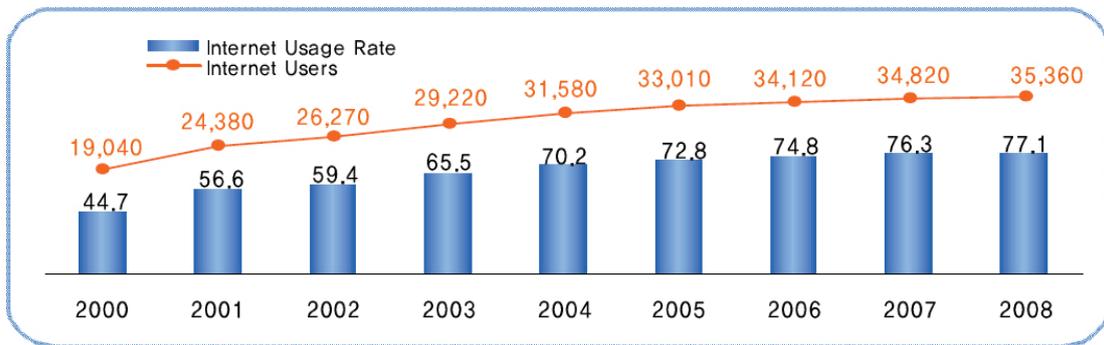
- Broadband subscribers

- Mobile subscribers   (unit: 1,000)
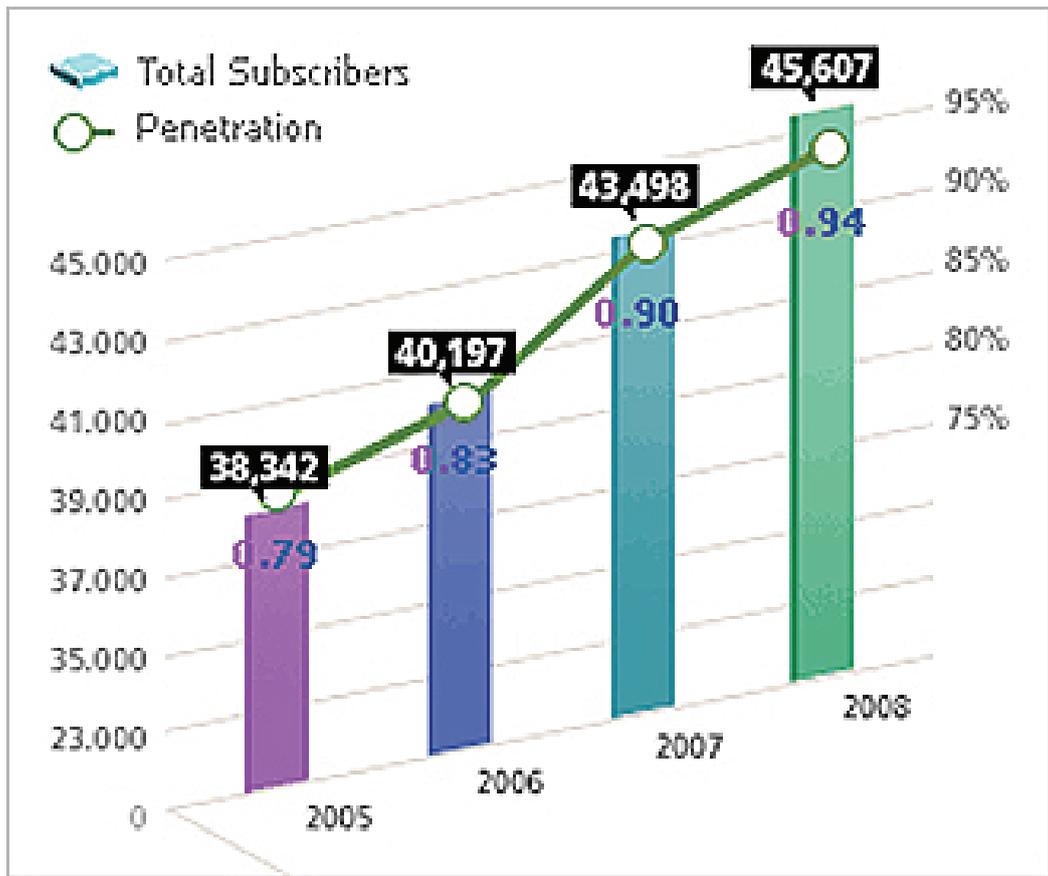
	2005	**2006**	**2007**	**2008**
Mobile subscribers	38,342	40,197	43,498	45,607
Penetration	79%	83%	90%	94%

• Mobile Internet

  - 50.6% of mobile phone users of ages 12 to 59 have used the mobile phone wireless

  Internet within the last 1 year

(Unit: %, Gender, Age)
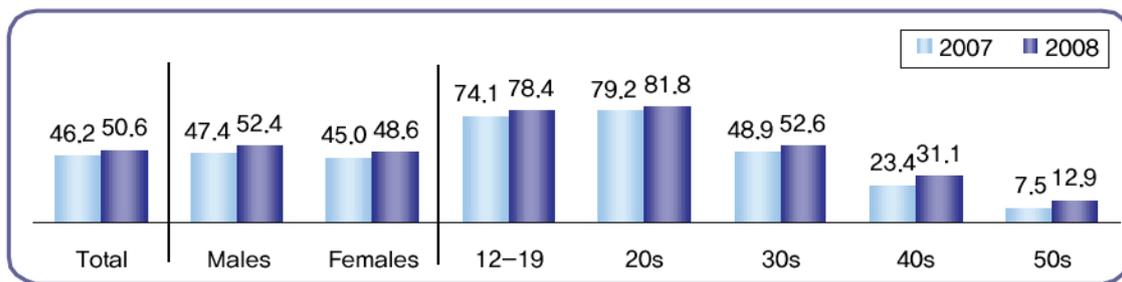
Indicators of Information Readiness – Basic e-Life

• Household online

  - Out of the total households, 80.6% are found to have Internet access, which is up by
  0.8% compared to 2007.

(Unit: %)
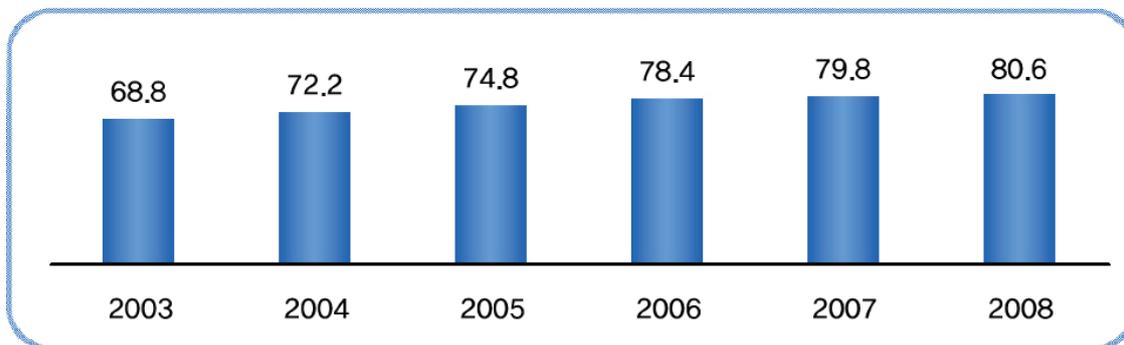
• PC/NB ownership/penetration

   - The rate of households with computer(s) is 80.9% in 2008.

(Unit: %)

2004	2005	2006	2007	2008
77.8	78.9	79.6	80.4	80.9
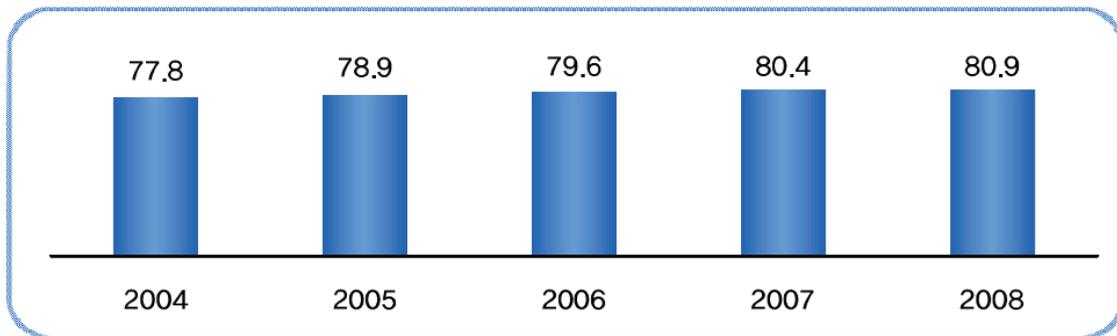
• Household broadband penetration

   - 83.3% of households with Internet access by using xDSL, while 24.8% and 15% use the Internet through 'Cable modem' and 'Apart LAN', respectively.

(Unit: %)

xDSL	Cable Modem	Apart LAN	Fixed wireless LAN	FTTH
83.3	24.8	15.0	7.8	5.7
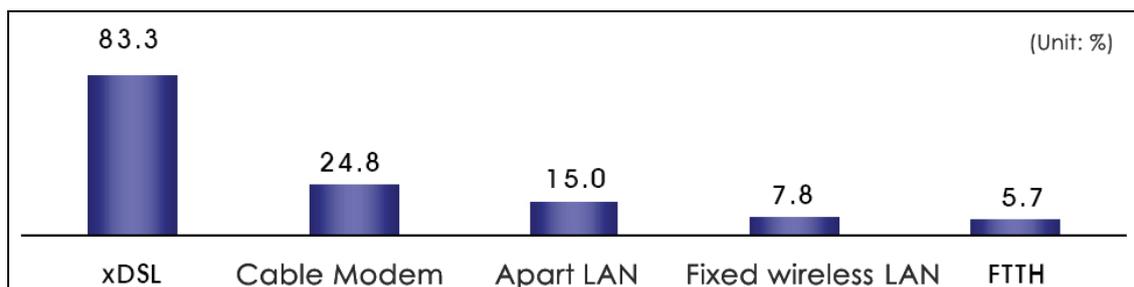
• Wireless and Mobile Internet penetration

- As of September 2008, 52.5% of the population ages 12-59 are 'wireless Internet users', who have used in the last 1 year at least one of the wireless Internet services. By service type, the usage rate of mobile phone wireless Internet ranks highest at 50.6%, followed by wireless LAN at 7.8%, and Broadband wireless Internet at 2.6%.
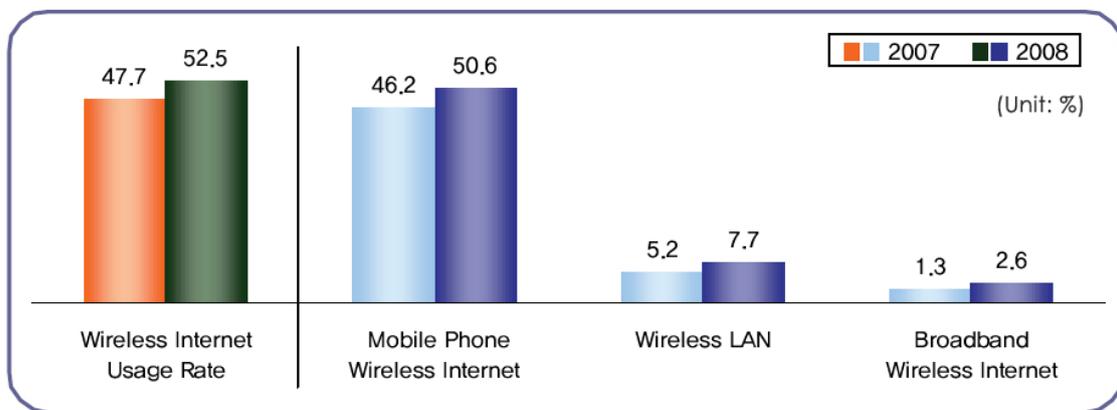
* Wired & Wireless internet date source: Korea Internet & Security Agency

* Mobile subscriber data source: SK Telecom.

MONGOLIA Progress Report

Mongolian National Chamber of Commerce and Industry

2009 Members Progress Report：MONGOLIA

SECTION I – GENERAL CONDITION UPDATE

Government Policy, e-Mongolia Program

Since its endorsement by the Government of Mongolia, e-Mongolia National program has been playing an important role in determining the medium term policy of the Government to develop the ICT sector for 2005-2012 and activities to be taken in the sector. This Program has presented 16 priority goals to apply the ICT in social and economical sectors for building Information society. In last 3 years, the successful achievements of the e-Mongolia National program are to build nation-wide fiber optic and mobile telephone network and to increase access to the Internet in rural areas. In January 2008, Parliament of Mongolia passed MDG based National Development Strategy.

According to the strategy, there is need to revise E-Mongolia program for developing strategies to achieve the MDG. However, lack of human resources, financial constraints, and lack cross-sector collaboration are significant challenges for implementing this program.

Thus it is required to re-architect the e-Mongolia, the basis of ICT policy documents, which properly determine policy trends of the ICT sector by assessing concepts and implementations of e-Mongolia program.

The newly revised "e-Mongolia-II" National Program will facilitate and manipulate further implementation of the projects comprised in the commitments by determining policy guideline of the ICT sector, and contributes in political and socio-economic development by having commitment interrelationship.

1.1 ICT Overview in Mongolia

Since 2005, the information and communication technology (ICT) sector in Mongolia has developed with the support of a favourable policy and regulatory framework, institutional setup, and commitment from private software, hardware and infrastructure development companies extending ICT services to citizens.

The establishment of the Information Post Communication Technology Authority (IPCTA) under the direct supervision of the Prime Minister of Mongolia spurred ICT development, beginning with the development and implementation of the e-Mongolia national program,

changes to the legal and regulatory framework of ICT, and cooperation and coordination with companies and local and international organizations and donors, such as the World Bank, Asian Development Bank (ADB), United States Agency for International Development (USAID), and the International Development Research Centre (IDRC) of Canada.

ICT infrastructure has changed with the decision of the Government of Mongolia to separate services from networks. The Mongolian Telecom Company (MTC) has been divided into two companies: the service provider (ServCo) and the network maintenance company (NetCo). ServCo is mandated to provide services over the telecommunications network on the same terms as other service providers while NetCo is tasked with managing the telecommunications network backbone. This has opened up opportunities for service companies to use the network infrastructure on a competitive basis.

Two more mobile operators have commenced operations. The Unitel Company started providing services in June 2006 using GSM 1800 technology. G-Mobile has been awarded a license to provide ICT services in rural areas.

The software development companies have redirected their targets towards introducing and implementing software outsourcing. The hardware companies have set up the Mongolian Association of Computer Suppliers Companies (MASCO). The ISPs have formed the Mongolian Association of Internet Service Providers (MISPA) to protect the rights of ISPs and to collaborate on addressing issues common to service providers, such as cost of bandwidth and outreach to the rural areas.

Nevertheless, there remain big challenges for the ICT sector in Mongolia. First, the draft laws on ICT are still under discussion. Second, there is a need to integrate ICT with public sector reform. Third, the ICT capabilities of the country's human resources need to be strengthened through curriculum change at the secondary and tertiary education levels. Fourth, there is a significant digital divide between the rural and urban populations. Although majority of the population lives in the rural areas, ICT penetration in rural areas is much lower than in urban areas. For example, the 7,426 rural users of fixed-line telephones represent only 6.4 percent of the total users of tele-communications services (ICTA 2006) and 86 percent of ICT businesses are concentrated in the major cities of Ulaanbaatar, Darkhan and Erdenet.
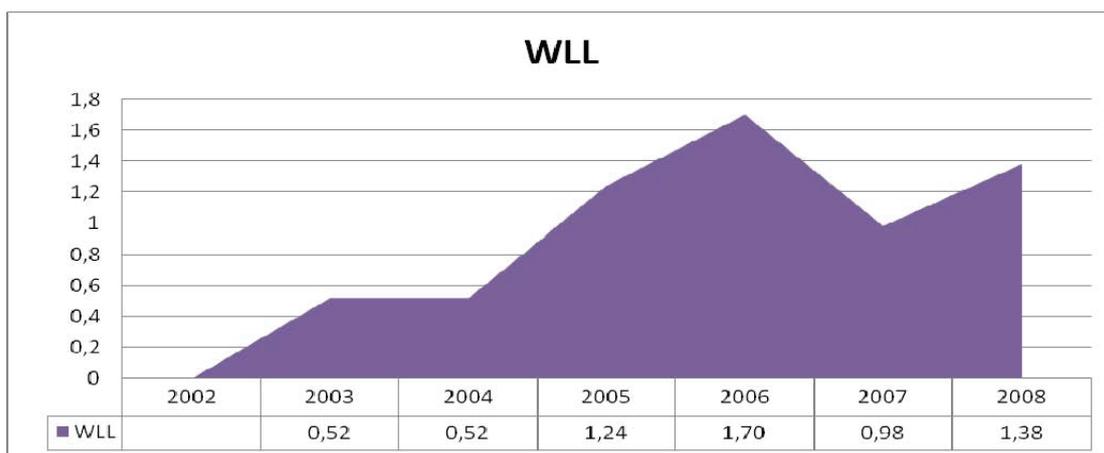
1.1.1 Fixed Communication

Fixed communication marketplace, user number were increased in 2002-2006. Since 2007, the number of users decreased because of wide scope of mobile communication companies and their users toward to mobile phone and internet market.

	2002	2003	2004	2005	2006	2007	2008
Fixed	5,44	5,77	6,07	6,15	6,20	5,62	5,58
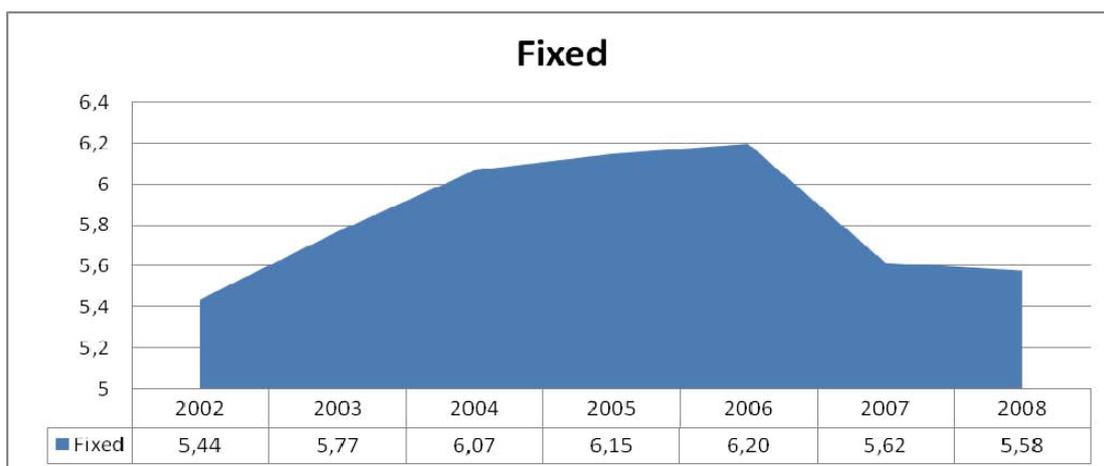
Picture 1. Fixed Communication Users, 2002-2008 year

1.1.2. Wireless Local Loop

	2002	2003	2004	2005	2006	2007	2008
WLL		0,52	0,52	1,24	1,70	0,98	1,38

Graphic 2. Wireless Local Loop users /per 100 persons/

1.1.3. Mobile Phone Users

In 2008, there are 4 mobile operators in Mongolia and two of them are GSM system operators /Mobicom Corporation, Unitel Co.,Ltd/ another two operators are CDMA systems. In 2002, mobile phone user density of per 100 persons was 9.2 and in 2008 it increased to 66.2. In 2008 total mobile phone users were 1,7 million people.

Mobile

	2002	2003	2004	2005	2006	2007	2008
Mobile	9,09	12,02	17,41	21,50	29,86	45,33	66,41
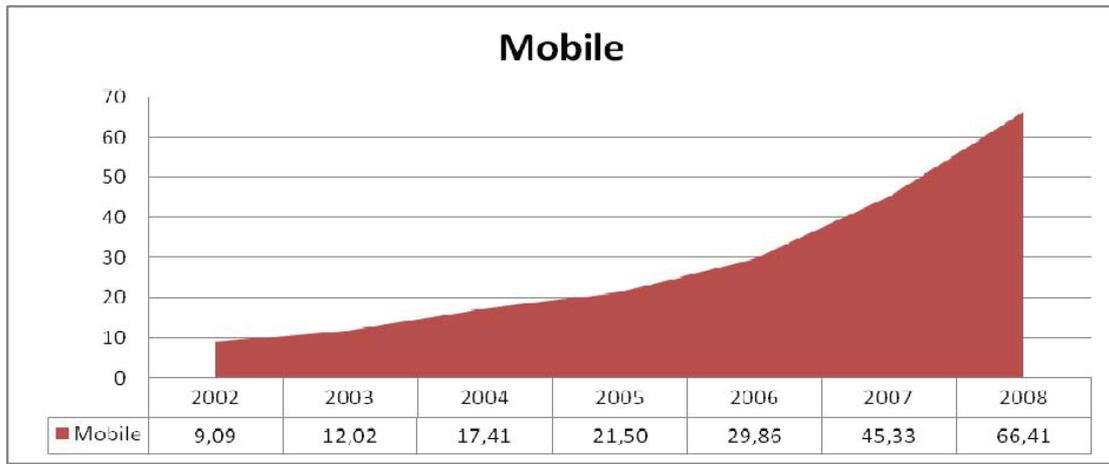
Graphic 3. Mobile phone user penetration, 2002 -2008 year

1.1.4. Post Communication Service

Annual year of 2008, there are 51 post companies working on the domestic marketplace.
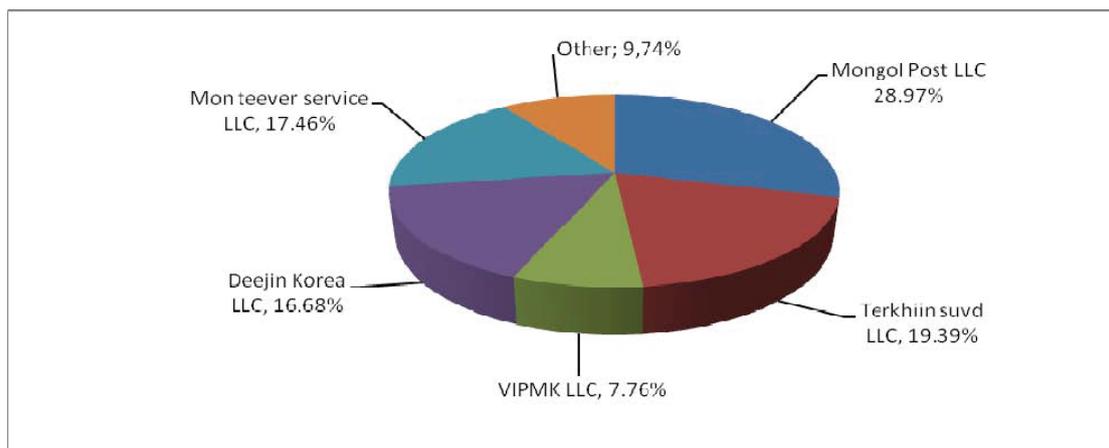
Graphic 4. International packaging marketplace, 2008 year

1.1.5. Internet Service Provision

Currently, there are 34 companies with licenses for Internet service provision. Most of ISPs are connected through Railcom, which is connected to the world network through China Telecom and Trans Telecom Russia via fiber optic lines. Internet users are commonly using wireless connection, WiMax, Dial-up and fiber optic cable.
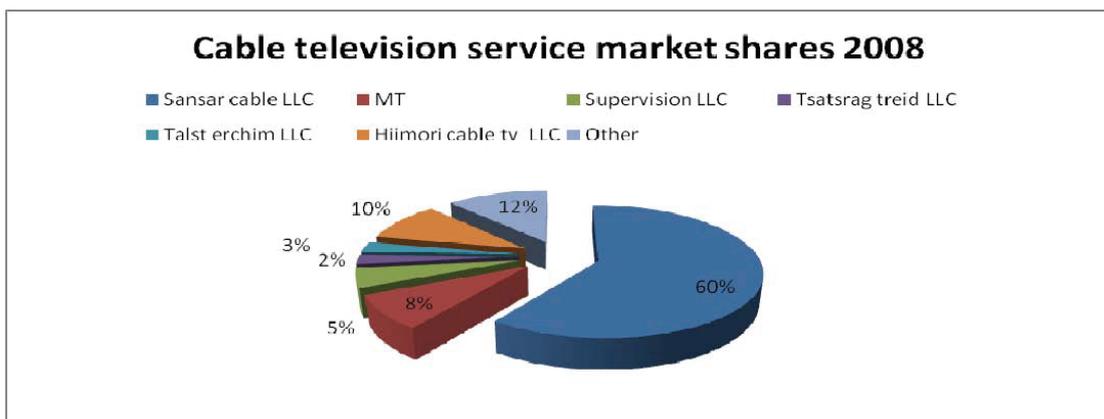
Number of internet subscribers 2005-2008

	2 005	2 006	2 007	2 008
DIAL-UP	6 700	5 400	4 511	1 737
xDSL/ADSL,VDSL/	480	1 700	4 800	15 570
LEASING LINE	770	1 600	2 876	3 612
Wireless, wimax	800	1 700	1 830	4 405
VSAT	10	25	79	34
OTHER	250	420	500	16 652
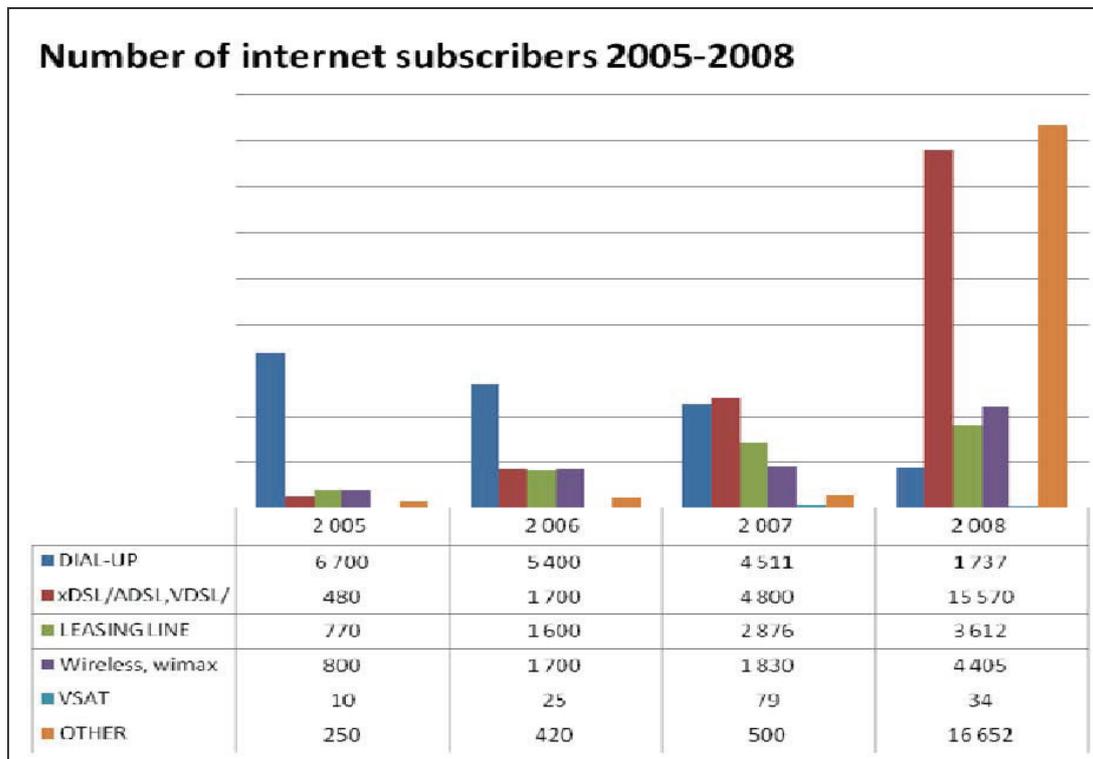
1.1.6. Cable Television

According the survey of Communication Regulatory Committee (CRC) there 72 companies with cable television service license.

Number of cable television subscribers 2005-2008

■ Cable ■ MMDS

	Cable	MMDS
2008	87487	15703
2007	81221	7032
2006	65 197	6 792
2005	66 000	6 700
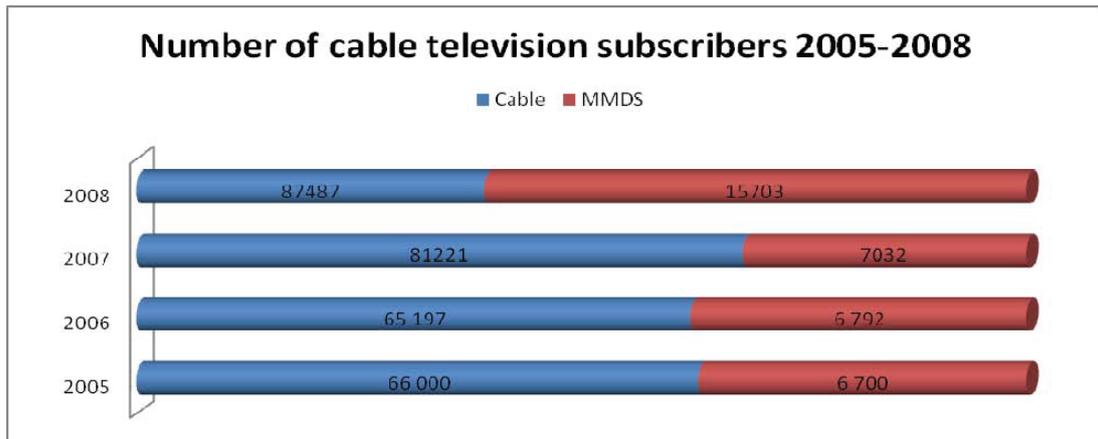
Graphic 6.Cable Television users, 2005-2008 year

Cable television service market shares 2008

■ Sansar cable LLC ■ MT ■ Supervision LLC ■ Tsatsrag treid LLC
■ Talst erchim LLC ■ Hiimori cable tv LLC ■ Other

10% 12%
3% 2%
5%
8%
60%

Graphic 7. Cable Television service market share, 2008 year

1.1.7 Investment in ICT sector

In 2008, total investment in ICT sector was 70bln tugrugs.

Graphic 8. ICT sector investment, 2002-2008 year

1.1.8 ICT sector revenue
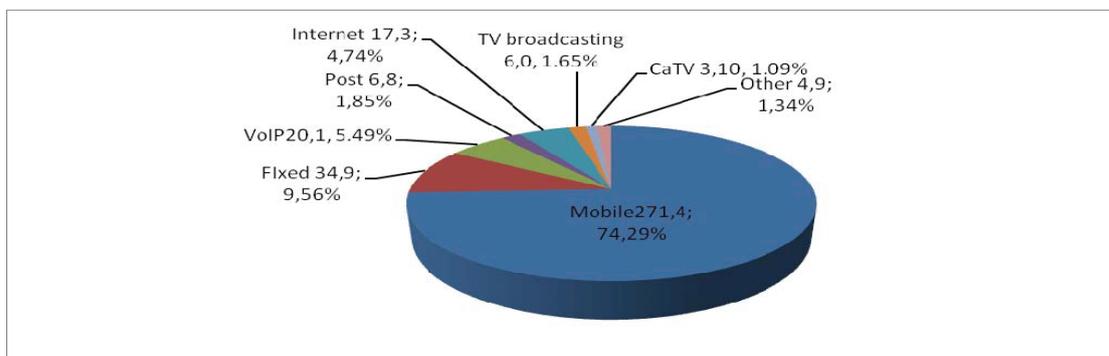
Graphic 9. ICT sector revenue, 2008

1.1.9 Human resourse in ICT sector

Annual of 2008, there 7000 engineer, technical and service employees were employ in Mongolian information, communication and post area.
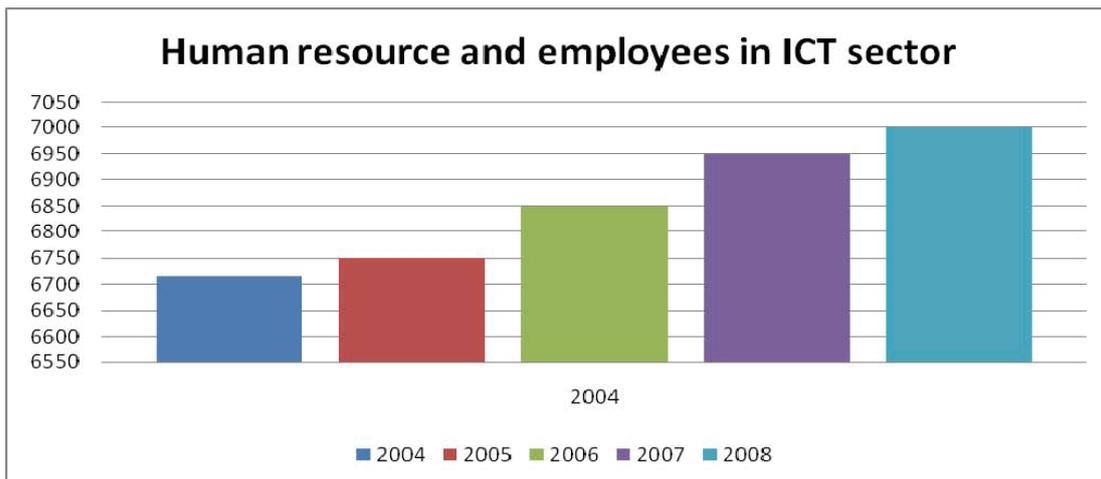
Graphic 10. Human resource and employees in ICT sector, 2004-2008 year
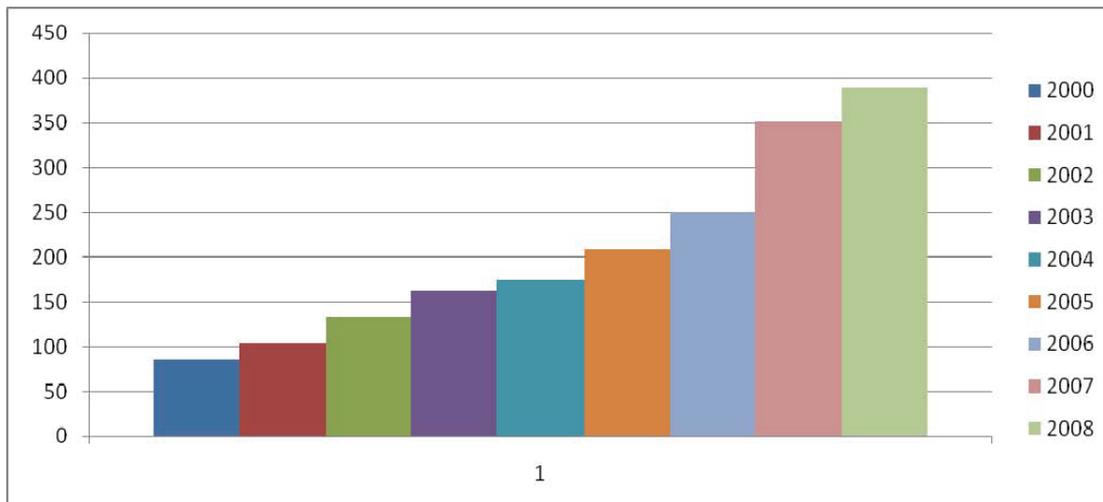
Graphic 11. Employee salary of ICT sector per month /thous.tug/

1.2 Digital Content Initiatives

The number of websites developed and maintained in the Mongolian language is growing, compared to 3-5 years ago when extensive attempts were taken to support the development of Mongolian language websites. According to a study conducted by Intec (ICT consulting company), there are over 2,000 such websites which are hosted either in Mongolia or in other countries. Of these, 62.9% use the domain name, 20.6% use .com and 16.5% use other domain names, such as .net, .org and .tk. it was observed that 23% regularly update their website contents and 70% have a dynamic structure. Of all websites, 62% are in the Mongolian languages and 36% are in two languages (mostly English and Mongolian). Around 50.4% belong to private companies, 12.1% have education and discovery –related content, 11.6% are websites of state and government organizations, 11.2% are information and news websites, and the rest are NGO and personal websites.

The popular websites are information websites such as www.olloo.mn and www.mongolmedia.com, public discussion websites such as www.open-government.mn and www.forum.mn and portal sites such as www.pmis.gov.mn and www.gateway.mn.

The development of local language content in CD-ROMs has also been growing lately. There are learning materials like the e-learning CD-Rom package of the Microsoft Office Suite in the Mongolian language. The innovating ICT for rural education of Mongolia project of the ADB, Ministry of Education, Culture and Science (MOECS), and the Japanese Fund for Information and Communications Technology (JFICT) has supported the development of CD-ROM –based materials for teachers as tools for integrating ICT in teaching practices.

1.3 Online Services

Online services are offered mostly by banks. The Golomt Bank and the Trade and Development Bank of Mongolia have websites through which citizens and individuals can check account balances, transfer money and conduct other online transactions.

One of the thrusts of the e-Mongolia program is to encourage organizations to make information for the public available via their websites. The websites of the Mongolian Taxation Authority (MTA) and the Ulaanbaatar Mayor's Office are examples of openness and transparency. The MTA website contains an extensive array of information, laws and regulations related to taxes, and over 50 downloadable taxation forms commonly used by businesses and individuals. The website of the Ulaanbaatar Mayor's Office contains all of the orders and decrees issued by the Mayor of Ulaanbaatar City.

In contrast, few businesses in Mongolia are introducing online services. The following provide e-commerce services: www.rose.mn, www.asuult.net, www.banjig.net and www.call2mongolia.com. The first online insurance system in Mongolia was introduced by

Practical Daatgal Co,.Ltd (www.practical.mn).

In addition, online distance diagnosis and training services for the rural population are now available through the project "ICTs for Health Services in Rural Mongolia" implemented at the Health Sciences University of Mongolia (HSUM) and supported by IDRC in 2003-2005. The "Doctor system" (www.pi-hsum.mn/dd) for distance diagnosis works even with low bandwidth. At present, it's used to transmit patient information from remote areas to the capital city for diagnosis and treatment advice. An e-learning system for medical professionals who live and work in the rural areas is also part of the project. This system (www.pi-hsum.mn/de/) allows users to take online courses, quizzes and a final examination. If they qualify, they receive a credit certificate issued by the Postgraduate Institute of HSUM. It is also possible to take paid courses by using a prepaid scratch card.

1.4 ICT and ICT –related industries

The number of mobile service providers has increased with Unitel Company starting operations in June 2006. Unitel offers GSM 1800 technology-based services, mainly in the Ulaanbaatar metropolitan area. A fourth operator, G-Mobile, has been awarded a license to provide mobile services based on GSM 450 technology to rural parts of Mongolia. G-Mobile is expected to provide services to 125 soums initially and then to an additional 80 soums within 2 years.

Outsourcing is a new ICT industry in Mongolia. Several software development companies have been providing outsourcing services for other companies in Mongolia and in developed countries, such as Japan, the USA and the UK. In this connection, the Mongolian government has redirected the support provided by the National IT Park to companies that are able to provide support to outsourcing bridge companies. Currently, there are about half-a-dozen companies developing software and applications for Japanese and Mongolian companies with staff working in Japan.

1.5 Legal and regulatory environment for ICTs

Following its establishment and the introduction of the e-Mongolia program, one of the first activities carried out by ICTA was to develop proposals for a favourable legal and regulatory framework for ICT development in Mongolia. Aside from existing ICT-related laws, such as the Law on Telecommunications, Law on Radio Frequency and Law on Post, there are several laws and regulations that make reference to ICT. These include the Law on Technology Transfer and Law on Science and Technology. Each of these laws contains clauses on the introduction and integration of ICT in the sector. For example, the Law on Education has a clause about reforming the curriculum of informatics subjects in the secondary school and

developing a world-class curriculum for ICT specialists. Although extensive work has been undertaken in drafting a general law on ICT and laws on e-government, digital signatures and e-commerce, they need to be revised in light of the latest developments in the ICT sector. The World Banks Information and Communications Infrastructure Development Project has components to review the existing legal environment for the ICT sector and to provide recommendations to improve public-private partnerships for e-government. At the same time, the European Bank for Reconstruction and Development is funding the revision of the existing telecommunications law by the CRC. A working group composed of representatives if ICTA, the private sector and NGOs has been established to coordinate the efforts of various stakeholders and to develop a draft package law on ICT which would include a general IT law and draft laws on communications, e-government, digital signatures, e-transactions, information security and freedom of information.

1.6 Education and capacity building

The major state institutions offering ICT-related courses are the Computer Science and Management School (CSMS) of the Mongolian National University of Science and Technology (MUST), the School of Mathematics and Computers of National University of Mongolia (NUM), the School of Information Technology of NUM and the School of Computer Science and Technology of the Mongolian State University of Education (MSUE). There are also private ICT schools, such as the Khuree Institute and the Ulaanbaatar Institute.

Microsoft-certified and CISCO Academy training programmes have likewise been available in Mongolia in the last 3-6 years.

The Asian Development Bank has been working extensively with the Ministry of Education, Culture and Science (MOECS) on the development of the education sector, with a focus on the development of ICT related education. One of the components of the Second Education Development Programme (SEDP) is introducing ICT in secondary complex schools through provision of computers and hardware and basic computer skills training. In addition, technical assistance is being provided to introduce ICT in rural soum schools, including teacher training in computer and technology-related skills and in integrating ICT in the classroom.

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 Trade Facilitation Initiatives /SEW/

Single Electronic Window (SEW) for Foreign Trade Facilitation and Zamiin Uud Trans-shipment Center: On 23 October 2008 the project made a presentation on the SEW to the Consultative Council on Investment Climate and Private Sector Development which is chaired by the GoM's Prime Minister. Following the presentation the Prime Minister signed a resolution instructing the relevant government authorities to work towards organizing a separate company to develop the SEW. This company will take the form of a Public-Private Partnership to operate the SEW.

Zamyn Uud Gateway Logistics Park: In the same meeting of the Consultative Council on Investment Climate and Private Sector Development, private sector representatives made presentations on the pressing need to improve the road to rail transfer facilities at Zamiin Uud on the border with China. At the end of the meeting, the Prime Minister signed a resolution instructing the relevant government authorities to work with the Mongolia Freight Forwarders Association towards organizing a Public-Private Partnership (PPP) company to develop the Zamyn Uud Gateway Logistics Park, per the recommendation of the pre-feasibility analysis that the project recently completed.

SECTION III – Other advanced applications – IT – enabled Service (ITeS)

3.1 Business Service Portal

Mongolian National Chamber of Commerce and Industry /MNCCI/ has developed Business Service Portal Site in July 2009.

The Goal of Business Portal:

- To create appropriate environment for online service to the business sector

- To focus on one stop all business services from MNCCI

- To save time and money of all businesses and customers

Business Portal Services

- ✓ Member companies directory
- ✓ Online issuing of Certificate of Origin
- ✓ Online issuing of Barcode
- ✓ GS1 –EANnet Catalogue
- ✓ Online library
- ✓ Business opportunities
- ✓ Online training registration
- ✓ Directory of Mongolian TOP 100 companies

3.2 Virtual Exhibition Portal

Mongolian National Chamber of Commerce and Industry /MNCCI/ has developed Virtual Exhibition Site in June 2009.

This site includes all Exhibitions organized by MNCCI which are "Ulaanbaatar Partnership", "The Best 99 National Products and Services of Mongolia", "Organic Mongolia", "SMEs products, technology and service" etc. During these exhibitions foreign

visitor could see and buy interested products from Exhibition through virtual exhibition site.

Pakistan Progress Report

ECRC

E-Commerce Resource Centre - Pakistan

2009 Members Progress Report：PAKISTAN

SECTION I – GENERAL CONDITION UPDATE

1.1 Introduction

With population of 165 million Pakistan is an English-speaking nation and important member of the world community for its strategic location, skilled manpower, strong agro-based economy and natural resources. Pakistan is global focus of world community due to current geopolitical circumstances, and the gateway to Gulf and CIS countries. Pakistan Govt. moderate policies are appreciated by global community.

1.2 ICT Developments in 2008-09

There was a slow down in Foreign Direct Investment in 2008-09 due to global economic melt down. However, despite global slow down economic and ICT indicators are encouraging, and the growth has been positive.

ICT spending also increased in public and private sector, most of the spending was on ICT infrastructure.

Government in Pakistan has laid the foundation of ICT future by changing the basic policy of monopoly on telecom sector and encouraged healthy competition among telecom operators. Cellular telephony sector still showing positive despite slow down; and mobile phone connections are close to 100/m. ARPU in Pakistan is among lowest in the world, benefiting customers. Now mobile companies are offering web-based services.

Data communication services are being offered by Wi-max, mobile, landline and wireless operators for domestic and international links at reasonable price. There is lots of potential in this area for corporate and citizen. Broadband services are available at affordable cost.

Government of Pakistan has declared ICT as one of the four pillars of national economy, and playing the role of the facilitator, enabler and promoter for ICT. Ministry of IT & Telecom is providing resources for several e-Government projects, including IT parks under I.P.DF. Departments of Information Technology in provinces are working with private sector for development of ICT in their provinces.

Trade and finance sectors have shown positive growth in 2008-09 despite global slow down, International trade and services has turnover of over US$80/billion, and financial services have increased its share in GDP. Services sector has steadily increased it share in GDP to 53%.

As a result of policies adopted by the Government following is progress in ICT:

- ICT sector market is estimated at US$12/Billion in 2008-09
- US$10/b is celluar/telecom and US$2.8/b is IT
- About US$1/Billion foreign direct investment has been received
- Over 70 DNOP, ISP and other data service operators are in operation
- Mobile phone users are 95/Million
- Over 2400 cities and towns are connected to Internet
- International and domestic telecom tariff has been drastically reduced
- Personal Computers population is over 5/Million
- Over 150,000 Graduates are working in ICT sector
- Software exports and services are estimated at US$1.4/billion by PSEB
- Over 100 call centers are working

1.3 Telecom Infrastructure:

CELLULAR SUBSCRIBERS								
	Mobilink	Ufone	Zong	Instaphone	Telenor	Warid	Total	Growth Rate %
2000	114,272		80,221	112,000			306,493	15.39
2001	309,272	116,711	96,623	220,000			742,606	142.29
2002	800,000	350,000	218,536	330,000			1,698,536	128.73
2003	1,115,000	550,000	319,400	420,000			2,404,400	41.56
2004	3,215,989	801,160	470,021	535,738			5,022,908	108.90
2005	7,469,085	2,579,103	924,486	454,147	835,727	508,655	12,771,203	154.26
2006	17,205,555	7,487,005	1,040,503	336,696	3,573,660	4,863,138	34,506,557	170.2
2007	26,466,451	14,014,044	1,024,563	333,081	10,701,332	10,620,386	63,159,857	80.70
2008	32,032,363	18,100,440	3,950,758	351,135	18,125,189	15,489,858	88,019,812	39.4
2009	29,136,839	20,004,707	6,386,571	34,048	20,893,129	17,886,736	94,342,030	1.30
July-09	29,551,075	20,057,079	6,486,338	11,917	21,299,334	18,141,542	95,547,285	1.28

CELLULAR MOBILE DENSITY	
Year	**Mobile Density**
2000	0.22
2001	0.52
2002	1.16
2003	1.61
2004	3.29
2005	8.30
2006	22.21
2007	39.94
2008	54.60
2009	57.40
July - 2009	58.50

Fixed Line Subscribers

	PTCL	NTC	Brain Limited	World Call	Union Communication	Naya Tel	Total
2000	3,053,460				-		3,056,460
2001	3,252,518				-		3,252,518
2002	3,655,474				-		3,655,474
2003	3,982,783	64,640			-		4,047,423
2004	4,428,900	73,330			-		4,502,230
2005	5,190,899	81,027	1,520	4,100	-		5,277,546
2006	5,128,442	92,163	5,880	13,327	200		5,240,012
2007	4,676,204	99,665	6,089	10,748	2,500	11,000	4,806,206
2008	4,273,548	103,991	7,376	11,502	3,500	16,500	4,416,417
Dec-2008	3,581,387	104,400	7,376	12,222	3,700	18,500	3,727,585
Mar-2009	3,378,495	104,400	8,591	12,234	3,700	18,700	3,525,824

Wireless Local Loop Subscribers

Year	PTCL	TeleCard	WorldCall	Great Bear	NTC	Wateen	Mytel	Link Direct	Total	Growth %
2005	163,681	98,469	2,678	200					265,028	
2006	661,532	229,292	115,637	21,407					1,027,868	
2007	1,128,272	396,873	273,616	51,311					1,850,234	
2008	1,188,416	512,846	487,387	51,280		20,289	140		2,260,758	-1.1
2009	1,305,675	620,921	549,362	45,224	10,275	72,176	125	19,349	2,615,544	1.4
Jul-09	1,309,217	626,144	562,090	45,298	10,275	77,125	125	20,311	2,650,585	1.0

Teledensity

Year	Fixed Line Density	WLL Density	Total Fixed Teledensity
2000	2.18	-	2.18
2001	2.28	-	2.28
2002	2.49	-	2.49
2003	2.70	-	2.70
2004	2.95	-	2.95
2005	3.43	0.17	3.60
2006	3.39	0.66	4.05
2007	3.04	1.08	4.12
2008	2.70	1.4	4.1
2009*	2.20	1.6	3.8
July - 2009	2.20	1.6	3.8

Payphones		
	Total Payphones	**Growth Rate (%)**
2000	10,400	2.90
2001	66,968	543.92
2002	97,751	45.97
2003	127,910	30.85
2004	180,901	41.43
2005	279,320	54.40
2006	353,194	38.73
2007	387,490	9.71
2008	449,121	15.9

INTERNET				
	Dial-Up		**DSL**	
	Users (M)	**Growth Rate (%)**	**Subscribers**	**Growth Rate (%)**
2000	0.50	150		
2001	0.80	60		
2002	1.00	25		
2003	1.60	60		
2004	2.00	25		
2005	2.10	5	14,600	
2006	2.40	14	26,611	82.3
2007	3.5	46	45,153	69.7
2008	3.7	5.7	168,082	272.2
Dec-08	3.7	0.0	267,180	59.0
Mar-09	3.7	0.0	272,626	2.0

1.4 Deregulation of Telecommunications

Pakistan telecommunication sector had remained a monopoly for a very long time. Telecommunication sector has been liberalized since PTCL privatization. So far Pakistan Telecommunication Authority (PTA) has issued 14 LDI and 76 LL licenses in addition to 92 WLL licenses and other operators for ISPs and DNOPs etc., 6 cellular operators are working with 90/m subscriber's base.

1.5 Investment in Telecom sector

With six mobile companies operating in Pakistan, tele-density in mobile sector has increased to 58%, rural areas has been benefited from cellular revolution in Pakistan, as compared to fixed lined tele-density of 4%. There are further opportunities for growth in fixed lines and mobile sector. Local and international companies are investing in these areas and International calling business as the VoIP has been legalized. VoIP sector has increased tremendously during last two years; mainly due to large number of overseas Pakistanis (5/m) living around the globe and reduction in calling charges from Pakistan to North America, Europe and Middle East. Now it is cheaper to call from Pakistan, as compared to a call from America.

1.6 IT Sector in Pakistan

With most of the global IT company presence in Pakistan, and with revenues growing by 35% year on year, the IT industry is the most exciting and dynamic sector in the country for investment and growth. An industry characterized by about 150,000 professionals, major ongoing IT projects within the government and the private sector for millions of US dollars, and world-class software product and services companies bears testimony to the vibrancy of the IT and IT enabled services sector in Pakistan.

The size of Pakistan IT industry is estimated at US$2.8/billion/year n 2008-09, as reported by Pakistan Software Export Board, 50% is domestic.

Statistics of the Pakistani IT/IT enabled services

Number of IT companies working in Pakistan	1500 +(Registered PSEB Members)
Number of substantial IT companies	500+ (Active PSEB Members)
Number of companies ISO certified	70
Number of companies CMM Assessed	4 CMM Level 5 companies
IT and IT Enabled Services Exports during 2008-2009	US$ 1.4/b, reported by PSEB
Percent growth in Exports	45% over
Export target for the current fiscal year 2008-2009	US$ 240 million (State Bank transactions)
Annual Software Industry Turnover	Over US$ 500 million
Number of IT graduates produced per year	15,000
Number of Universities offering IT / CS programs	45
IT Professionals engaged in software export development	18,000
Call Center agents	25,000
Total number of IT professionals employed in the country	150,000
Total IT industry size in fiscal year 2008-09	US2.8/billion
Total amount of space utilized in STPs	687,000 sq ft
Cost per E-1 connection (2MB)	US$ 1000 per month

Note: It is estimated that about 500 non-PSEB registered software development set-ups are also working in country, most of these are owned by large to medium organizations and working for in-house development.

1.7 Legislation for e-Laws:

Govt. of Pakistan has promulgated Electronic Transaction Ordinance for legal acceptance of electronic transactions in the country. Cyber Crimes Law has also been promulgated. Data Protection Law has been drafted and ready for legislation. Payment Systems Electronic Funds Transfer Act 2007 has been promulgated to enable financial electronic transaction with finance bill in June 2007.

1.8 Digital Certificate:

Certification Authority (Verisign) has been established in private sector by NIFT, to issue the digital certificates to corporate. Efforts are under way to establish another Certification Authority for the Govt. sector and to facilitate citizen. Pakistan Council for Electronic Accreditation under Ministry of IT & Telecom is supervisory body to monitor and approve CA in Pakistan, and for Certified IT audit.

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 Internet Merchant Account

- Internet merchant account facility is available through Citibank since many years. Now Bank Al-Falah has announced the 2nd Internet Payment Gateway in Pakistan, and aggressively marketing it. It is hoped that Al-Falah will take lead in next 2 years.

2.2 B2B Exchange for International Trade

Efforts are on way to implement national ASP for exchange of electronic commercial documents, by Federal Board of Revenue. Several RFP and proposals are under review in collaboration of PRAL.

SECTION III – Trade Facilitation / e-Business / e-Commerce Related PROJECT UPDATES

3.1 Trade Facilitation

World Bank has allocated US$25/m for Trade and Transportation Facilitation 2 project for 5 years operation through Planning Commission and Ministry of Commerce.

Trade Facilitation Measures taken by Federal Board of Revenue (FBR)

      e-Registration of traders and taxpayers through portal

      e-Filing of following trade documents through single sign-on:

Imports General Manifest	100% e-filing
Goods Declaration	90% e-filing
Sales Tax Returns	100% e-filing
Income Tax Returns	100% e-filing for corporate sector
With-holding Tax Statements	100% e-filing for corporate sector
e-Payments	Nearly 500 traders have adopted electronic payments

      Introduction of e-Customs at Islamabad Airport and Container Terminals at Karachi

      Average Customs Clearance time reduced from 4 days to 4 hours

      Paperless environment

      Trade documents scanning and uploading facility

      Processing status update through SMS / internet

Currently 3 different systems are in operation at Islamabad Airport (web-Based Customs-1), 3 container terminals (KICT, QICT, PICT) are using Agility developed PACCS (Pakistan Computerized Customs System) where as all other customs entry / exit point are using 1-Customs developed by Pakistan Revenue Automation Limited.

Efforts are under way to use one e-Customs system for all customs stations, that would be linked to all stakeholders like Customs, Sales Tax, Ports, Dry Ports, Container Terminals, Banks, Shipping lines, Exporters, Importers, Customs Agents, Airlines, Cargo Agents, Govt. agencies, provincial Govt. department, State Bank of Pakistan, Insurance companies and other stakeholders.

3.2 Progress in Financial Sector

Financial sector is the leading contributor of ICT infrastructure in Pakistan, and invest on technology, human resource and outsourcing. The ICT spending in financial sector is estimated at US$1/billion/year. The financial sector includes:

Commercial banks

Investment banks

Development Financial institutions

Islamic banks

Modarba companies

Leasing companies

State bank of Pakistan

Micro finance banks

State Bank of Pakistan has implemented RTGS project in banks. Bank2Bank Electronic Funds Transfer is available for C2C transactions on ATM using IBFT and Internet Banking.

The projects are underway for Electronic Clearing House (check-truncation) and for Bank-2-Bank Electronic Funds Transfer.

6000 bank branches are online now, out of 8000 branches. RTOB Real Time Online Branch transfer is very popular now, facilitating online transfer of funds for Intra-bank transactions where online branches are operative.

Tezraftar of United Bank and various other schemes introduced by banks are attracting workers remittance; that has increased to appx $8/billion in 2008-09. Money Gram, Western Union and other services are in operation for foreign exchange facilitation for citizen and overseas Pakistanis. But all of these schemes yet need to be linked online in Pakistan to EFT switching mechanism to enable faster remittance for overseas Pakistanis to the beneficiary. PRI (Pakistan Remittance Initiative has been launched in August 2009 to achieve the target of US$15/b/yr remittance target in next 5 years.

Six PoS switch are operational with 55,000 PoS terminals, with two Loyalty card networks.

Mobile phone banking services are available with several banks, where customer can use the service for   utility bills payment and perform several other real time transactions.

Two ATM switches are operating with countrywide network of 4000 ATMs. 7.5/Million ATM / Debit cards have been issued by banks in addition to 1.4/Million credit cards. Smart cards, stored value cards, loyalty cards and pre-paid cards have become part of the culture in urban

cities. Total plastic card population has crossed 10/m figure.

Automated check clearing house (NIFT a Public-Private company owned 51% by banks) is operational in 14 cities of Pakistan, with turnover of 60/m/checks/year. Efforts are underway to establish Electronic Check Clearing House (ECH) by NIFT.

Following projects are at various stages of implementation in private and public sector:

E-Billing with e-Payments on Internet, ATM, Mobile phone and Kiosk

E-Security Infrastructure

E-Money, Digital cash, Smart cards, Offline POS, Loyalty cards

Mobile Payment Gateway, Payment Gateway for Internet / POS transactions

Money Exchanges Reporting, Workers Remittance project for Non Resident Pakistanis

Foreign exchange reconciliation for Import / Exports and services

Capital market integration with payment system

Electronic Clearing House

Bank2Bank Electronic Funs Transfer

E-Payment and e-Logistics Integration with Central Board of Revenue

Government sector projects:

World Bank PIFRA project is being implemented in AGPR.

Several e-billing projects in Govt. sector are underway that would be linked to the banks.

Federal Board of Revenue has initiated Single Window project with online payment of taxes, e-Logistics, e-Security and exchange of electronic commercial documents among stakeholders.

National Registration Authority is proving utility bill payment facility and other services through Kiosk.

US$300/m e-Govt. projects are underway.

Saudi Arabia Progress Report

SaudiEDI

2009 Members Progress Report：Saudi Arabia

SECTION I – GENERAL CONDITION UPDATE

1.1 Saudi Arabia Dynamism and Growth

Saudi Arabia and the surrounding MENA economies have enjoyed performance substantially exceeding world growth. While much attention has been paid to the global rise in energy prices, Saudi Arabia's non-oil sector has been a crucial sector, delivering accelerating growth rates as the economy diversifies.

Encouraged by robust GDP growth and macroeconomic stability, consumer confidence is well above the regional average. Growing private credit and increased public expenditures on infrastructure and other projects provide a broad basis for robust opportunities across the Middle East.In Saudi Arabia these factors translate into particularly strong and sustained growth in domestic demand.

The Kingdom itself has never been more committed to supporting economic growth. Robust growth in government revenues is supporting double-digit increases in government expenditures on social, infrastructure, and other investment projects. Perhaps even more crucial in the long term, an increasingly deregulated and competitive economic environment is supporting an explosion of business formation as the private sector takes an increasingly prominent role in the economy.

1.2 Saudi Arabia Economic Stability

Sound macroeconomic management and an inflection point in world energy markets have made the Kingdom's economy an oasis of stability even amid global financial dislocation. Saudi Arabia's economy ranks 3rd in the world for macroeconomic stability. This is a result of "a healthy fiscal environment, relatively low interest rates, and inflation that has been kept under control."

The International Monetary Fund's 2008 World Economic Outlook notes that "regional growth remains strong" as "global financial market turmoil has had little direct effect on the Middle East."While much of the world economy has recently been affected by a global liquidity squeeze, Saudi Arabia's twin surpluses in the government budget and current account have made the Kingdom an attractive, high-liquidity environment for local and foreign ventures.

1.3 Saudi Market Size

As the region's largest economy and the world's 24th largest exporter, the sheer size of the markets that Saudi-based projects serve is "a competitive advantage, allowing Saudi businesses to benefit from economies of scale. "With excellent access to Saudi and other MENA markets, as well as the advanced and emerging economies of nearby Europe and Asia, market exposure for Saudi-based projects is not only vast but also highly diversified. Strategically located at the crossroads of east-west trade, Saudi Arabia offers a portal to the global economy and a gateway to regional markets that are substantially outperforming world growth.

1.4 Cluster Development

Investors in Saudi Arabia enjoy increasingly well-developed business clusters and value chains that set the Kingdom apart from its neighbors and from other emerging economies. The World Economic Forum ranks the Kingdom 39th in the world for Local Supplier Quantity and 35th for both Value Chain Breadth and Production Process Sophistication. Well established, competitive and efficient, Saudi Arabia's domestic industries—from energy and chemicals to transportation—provide industrial projects with exceptional opportunities for cost savings.

1.5 ICT Sector Evolution in Saudi Arabia

1.5.1 Mobile phones

In Q1 2009, penetration rate has grown by 4 percent to 148% (37.4 million compared to Q4 2008.
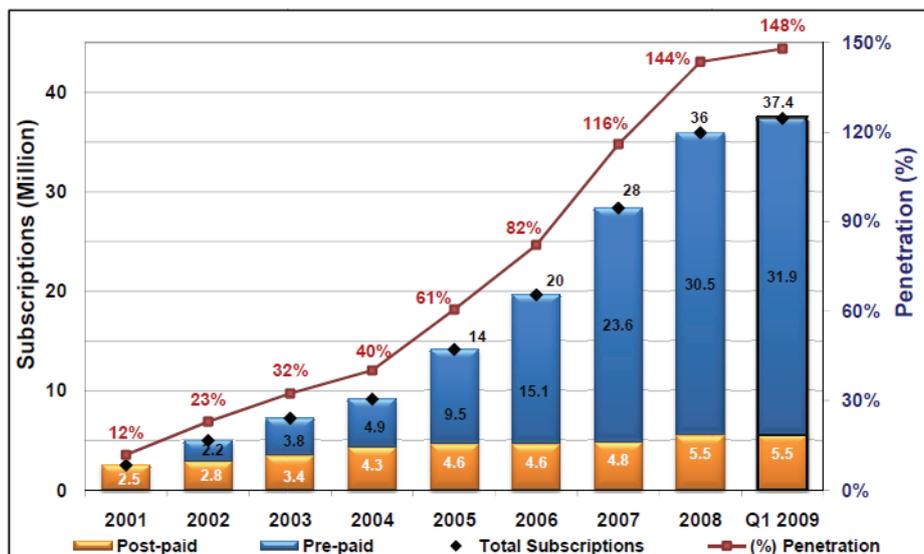
Competition in the mobile telecommunications market, which started in 2005, intensified in 2008 with the launch of the services of the third mobile licensee (Zain – Saudi Arabia). The competition has resulted in major developments in terms of service offerings, quality of service, customer care, reduced prices and subscriber growth. The total number of mobile subscriptions has grown to around 36 million (144% penetration) by the end of 2008, up from 28.4 million in 2007 and only 2.5 million when CITC was established in 2001. The compound annual average growth rate (CAGR) for the last seven years amounted to around 46% annually.

It should be pointed out that the subscription numbers shown in Figure 1-A are based on raw data reported by the mobile service providers. Active subscription numbers, based on CITC's 90-day activity rule, are estimated to be around 18% less than the total raw subscription numbers. Figure 1-B shows the growth of active subscriptions in the Saudi market. Active mobile subscriptions reached around 29.8 million by the end of 2008, translating to around 119% or 119 active subscriptions per 100 inhabitants. Prepaid subscriptions constitute the majority (85%) of all mobile subscriptions, in line with the trend in other similar markets around the world.

Figure 1-A: Mobile Service Market Growth – Total Subscriptions (2001-2008)

Note: Based on numbers reported by mobile service providers (including temporary addition of about 2 million pilgrims and visitors).
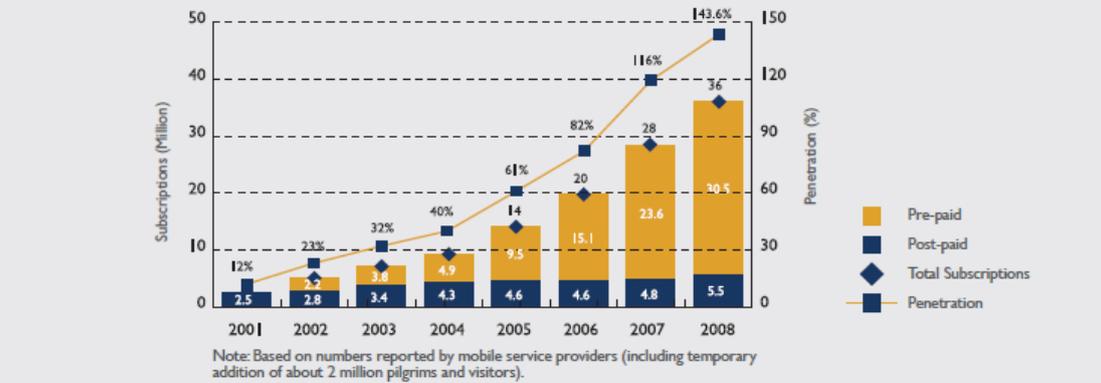
Figure 1-B: Mobile Service Market Growth in Saudi Arabia – Active Subscriptions (2001-2008)

Note: CITC estimates are based on numbers reported by mobile service providers (including temporary addition of about 2 million pilgrims and visitors).
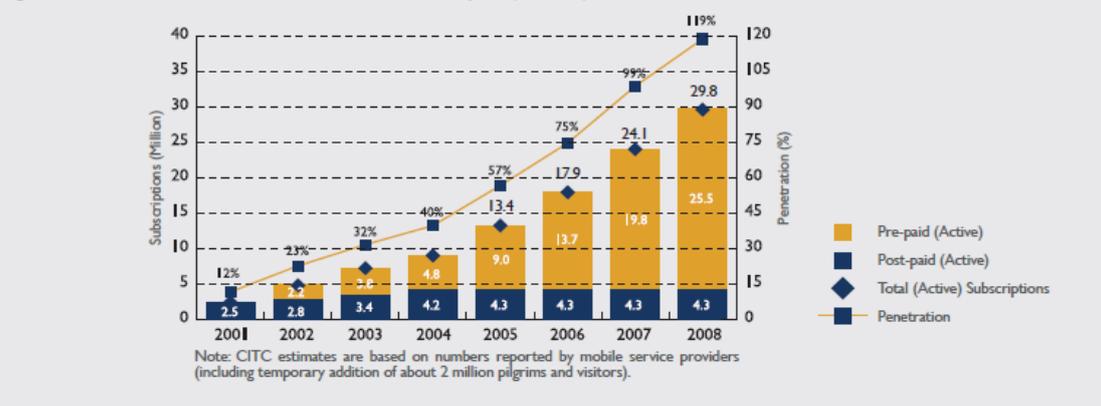
1.5.2 Land phones

Working lines have reached more than 4.2million by the end of Q1 2009, including around 3 million (72%) residential lines. Penetration rate of residential land lines has reached 68%.
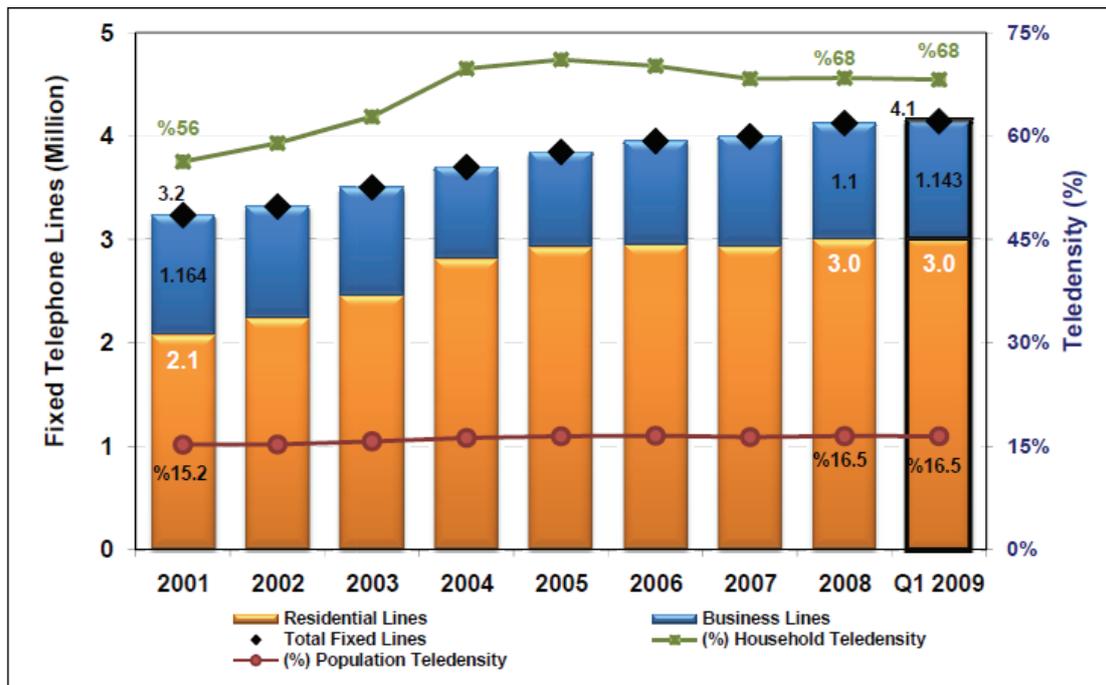
Note: Penetration rate against population is calculated by dividing the total number of working lines by the number of population, while penetration rate against households is calculated by dividing the number of residential lines by the number of households.

1.5.3 Broadband service

By the end of Q1 2009, the number of broadband customers in the Kingdom has grown to around 1.6 million, with a growth rate of 23% compared to the previous period (Q4 2008). CAGR has reached more than 175% during the past three years (2005-2008), with the penetration rate of broadband services for population reaching 6%. Penetration rate of broadband services for households has reached 27% by the end of Q1 2009. DSLs represent around 75% of the total customers of broadband.

Saudi Arabia
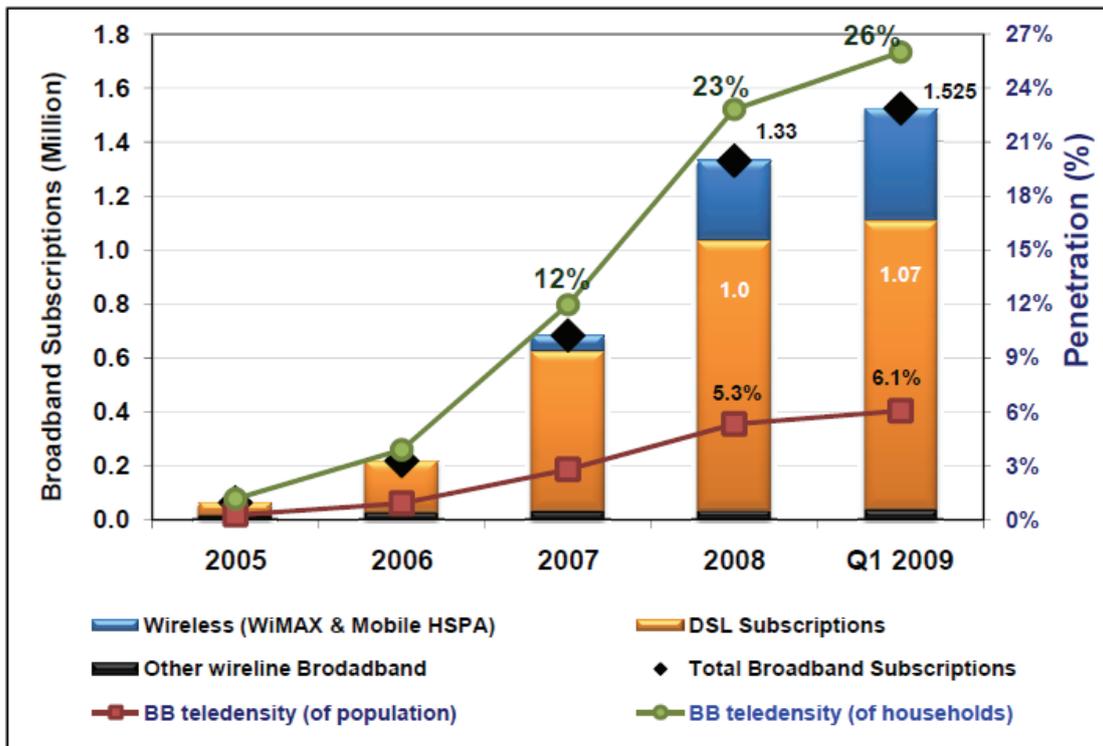
1.5.4 Internet Service

The number of Internet users in the Kingdom has grown from around one million in 2001 to some 9 million by the end of 2008, with a penetration rate of 36%.
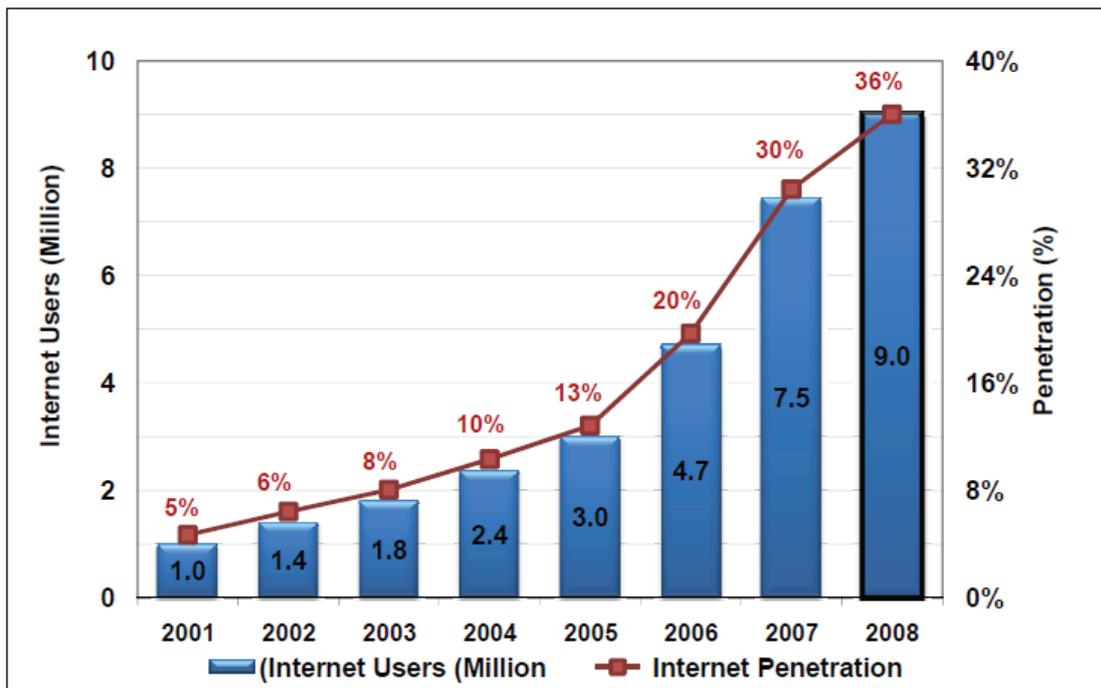
Notes:

(1) CITC estimations for 2001-2006 were based on broadband and Internet phone dialup.

(2) Figures for 2007 and 2008 were based on CITC estimations after been amended following a comprehensive field survey of the Internet market conducted by CITC.

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 Regulatory Framework

CITC is the telecommunications regulator and information technology promoter in the Kingdom of Saudi Arabia. The Telecom Act (enacted in June 2001) and its Bylaw (issued in July 2002) provide the basis for CITC's regulatory framework.

CITC Ordinance (issued in June 2001 and amended in July 2003) defines CITC's mandate, functions, governance, and financing. The Rules of Procedures (issued in 2004) detail the steps service providers and CITC need to follow for timely disposition of issues addressed to CITC.

CITC applies a "technology neutral and service specific" licensing regime, which allows licensed service providers to offer specific services, under the terms and conditions of their licenses, utilizing technologies of their choice. CITC has been working to further liberalize the ICT market, increase competition in the mobile and the fixed services markets, encourage the rollout of competitive network infrastructures and the offering of new services, and enable universal availability of advanced ICT services.

During 2008, CITC continued to review and develop its regulatory framework.

In so doing, CITC continued its established practice of conducting public consultations taking into account comments from stakeholders and interest parties and considering the public interest and protection of consumers. The following regulatory framework documents and technical guidelines were published in 2008:

- Promotional Offer
- Wireless Local Area Network (WLAN/Wi-Fi) Usage
- Provisioning of Mobile Prepaid Services
- SMS Service Termination Mechanism
- SMS Usage to Solicit and Collect Charity Contributions
- Definition of Active Mobile Subscriber
- Amended Schedule of Fees for 4, 5, and 6 Digits Numbers
- Allocation and Use of Short Access Codes
- Use of Nomadic Numbers

CITC Statutes as well as the published regulatory framework documents are available on CITC's web site (www.citc.gov.sa).

In the field of Information Technology, the "e-Transaction Act" and the "e-Crimes Act" were enacted by the Council of Ministers, and issued by Royal Decrees, in March 2007. Subsequently, CITC prepared the e-Transactions Bylaw which was issued by the Ministry of Communications and Information Technology in March 2008.

2.1.1 National Center for Digital Certification (NCDC)

The National Center for Digital Certification provides integrated system for management of the public key infrastructure. It is a security integrated systems for managing the keys used in maintenance of information confidentiality; verification of the users, identities; preservation of the data integrity against tampering and change; and making digital signatures. Upon these functions rest electronic services such as e-government, e-commerce and other electronic applications. This security structure enables all types and classes of web users to perform electronic operations in full security, credibility and safety. In 1426H, the task for creating the National Center for Digital Certification was transferred from King Abdulaziz City for Science & Technology (KACST) to the Ministry of Communication & Information Technology (MCIT). Establishment of the center is currently in progress. Creation and preparation of NCDC physical location is currently in progress in Riyadh City.

2.1.2 Interoperability Framework

It's a unified framework to implement e-government. It includes cross – governmental specifications and policies, to enable cross – governmental integration and facilitate G2G transactions and data sharing.

The general framework consists of the following components:

- **Core Data Standards**
  This area will focus on the delivery of a Data Standard Catalog and Schema Standard Catalog for all data and business entities that will be used in the initial phase of the GSB development and needed by the pilot services

- **Technical Standards and Policies**
  This area covers the selection and validation of technical standards for interconnection, data integration, content management, metadata, e-services access and security. This also covers areas were standards are not defined but a uniform policy and industry best practices need to be put in place to achieve interoperability.

- **YEFI Portal**
  The goal of this activity is to provide a centralized collaborative work space and repository for editing, discussing, publishing and saving all YEFI related documents agreed upon by the different YEFI work groups.

### 2.1.3 Government Secure Network (GSN)

Project Objectives:

- Establishment of the elements necessary for the implementation of electronic government services transactions by providing basic infrastructure to link government agencies.

- Connect the government agencies by the e-Government Data Center "YESSER".

- Enable the e-Government Program "YESSER" to be a link between the government agencies.

- Standardize the links between government agencies and reduce that cost.

2.1.4 Government Service Bus

The GSB (Government Service Bus) is intended to become the central platform of integration and services for the provision of government electronic services and transactions, and a provider of common value-add Shared Services which will be used by all connected entities and government agencies. i.e. Identity management, e – Payment and core data exchange between government entities. Figure 1 shows the role of the GSB as an integration enabler to implement government e – services.

＜**Figure 1：GSB role in the e – government services infrastructure.**＞
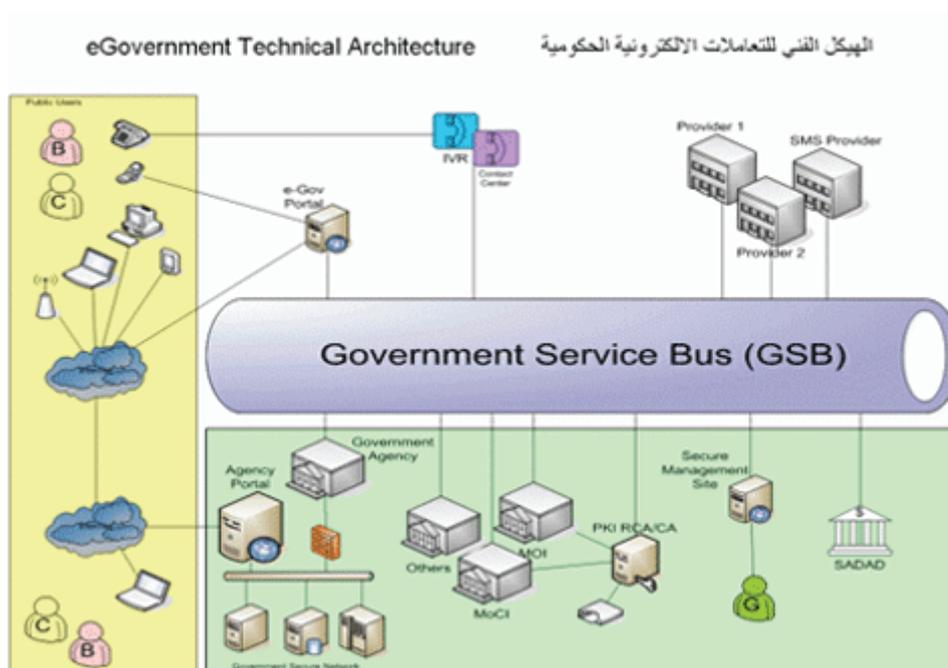
Saudi Arabia

SECTION III – e-Readiness and e-Application -- eGovernment/eBusiness Related PROJECT UPDATES

3. Major eGovernmnet Projects in year 2008
3.1 Saudi Information e-Services Co. (Tabadul)

TABADUL is a very innovated and modern ICT e-services provider, focused on providing e-government and e-services solutions to automate international trade community in Saudi Arabia, providing government e-procurement services, and providing any IT service to the Government sector and privet.

Establishment of TABADUL came after the success of the SaudiEDI Project, which was established as a national Saudi network to exchange information electronically between the Customs and other relevant authorities services of export and import sectors of government and private, and tangible benefits to the national economy to raise efficiency and reduce operational costs of implementing this type of business and reduce the time and effort to attract private sector investment and ensure optimal use of the network in order to share information electronically, which can be the basis for network services and government e-procurement.

Initially, TABADUL will continue developing, growing, and operating the right infrastructure for the e-transactions for e-trade (import/export) document exchange (SaudiEDI business line) with governmental organizations like Saudi Customs, Port Authority, Airline and Rail Way operators. Also, to link permits organizations like Ministry Of Health (MOH), Saudi Arabian Standards Organization (SASO), Saudi Food & Drug Authority (SFDA), Communications and Information Technology Commission (CITC), etc.

In addition TABADUL will start planning, building, rollout, and operate a government e-procurement platform. Great efforts will be spent on Change Management, which includes re-engineering of processes, mount awareness about e-government benefits to all users, influence productivity, transparency and cost reduction of current transactions within government agencies and its suppliers.

3.2 Yesser Quick Win Projects

3.2.1 The Governmental Services Surveying and Prioritizing Project

This project aims at identifying the major services that Government organizations provide to individuals, the business and public sectors. The project examines their characteristics and current electronic status. Additionally, these services are to be prioritized for their introduction electronically. Also a number of pilot projects in the first phase of the program

will be identified.

3.2.2 The Government Services Portal Project

The Electronic portal for government transactions www.saudi.gov.sa is a combined web site that aims at facilitating the transactions of citizens, expatriates and private sector with governmental organizations, and increasing the level of transparency. The national electronic portal for government transactions is considered a channel that provides information on the governmental services, organizations, systems, regulations, national plans and initiatives, electronic services, and news and activities. A visitor of this portal shall get benefit from the information available therein with utmost smoothness.

3.2.3 The Electronic Forms Project

The objective of this project is to apply the concept of electronic forms to typical and common government transactions performed between government organizations. These transactions may either represent some sort of data exchange on paper forms or regular reports that take fixed formats. The main idea of the project is to apply the concept of electronic forms to G2G transactions using either bar-coded hard forms that may be electronically scanned, or electronic files that can be generated, exchanged securely and read electronically.

3.2.4 The Government Agencies Contacts Directory Project

The project aims to build an electronic directory of contact information for government bodies and their information centers and to electronically publish it on the Internet through the e-government program Yesser's website. It will also be published on CDs to be easily circulated and researched.

Contact information for approximately 1000 government bodies has been gathered, including phone numbers, fax numbers, addresses, email addresses and websites urls. The information is already available on the website through the directory page.

3.3 SADAD

SADAD is now facilitating the payment of; high volume periodic/repetitive bills (e.g. utility bills, phone bills etc), and customer initiated payments, such as traffic fines etc.

3.4 SIMIS (Social Insurance Management Information System)

The General Organization for Social Insurance (GOSI) has launched its new Social Insurance Management and Information System (SIMIS). It is considered a distinguished shift in the field of e-government applications in the Middle East. SIMIS is designed to serve all those who have interests in dealing with GOSI's scheme. SIMIS allows some government agencies to interact and exchange information with GOSI, in addition to enabling establishments and employers to perform all their business through it; they can register, exclude, change wages and submit payment of contributions of their workers. They can also review their establishment accounts with GOSI. Now, contributors can inquire about their records, know about the sequence of their services and check the correctness of their contributions with GOSI, along with other services that GOSI usually provides. SIMIS is considered as a virtual field office for GOSI; through it all business can be conducted as a regular field office. Hospitals may check the coverage of injured persons under the Occupational Hazards Branch to provide them with medical care services as fast as possible without the need to return to any field office. Moreover, SIMIS was developed to support auto-exchange of information (B2B) between establishments and GOSI to transfer data directly from GOSI's database to those establishments database and vice versa, and processing it without any human interference in the process.

3.5 Saher System

Saher System is an automated traffic control and management system, in which digital cameras are connected to an information center to detect the violation technically and requires information about the vehicle's owner from database, then issuing the violations related to speed and red signal crossing in order to manage traffic flow and ensure the safety of road users.

3.6 Services Portal Project

The National Information Center (NIC) of the Ministry of Interior is building a portal for services offered to individuals. The portal will enable such individuals to obtain information on these services, i.e., requirements, relevant e-forms, and the possibility of providing twenty services electronically. The project also includes setting up around 100 electronic kiosks.

3.7 Smart Card Project

Representing modern technology, Smart Cards fast proliferated worldwide thanks to their multiple applications. They have high storage capacity and a processor that enables each card to execute somehow complex operations. Furthermore, their virtual lifespan is relatively long. The Ministry of Interior has taken a great interest in this technology since the first years

of its coming into being. The ministry implemented the Smart Card Project which led to replacing the traditional Civil Affairs I.D. with a smart ID. In later stages, the project aims at integrating into one card some of the other government cards such as the driving license and family card. There is also the electronic passport application which is considered a state-of-the-art technology solution worldwide.

3.8 Omrah Project

This project aims at organizing the process of issuing Omrah visas electronically. Electronic visa applications are to be submitted via the Internet to Omrah agents abroad. These applications will be electronically processed by the Ministries of Hajj, Foreign Affairs and Interior. Visas are consequently issued within 24 hours. This system is currently used worldwide.

SECTION IV – Other advanced applications - IT - enabled Service (ITeS)

4. Major ICT Activities in year 2008
4.1 Licensing and Promotion of Competition

CITC continued its drive to further liberalize the ICT markets, and increase competition. New licenses were issued and others were cancelled during the year. The total number of issued licenses reached 290 by the end of 2008.

4.1.1 Mobile Telecommunications Services

The third mobile services license was issued to Saudi Mobile Telecommunications Company (Saudi Zain) on 29th March 2008. CITC assisted the newly licensed company's rollout by helping to overcome obstacles faced in the implementation of its plans and by facilitating its interconnection with other networks. Saudi Zain launched its commercial services on 26th August 2008.

4.1.2 Fixed Telecommunications Services

As part of the fixed services market liberalization and pursuant to the recommendation of

CITC, the Council of Ministers issued its Resolution No. 38 dated 26/2/2008, approving the award of three new licenses to establish and operate public fixed telecommunication networks offering local, national and international services. The three fixed service providers are: Optical Communications Company (with Verizon of USA); Mutakamiliah (with PCCW of Hong Kong) and Atheeb (with Batelco of Bahrain).

CITC is following up with the three new companies and the Capital Market Authority to complete the rest of the procedural steps for issuance of the three licenses.

4.2 National Frequency Plan (NFP)

The Council of Ministers approved the National Frequency Plan (NFP) in March 2008. The NFP was developed by CITC in 2007 in line with international best practices and was based on spectrum users needs. The NFP spectrum allocations for civil and commercial use are published on CITC's main website in both Arabic and English. CITC has started the implementation of the NFP, with a clear focus on compliance. Parties with assigned frequencies which do not conform to frequency band allocations specified in the NFP will be required to vacate their currently assigned frequencies and if necessary, will be assigned alternative frequencies as appropriate.

4.3 Reference Interconnection Offer (RIO)

As part of the periodic revision of the Reference Interconnection Offer (RIO) of STC, CITC held a public consultation on the amended second version of the RIO document in order to obtain the views of the stakeholders. Based on responses to the public consultation and a benchmarking analysis of international practices conducted in 2007,

CITC required STC to execute a number of improvements to the RIO document. STC submitted a revised third version of the RIO document, incorporating the required amendments. CITC approved the revised RIO in the second quarter of 2008. The RIO document is available on the web sites of both STC and CITC. In the last quarter of

2008, CITC commenced the process for the next revision of the RIO.

4.4 Reference Offer for Data Access (RODA)

In line with CITC Decision in 2007 (number 178/1428), approving STC's first version of the RODA document, and requiring STC to update within eighteen months, CITC initiated a process for revision of the RODA document. The review process includes an international benchmarking study as well as a public consultation process and is expected to be completed in 2009 with the approval and publication of the second version of the RODA document.

4.5 Long Run Incremental Costing (LRIC)

In order to protect competition and safeguard against cross-subsidy, CITC determined that interconnection and wholesale prices should be cost based and decided to implement Long Run Incremental Costing (LRIC) as a best practice approach to identify the underlying costs of providing such services. The development of LRIC started in 2007.

During 2008, an extensive public consultation process was carried out (including an opportunity to provide comment-on-comments) on the LRIC Methodology Guidelines.

Following a thorough analysis process of the responses, CITC revised the LRIC Methodology Guidelines, and the final document was presented to CITC Board. Upon the

Board's approval of the LRIC Methodology Guidelines; CITC issued a Decision and published these guidelines on its website.

In building bottom-up LRIC models, service providers were required to provide extensive amount of data. In undertaking the data collection, several meetings were held with the service providers. Where there were gaps in the data required, it was obtained from international benchmarks. In this way, CITC completed building of the bottom-up LRIC Models for fixed and mobile services.

The next steps are to undertake the implementation of LRIC, which will include some consultation with service providers, an approval of the Board and the issuance of a CITC Decision.

4.6 Terms and Conditions of Service

CITC document on "Terms & Conditions of Service" for mobile, fixed, data and internet services is designed to safeguard the public interest, protect consumer rights and define the rights and obligations of both clients and service providers. A public consultation was launched in late 2007 together with requests for comments from interested parties including the Shoura Council, other governmental entities, academic institutions, the private sector and the public.

During 2008, CITC analyzed all the responses and issued a Decision approving the final documents. CITC mandated the concerned service providers to abide by the approved terms and conditions of service, and to make them available at their subscription offices and on their web sites.

The approved Terms and Conditions of Service are published on CITC web site. CITC will ensure compliance with its Decision by the mobile, fixed, data and Internet service providers.

4.7 Tariff Regulation

In accordance with its Statutes, CITC continued to regulate the service tariffs of STC, the current dominant service provider and issued the necessary decisions.

4.8 Market Definitions and Dominance

The Market Definitions and Dominance project aims to identify relevant markets in the telecommunications sector in the Kingdom, designate dominant service provider(s) in each of the defined and relevant markets, determine ex-ante remedies to alleviate the negative effects of dominance on competition and to safeguard the public interest.

An international benchmarking of best practices was completed and a draft regulatory framework was prepared. CITC launched a two round public consultation process to seek stakeholder views on the subject and on a periodic process to be followed for market designations, dominance and ex-ante remedies. A detailed response report consisting of the comments received and CITC's analysis and conclusions was prepared. Subject to the Board's approval, the final Regulatory Framework will also be published in 2009.

4.9 Emergency and Disaster Recovery Plans

In order to ensure the continuity of communications services, facilities-based service providers must respond rapidly and communicate effectively to overcome emergencies and service disruptions, whether due to accidents or due to national disasters. They must also facilitate contact to emergency users such as police and relief agencies, when required. CITC periodically undertakes a review of the networks of facilities-based licensed service providers to ensure their reliability and resiliency to overcome points of failure, as well as their contingency plans in case of service outages. During the year, a survey of service providers was undertaken to assess the current situation and it was concluded that the level of readiness to face emergencies and recovery plans in the ICT sector needs improvement. CITC also conducted a benchmarking study of 12 countries on the best practices in this regard.

CITC developed a draft regulatory framework for emergencies and disaster recovery, as well as draft guidelines for the licensed facility based service providers. A public consultation on the two documents was conducted. The next steps are for CITC to finalize the required documents, present its findings to the Board for approval and issue a Decision on comprehensive disaster recovery planning.

In addition, a comprehensive report was prepared on the redundancy, reliability and resiliency of service providers' networks in the event of failure or interruption of services, together with reporting and escalation mechanisms.

4.10 Universal Service and Universal Access (US/UA)

In compliance with the Universal Service and Universal Access (US/UA) Policy, a Universal Service Fund (USF) was established in 2007 as a new unit with financial independence and a separate budget.

The USF started to prepare its strategic and annual operating plans, including the programs and projects that will be implemented to provide voice and Internet services in the remote and commercially non-profitable areas where adequate communication services are not currently available. As a first step, information was collected to determine the availability of various services in all areas of the Kingdom, including schools, hospitals, electricity, water, police, communications and other public services.

Subsequently a comprehensive field survey was also completed to determine the availability of ICT services and to assess user requirements. A complete database has now been developed.

The USF is currently working to finalize the strategic and annual operating plans. The first service provisioning project is planned to be announced in the third quarter of 2009.

4.11 National Numbering Plan (NNP)

The project aim is to update the National Numbering Plan (NNP) to keep pace with future growth, to ensure the availability of adequate numbers and service codes and to provide the flexibility to accommodate new technologies and services, such as VoIP, NGN, and ENUM.

During the year, CITC reviewed urgent requests related to short codes and allocation of number ranges for fixed telecom services and it analyzed the current NNP and the regulation of short codes for SMS value-added services. Other studies performed were related to the current fees for allocation of number blocks; the need to regulate the numbers starting with symbols such as * or #; and the impact of new technologies, such as NGN, on numbering and addressing requirements.

The next steps are to conduct a public consultation process in order to finalize and update the NNP.

4.12 Number Portability (NP)

The aim of this project is to develop guidelines for fixed number portability (FNP), to update the guidelines of mobile number portability (MNP) and to integrate the two as unified guidelines for overall number portability (NP). During the year, CITC carried out a detailed study of NP types, porting procedures, porting fees, the impact of new technologies, the integration between the current MNP and proposed FNP solutions, and the upgrade of the NP

systems. The next steps are to conduct a public consultation process in order to finalize the number portability guidelines.

CITC also continued to regulate and manage the MNP. The third mobile licensee (Saudi Zain) was linked to the number portability database, proper tests were conducted, over 1000 complaints were processed, more than 200,000 mobile numbers were ported through the MNP central system and daily reports were followed up and analyzed.

4.13 Quality of Service (QoS) Indicators

In order to ensure that high quality ICT services are provided to users, CITC undertook a comprehensive review to update the general framework of QoS indicators, including revision of QoS indicators and targets in line with global trends, processes to verify the accuracy of reports by service providers and enforcement methods to handle non-compliance. CITC issued a draft of the updated QoS Scheme for public consultation, then reviewed and analyzed the responses. The QoS Scheme document will be finalized in 2009 to reflect comments received from stakeholders.

In addition, the quarterly QoS reports submitted by the dominant service provider, including the QoS of interconnect links were studied and analyzed and efforts were coordinated with the service providers to improve the QoS.

4.14 Guidelines for Rights of Way and Site Sharing

In order to meet their license obligations for network rollouts, service providers depend on the availability of the rights of way (RoW). During the year, CITC prepared a benchmark study of best practices in other countries; developed comparative studies on co-location of outside plant equipment and site sharing; prepared draft guidelines for RoW and site sharing; conducted a public consultation process to seek comments on the draft guidelines and received stakeholder comments. The responses will be reviewed and analyzed and the updated guidelines documents will be issued and communicated in 2009.

CITC also studied the issue of fees proposed by some municipalities for permits to construct towers and to dig on public roads. In this regard, a benchmark study of fees imposed in other countries was conducted and recommendations were formulated.

4.15 Measurement of RF Radiation from Base Stations

The aim of this ongoing program of radio frequency (RF) field measurements is to verify compliance with CITC guidelines on limiting the RF exposure from wireless base stations. In cooperation with leading academic and research institutions in the Kingdom, field measurements were conducted at over 120 wireless base stations across the

Kingdom to compare the performance of the network service providers to international standards for human exposure. Measurements showed that radiation levels are much lower (by at least 300 times) than limits established by CITC based on international standards for human exposure.

In 2008, CITC signed two new agreements with national universities for field measurements in the Eastern and Western regions, starting in 2009.

In addition, CITC developed a draft document on "National Guidelines for Human Exposure to RF Electromagnetic Fields". A public consultation on the guidelines document is planned to start in 2009, prior to finalization, issuance and enforcement.

4.16 Regulatory and Technical Guidelines

4.16.1 Promotional Offer

CITC developed regulatory guidelines detailing procedures and rules governing promotional offers in the competitive ICT markets. These regulatory guidelines aim at promoting fair and ethical competition, while safeguarding the interests of service providers and protecting user rights. The guidelines were issued by CITC Decision No 209/1429.

4.16.2 Wireless Local Area Network (WLAN/Wi-Fi) Usage

In view of continued strong growth in the use of the Wi-Fi networks and the requirements for indoor and outdoor usage, CITC developed a regulatory framework governing such use and issued it as Decision No 205/1429. The regulatory framework details the areas of operation and coverage, the obligations of the network services providers, the requirements for compliance by the equipment used and the frequencies identified for this service.

4.16.3 Definition of Active Mobile Subscribers

In order to accurately identify the actual number of mobile service subscribers, CITC has carried out a benchmarking study on a number of international markets. A public consultation was undertaken to define an active mobile service subscriber. Subsequently, CITC issued Decision No. 188/1428 defining an active mobile service subscriber and directing mobile service providers to comply with the decision by filing the required indicators to CITC.

4.16.4 Provisioning of Mobile Prepaid Services

A regulatory framework on selling and activating pre-paid SIM cards for mobile services

was issued as CITC Decision No 215/1429. The regulatory framework lists steps needed to take necessary precautions with the terms of service and conditions of sale and activation. It also details procedures for sale and activation through either the service providers themselves or through their authorized agents and/or distributors.

4.16.5 Uniform Procedures to Terminate SMS Subscription

CITC developed a regulation detailing application of uniform procedures by all service providers for subscriber initiated requests to terminate value added SMS service. The implementation of these guidelines is being monitored to ensure compliance by the relevant mobile service providers.

4.16.6 Charity Collection through SMS

Regulatory guidelines on the collection of charitable donations via SMS were established. The guidelines are intended to encourage charity donations while safeguarding against misuse of noble charity causes, reducing annoyance experienced by SMS recipients and ensuring that only duly authorized bodies can collect such charitable donations. CITC is following up on the implementation of these guidelines to ensure compliance by the SMS and mobile service providers.

4.16.7 Amended Schedule of Fees for 4-, 5-, and 6-Digits Numbers

Meeting the growing demand for short access codes has necessitated: a) the allocation of 5- and 6-digit codes according to the National Numbering Plan and b) the monitoring of depleted 3- and 4-digit codes. A benchmark study of other countries has revealed that most countries adjust charges to manage demand when supply is constrained by scarcity of number resources. Based on the Board approval, the fee schedule for 4-, 5-, and 6-digit numbers has been revised through CITC Decision No. 2007/1429.

4.16.8 Allocation and Use of Short Access Codes

Growth and increasing competition in the ICT sector have spurred the delivery of new services, with a consequent rise in demand for scarce numbering resources such as short access codes. A regulatory framework on the allocation of short access codes was approved by the Board, published on CITC web site and put into effect.

4.16.9 Use of Nomadic Numbers

Licensed service providers are planning to introduce new ICT services such as nomadic

services, thereby increasing the demand for related numbering resources. CITC studied the number ranges for these services to meet long-term demand and be consistent with the general principles of the National Numbering Plan. Regulatory guidelines were developed for the structure, allocation and use of the nomadic numbers. These guidelines were issued and communicated to all service providers.

4.17 Internet Service and Domain Name Registration

An "Internet Service Center" was established to fulfill the tasks of Internet service management, regulation and filtering. During 2008, 96,000 blocking/unblocking requests were processed; security queries were handled, the safe search feature and the new filtering management system (FMS2) were activated.

In view of the continued growth in Internet usage and to ensure fair and reliable registration of domain names in the Kingdom, the Saudi Network Information Center (NIC) has continued the registration, management and technical supervision of the Internet domain names. During the year, the NIC handled the registration of over 2300 new domain names and the modification of around 2000 registered domain names. Three domain name related disputes were resolved. The registration of Arabic domain names also started in 2008 with 103 new Arabic domain names being registered.

As part of the Internet Development Project, a CITC led national task force has been formed to promote the evolution towards the use of version 6 of the Internet Protocol

(IPv6) standard. The national IPv6 Task Force includes a number of service providers and other entities and participation is voluntary and open to interested parties. A test lab was set up for testing compliance with IPv6.

4.18 The National Internet Exchange

The National Internet Exchange was established in Riyadh for the purposes of keeping national Internet traffic within the Kingdom. This will improve the quality of Internet service, reduce costs and prices, increase reliability and security and maintain the privacy of local internet users. The National Internet Exchange is currently being tested in preparation for a launch in 2009.

4.19 National Center for Information Security (CERT)

The "National Center for Information Security (CERT-SA)" established in 2006, aims to raise awareness and knowledge of the risks and threats that affect the security of information, to coordinate the efforts of prevention, detection and response to information security incidents at the national level. Continuing its security protection activities, CERT-SA established the

Saudi Arabia

Internet Security Services Center, which started operation in 2008.

4.20 Anti-SPAM Program

Continuing the activities initiated last year by the Saudi National Anti-SPAM Program, the final reports containing proposed solutions to reduce the SPAM problem were published in six volumes in both Arabic and English. An implementation plan, divided into nine initiatives, was prepared to follow up with the recommendations.

SPAM awareness raising materials were prepared and published; an official website was launched (www.spam.gov.sa) and a public workshop was organized to introduce the program documents. A draft regulatory framework document was developed and a public consultation was conducted. The responses will be analyzed and the final regulatory framework document is planned for completion in 2009.

4.21 Information Security Manual

CITC initiated steps to implement the Council of Ministers' Resolution No. 194, dated 10/06/1428H (June 2007) calling for the preparation of a framework manual on information security policies and procedures in the government sector and for its circulation to government agencies. CITC has developed a phased approach for the preparation of the manual including information classification, the security policy areas and the responsibilities of the information security auditor. The framework manual is planned to be completed during 2009.

4.22 Violations and Dispute Resolutions

CITC Violations Committee considered 1092 reported violations of the Telecommunications Act and issued appropriate decisions in accordance with the applicable statutes.

With regard to dispute resolution, CITC developed procedures to resolve the disputes that arise between service providers. A number of disputes between licensed providers were considered and appropriate decisions were issued in accordance with the Telecom Act and the Bylaw.

4.23 Consumer Complaints

In accordance with CITC Statutes requiring the Commission to protect ICT consumer rights, CITC handled and resolved 3218 complaints during the year. In order to increase CITC efficiency and effectiveness in processing complaints, a procedures document for handling complaints was finalized during the year.

4.24 Media Activity

The CITC continued its active role of increasing public awareness and proactive engagement with the press and media.

4.25 Telecommunications Services during Ramadan and Hajj

In cooperation with other Government agencies, CITC worked to ensure provision of the best ICT services to pilgrims. A CITC task force of specialists was formed to follow up on the performance of licensed service providers in Makkah, Madinah and the Hajj areas.

SECTION V – References

5. References

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(4) Saudi Arabia General Investments Authority (SAGIA) web site : www.sagia.gov.sa

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Singapore Progress Report

Singapore EDI Committee

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SECTION I – GENERAL CONDITION UPDATE

1.1 Computerisation of a City State

Singapore's IT visionaries recognised early that information technology would be needed to leverage Singapore's intellectual capital in order for her to move into the ranks of developed nations. A well planned strategy to harness computer power began in the early 1980 and in a manner that has become a national formula, the government took the leadership reins of the race.

Singapore's e-Government journey began with the Civil Service Computerisation Programme (CSCP), as part of the National Computerisation Plan, in the early 80's. The goal was to make Singapore Government into a world-class exploiter of IT. The focus was to improve the operational efficiencies through the automation and minimise paperwork.

In the 90's, the convergence of IT and telecommunications transformed the concept of service delivery. This required a paradigm shift in the way government services were delivered and the first e-Government Action Plan (eGAP), developed as part of Infocomm 21, was launched in 2000. Following the success of eGAP I, the e-Government Action Plan II (eGAP II) was launched in 2003, which adopted a customer-centric approach to delivering public services.

The Singapore Government is now into the next phase of realising the iGov2010 5-year master plan. Gov2010 is the Singapore Government's five-year master plan that leverages infocomm to continue to empower the customers and citizens. To achieve this vision, four thrusts have been identified: Increasing Reach and Richness of e-Services; Increasing Citizens Mindshare in e-Engagement; Enhancing the Capacity and Synergy in Government; and Enhancing the National Competitive Advantage.

1.2 A World-Class Infrastructure

Over the past 3 decades, Singapore has put in place a robust and reliable IT infrastructure that has met the needs and demands of its economy and society. Singapore's household broadband penetration stands over 115.2% (IDA's Statistics Of telecom Services 2009), while Internet penetration amongst households is at 76% (IDA's Annual Survey on Infocomm Usage in Households and by Individuals 2008) of the population.

Singapore is also one of the major global telecommunications hubs in the region. With total

submarine cable capacity of 28 Tbps (Figures as of October 2007) and direct international Internet connectivity of 25 Gbps, Singapore is well positioned as a hub for international capacity. Over the last few years, Singapore has also grown to be a transcable hub where regional submarine cable systems and international cable systems interconnect.

Moving forward, Singapore is looking into the deployment of a seamless, trusted and intelligent infocomm infrastructure that will be realised by 2015, as a critical enabler for the vertical sector economies of Singapore to gain a competitive edge in the global market. Such an infrastructure will also contribute to the overall competitiveness of the infocomm sector as it creates wider and more intelligent highways and ports for the flow of digital goods. It will also empower every individual and business in Singapore with the opportunity to engage in networked, infocomm-enabled services.

In recent years, Grid Computing has already increasingly been adopted across many industry sectors such as finance and banking, interactive and digital media, manufacturing and healthcare and life sciences . There is a concerted push to accelerate the development of Grid Computing for the business and commercial sector.

1.3 Improving the Quality of Life

By tapping into the power of technology to reduce or simplify time-consuming chores, Singaporeans have more discretionary time on their hands. Almost all transactions with government departments are to be made through internet and communication networks – school admissions, tax submissions, permit or license applications, bill payments, and so on are processed electronically. Shoppers compare products by selectively viewing images and video-clips on computer screens, and make purchases through cashless transactions.

Singaporeans and tourists alike use multilingual and multimedia systems to preview cultural events and obtain admission tickets. Congestion on the roads have been reduced by computerised traffic control and electronic road pricing systems. Singaporeans can even avoid commuting altogether by working at home via high-speed broadband connections to their office and customers.

Cashless travel by use of smart cards on public transport has added to convenience. Use of biometric passports has added to the efficiency at immigration checkpoints and check in at air, sea and land ports and border crossings. Cumulative effect of these changes is that individuals will have the time and energy to engage in leisure activities that refresh their mental faculties or renew their social ties.

1.4 A Pro-Business Environment

Singapore has a three-year history at the top of this ranking for small business startups according to World Bank reports . Singapore's business-friendly bankruptcy and labor laws, its low and quick-to-file taxes, and its generally high-tech approach to everything has gained recognition from leading world organisations. A new company can now be set up in four days thanks to improvements in Singapore's electronic business registration service.

Singapore's world-class infrastructure, transparent business practices and liberalised telecom market have attracted more than 200 new telecom operators since the telecom and IT markets were liberalised in April 2000.

On top of that, a comprehensive system has been put in place to ensure an open and fair market that promotes both competition and co-operation among telecom players in Singapore.

Public and private sector training programmes sustain one of Asia's most infocomm-savvy workforces. And, some of the world's most flexible immigration laws ensure that businesses can recruit offshore talent when they need it.

Singapore nurtures and protects intellectual property. The Intellectual Property Office of Singapore leads a government-wide effort to guard intellectual property rights, and the Writing Down Allowance for Approved Intellectual Properties gives favourable tax concessions for innovations created in Singapore.

Singapore is also a natural test bed for new ideas and products. Its multicultural, multilingual citizens are tech-savvy and internationally recognised as 'early adopters'. And hand-held devices of all kinds are commonly used for business and leisure, making Singapore a 'living lab' for wireless technologies.

More than 6,000 multinational companies with regional HQs or operations in Singapore bear testimony to its excellent standing among international business leaders and talent. And no wonder: Few countries in the world can match the stability and integrity of Singapore's political and legal systems.

SECTION II – eBusiness/eCommerce/Infrastructure Related PROJECT UPDATES

2.1 Infocomm Security Master Plan2

Developed through a multi-agency effort led by the Infocomm Development Authority of Singapore (IDA), under the guidance of the National Infocomm Security Committee, the five-year Masterplan will see the public, private and people sectors working even more closely together to secure Singapore's cyber space.

It aims to build upon the achievements of the first Masterplan by enhancing the tenacity of Singapore's economy against cyber attacks, thereby boosting the confidence of investors in choosing Singapore as a strategic and secure location for their investments.

By 2015, an ultra high-speed, pervasive, intelligent and trusted infocomm infrastructure will be established and the Government, key economic sectors and society will be transformed through more sophisticated and innovative use of infocomm.

Singapore launched its first three-year Infocomm Security Masterplan in 2005. Against the backdrop of pervasive use of infocomm technology by the Singapore Government, businesses and society, the first Masterplan focused on further developing Singapore's infocomm security capabilities and improving existing efforts to detect and prepare for cyber threats.

Significant achievements have been accomplished over the last three years. Through the first Masterplan, the Government enhanced its overall security situational awareness of the public sector and developed measures for business continuity readiness through robust frameworks and methodologies.

The framework for Infocomm Security Master Plan2, depicts the vision, coverage, strategic outcome and the supporting strategic thrusts. Four strategic thrusts have been identified to support MP2's aim of attaining high resilience and availability of the nation's infocomm infrastructure and services:

- Harden national infocomm infrastructure and services

- Enhance infocomm security competencies

- Cultivate vibrant infocomm security ecosystem

- Increase international collaboration

2.2 Next Generation National Broadband Network (NGNBN)

The Next Generation National Broadband Network (Next Gen NBN) is the wired network of

the Next Generation National Infocomm Infrastructure (Next Gen NII), a project under the Intelligent National 2015 (iN2015) master plan to transform Singapore into an intelligent nation and global city, powered by Infocomm.

It will entrench Singapore's infocomm hub status and open doors to new economic opportunities, business growth and social vibrancy for the country. It is envisioned that Next Gen NBN will eventually provide nation-wide ultra-high speed broadband access of up to 1Gbps and more to all physical addresses in Singapore, including homes, schools, Government buildings, businesses and hospitals. At the start of its operations, the Next Gen NBN is expected to offer users broadband speeds of at least 100 Mbps.

By 2010, 60 per cent of homes and offices can already expect to have access to this new, ultra-high speed, pervasive, all-fibre network and coverage is expected to reach 95 per cent by 2012.

In the near future, there will be a myriad of services riding on the Next Gen NBN that will empower business users at the workplace, as well as users at homes, schools and learning institutions.

The NGNBN has 4 industry Structures layers:

- Passive Infrastructure: Including wire lines and ducts which will be operated and managed by Passive Infrastructure company (NetCo)
- Active Infrastructure: Including switches and routers be operated and managed by Active Infrastructure Company (OpCo)
- Service: Retail Service Providers (RSPs) will purchase bandwidth from OpCo
- Consumers: who will be the end users of the service

OpenNet Consortium and Nucleus Connect have been selected as the NetCo and OpCo respectively by the Singapore Government

OpenNet is led by Axia NetMedia Corporation with Singapore Telecommunications Ltd, Singapore Press Holdings Ltd and SP Telecommunications Pte Ltd as the other members of the consortium.

Nucleus Connect is a wholly owned subsidiary of StarHub

OpenNet's Proposal

As the selected NetCo, OpenNet will design, build and operate the passive infrastructure of the Next Gen NBN that will be capable of delivering speeds of up to 1 Gbps and beyond. The Government will provide a grant of up to S$750 million to the NetCo to support the network rollout.

OpenNet will offer attractive wholesale prices of S$15 per month per residential fibre connection and S$50 per month per non-residential fibre connection, to the Operating Companies or OpCos. Such wholesale prices are expected to bring about competitive retail prices in the ultra-high speed broadband market.

To encourage premise owners to connect their homes and businesses to the network, OpenNet is required to waive installation charges for home and building owners when the network first reaches their premises.

Under a Universal Service Obligation, which will take effect from 2013, OpenNet will also fulfil all subsequent requests to install fibre termination points in homes, offices and buildings.

Nucleus Connect's Proposal

As the selected OpCo, Nucleus Connect will design, build and operate the active infrastructure of the Next Gen NBN which includes from the Core Optical Ethernet Switches, GPON Optical splitters, Network Terminal Points to Residential premises ,Non-Residential premises and non building public service points . The Government will provide a grant of up to S$250 million to the OpCo to support the rollout..

Nucleus Connect proposes a wholesale price of S$21/Month for residential and S$75/Month for non-residential RSP's (which includes NetCo wholesale price)

The Next Gen NBN will propel Singapore to the forefront of broadband development internationally. Soon, Singaporeans will be able to enjoy a richer broadband experience with more choices and at affordable prices. Businesses, large and small, will find it cheaper and easier to access ultra high-speed broadband, and be able to use infocomm more extensively to boost productivity and competitiveness. The Next Gen NBN will be a strategic enabler that will transform the way we work, live, learn and play.

Timeline

OpenNet will provide 60% of Passive Infrastructure by 2010 and 95% by 2102. Nucleus Connect will make its Active Infrastructure service available as soon has OpenNet has declared coverage of a building. The Universal Service Obligations from both OpenNet and Nucleus Connect will begin from Jan2013

2.3 Primary Care Partnership Scheme(PCPS)

Overview

Primary Care Partnership Scheme is an online claim submission and validation system for the hospitals, specialty and primary health care clinics under the National Heath Care Group

throughout Singapore

With more than 40,000 claims being submitted each year, the challenge is to automate the claims submission and validation process via a web-based interface, to provide easy access of the Primary Care Partnership Scheme to over 300 primary healthcare, dental and private clinics.

CrimsonLogic's robust, scalable and flexible PCPS (Primary Care Partnership Scheme) system enables primary healthcare, dental and private clinics to perform online claims submission, patient validation and validation of claims.

Integrated with an authentication mechanism and the Clinical Management System (CMS), clinic administration, validation and enquiries can be performed real-time online. Claims validation and submission can be processed in one month, hence cutting down the processing time by more than 50%.

2.4 Inland Revenue Interactive Network

After a comprehensive corporate strategic planning exercise, the Inland Revenue Authority of Singapore (IRAS), the government agency that handles the Lion City's tax administration, shifted to a new organisational structure in 2004.

In conjunction with the re-organisation, a new IT core system called the Inland Revenue Interactive Network (IRIN) Program was built to enable and support this new structure. The project won IRAS the Best Business Enabler-Government prize at the MIS IT Excellence Awards 2007.

There were several issues that the IRAS IT planning group, called the Information System Planning (ISP) Blueprint Study, wanted IRIN to address that the previous infrastructure, the Inland Revenue Integrated System (IRIS), could not. As more and more citizens jumped online due to the proliferation of broadband, IRAS realised that there would be a demand for more tax information from users who access IRAS' portal.

Tax compliance

Tax compliance is another area IRAS wanted to address because this covers a whole range of activities from identifying the people who need to pay, to paying the right amount of taxes, on time. Data mining also helps IRAS to discern tax payment anomalies.

These challenges derived from a key limitation of the previous IRIS where tax processes were hard-coded. When IRAS has to change the Goods and Services Tax (GST) rates, or tax specific groups of people, the engineers have to painstakingly 'rewire' the coding. The IRIS did not have the practical flexibility to cope with the strategic changes in IRAS' business.

Magnificent seven

To match the requirements of the new IRAS, an implementation approach, comprising of seven projects under IRIN that focus on IRAS' core capabilities, was conceptualised by the ISP planners. The team comprises of personnel from IRAS' in-house IT team and vendors including Accenture, Avanade and National Computer Systems.

These seven applications in IRIN cover more than 90 per cent of IRAS' business processes including tax processing, operational and analytical reporting, online services, customer relationship management (CRM), knowledge management and even enforcement of tax compliance.

First-hand knowledge

More than 200 of users were immersed into the project full time, giving the project team business and operations knowledge first hand. To minimise any effects on the day-to-day operations at the business divisions, an almost equivalent number of contract staff were recruited to fill the vacated posts.

Subsequently, process changes were addressed through a two-step training approach that ensures targeted user training and encouraged building of in-house expertise. The first stage involved 'train-the-trainer' whereby a small group of 'skilled users' from the respective divisions were first trained by functional experts.

These skilled users then delivered training that was scenario-based and incorporated business and operational considerations to the end-users in their respective divisions during 'end-user' training.

This group of skilled users also played a key role in providing support to their fellow colleagues after the system went live.

Better service

Once implemented, IRIN has now helped IRAS improve its service excellence. Examples include a portal that provides self-service access to a comprehensive suite of functions like viewing of account summary and returns status, electronic payments and payment details, as well as proactive processing that establishes income sources and reliefs, simplifying transactions for taxpayers.

IRAS can minimise its contact with taxpayers through 'pre-filled return' or 'no return'. As a result, accuracy is improved due to fewer incorrect or incomplete forms from tax payers. This in turn reduces compliance cost to taxpayers.

For instance, IRAS has managed to identify people who are mainly retirees with minimal sources of income. For this group, IRAS automatically calculates the tax returns.

Taxpayer friendly

Another component that IRIN has, is the taxpayer relationship management layer. This enables IRAS to call up details such as transactions a taxpayer has had, recordings of calls that he has made and the customer service personnel he has spoken to.

Besides having to respond to the high number of taxpayers who want to access IRAS' services through the Internet, IRAS realised that the cost of administration can be reduced by offering more services online.

IRIN was set up to cover all types of tax, from e-filing to account management and payment.

Online information and forms offer more self-service that reduces need for high cost face-to-face channels, letter or phone enquiries. For instance, activities such as requests for manual forms, checking on GST-registered trader details and searching for building and estate names have been put up at IRAS' e-Services portal.

IRIN enables electronic payment such as debit accounts and online payment, thus reducing the number of cash or cheque payments. The IRIN processing engine facilitates pre-filling info and straight-through processing helps reduce errors and processing cost.

According to IRAS, four out of five taxpayers in Singapore filed their taxes online via IRAS' Internet platform myTaxPortal with more than one million people accessing the website.

Profiling risk levels

IRIN uses data mining techniques and other statistical measures to profile risk levels of a taxpayer. With this information, IRAS can be more targeted in its compliance and audit programme, educating and reaching out to potentially errant taxpayer groups.

Additionally, compliance related activities are recorded against taxpayers so the tax officers have an integrated view of taxpayers and can interact accordingly. Also, through enhanced risk modeling and tagging, the IRIN helps to prioritise audit cases for review.

Under IRIN, knowledge management resources from mission critical IRIN applications to personal productivity, webcasting and collaboration tools have been gathered within a single interface for IRAS employees to easily access.

With the component and rule-based architecture of the IRIN system that is more flexible compared to the IRIS, IRAS can now easily implement changes in tax rules and rates without needing to make extensive changes.

Taxpayer history

The first project of the Inland Revenue Authority of Singapore (IRAS), called Taxpayer Relationship Management (TRM), provides a comprehensive view of a taxpayer's interaction

history with IRAS using a customer relationship management (CRM) package.

Data Warehouse allows IRAS to analyse and draw insight from its tax information. It is done through risk profiling, enterprise reporting and ad hoc query tools.

The third, called Compliance Management and Taxpayer Analytics (CMTA), gathers data from the previous two projects for insight into a taxpayer's behaviour and reasons for non-compliance. This allows IRAS to conduct enforcement, audit and investigation activities for tax compliance. Another focus of CMTA is to help capture information that can be used to evaluate the effectiveness of IRAS' compliance strategies.

The core processing (CP) application supports the core functions of IRAS-assessing, administering and collecting tax. Powered by a rules engine and using a component-based design, it is flexible and responds to changes in legislation.

The eServices system powers multiple transactions to customers online. It is tightly integrated with CP, TRM and CMTA to serve as the electronic entry point to all three applications.

Workflow

The Workflow application manages the flow of work between IRAS' business processes and people. Workflow plays a key role in IRAS' ability to achieve operational efficiencies and meet service-level targets. This application is also responsible for determining the appropriate distribution of work to IRAS staff.

Lastly, the ISP planners also included a tool for knowledge management called the Enterprise Knowledge Portal (EKP). The information shared allows IRAS staff to better serve their customers.

2.5 Wireless@SG

Wireless@SG is a wireless broadband programme developed by IDA as part of its Next Generation National Infocomm Infrastructure initiative. It is being run and developed since early 2007 by three local wireless operators who have deployed a wireless broadband network in Singapore. Users can enjoy free, both in-door and outdoor seamless wireless broadband access with speeds of up to 512kbps at most public areas.

The targeted users of this wireless broadband network are broadly classified as "people on the move" -people who require wireless broadband access while away from their homes, schools and offices. These include students, tourists, business travellers and enterprise users such as insurance agents and real estate agents who use widely-available and wireless-enabled devices such as notebook PCs and PDAs. Once connected, users will be able to access all Internet-based services e.g. online gaming, web surfing, instant messaging, VoIP and email.

To connect to the Wireless@SG wireless broadband network, a user just needs a WiFi-enabled device, such as a laptop computer or a PDA, a web browser, and a registered Wireless@SG account. With this registered account, the user is able to roam within any of Wireless@SG's coverage areas, regardless of the operators' network.

Wireless@SG is powered by the network of three wireless operators: iCell, QMax and SingTel. It will be provided free for the first 2 years. Beyond that, the three operators may consider extending the free periods should there be a strong public interest for it.

The number of Wi-Fi hotspots has been progressively bumped up, from 900 when it started, to about 5,000 during the two-year Call-for-Collaboration (CFC) programme. In addition to the free Wi-Fi access, which is considered the "basic tier", there will be a "premium tier" for those hungry for bandwidth beyond 512 Kbps, or for connectivity options with higher-quality of service.

SRI LANKA Progress Report

ICTA

2009 Members Progress Report：SRI LANKA

SECTION I – GENERAL CONDITION UPDATE

1.1 Sri Lanka with a population of19 million is increasingly using information and communication technology in all areas. Communication infrastructure has been improved and Internet accessibility is available even in rural areas

The Information and Communication Technology Agency of Sri Lanka (ICTA) has been mandated by the Government of Sri Lanka with the task of implementing the ICT Development Roadmap and the National Policy on Information Technology of the Government through the 'e-Sri Lanka' initiative in order to take the dividends of ICT to every village, to every citizen, to every business and to transform the functions of Government.

ICTA has been empowered by the Information Communication Technology Act No. 27 of 2003 to implement strategies and programs in both the Government and the private sector and to take all such steps as are necessary to facilitate the implementation of the National Policy on IT. Consequently the Nenasala Program (Wisdom Outlets - National Tele-center Project) was conceived as one such initiative, with the aim of raising Internet penetration in areas within and outside Colombo and to bridge the digital divide.

At present ICTA has set up 600 Nenasalas offering Internet, and email facilities, training and content in the local languages Sinhala and Tamil throughout the island. (www.nenasala.lk). The scope of the Nenasala project covers the entire island.

The objectives of the program are to address the multiple ICT needs of communities, and through the adoption of ICT services to improve the lives of the communities by being able to access the available information and communication services and to contribute towards creating an IT literate society.

1.2 Vidatha resource centers: 246 Vidatha resource centers have been set up by the Ministry of Science and Technology to promote self employment by introducing suitable technologies to the SME sector and for poverty alleviation.   A Vidatha resource center will be established in each divisional secretariat.

1.3 ICT in local languages: Support for standards-based use of IT in Sinhala and Tamil has been available for quite some time. The objective of ICTA's Local Languages Initiative is to ensure that the benefits of ICT are taken to the citizens of Sri Lanka most of whom would, if given a choice, prefer to use ICT in their own languages, Sinhala or Tamil. Standard keyboard layouts, keyboard drivers, Unicode compliant Sinhala and Tamil fonts are now available.

1.4 Government Information Center (GIC): through this initiative, citizens are provided answers to their queries by dialing 1919 or through the website www.gic.gov.lk. The trilingual call center is a single point of contact for information and guidance for citizen services in the government

1.5 Internet security: ICTA has established Sri Lanka CERT (Computer Emergency Response Team): to address cyber security in Sri Lanka, to coordinate protective measures and responses to security attacks on information systems in Sri Lanka.

1.6 e-Laws:

- e-Transactions: The Electronic Transactions Act no. 19 of 2006, which facilitates electronic transactions was enacted in March 2006.

- Computer Crimes: The Computer Crimes Act no. 24 of 2007, enacted in May 2007, provides for the identification of computer crimes and provides the procedure for the investigation and enforcement of such crimes.

- IPR: Intellectual Property Act no. 36 of 2003 which replaced the Code of Intellectual Property Act no. 52 of 1979, contains several new features in relation to the protection of software, trade secrets and integrated circuits.

1.7 Training: Nearly 10,000 government officers have been trained in basic ICT skills, ICT technical skills and in leadership skills under ICTA's ICT Human Resources Development program.

1.8 LGN: 325 Government organizations have been connected under the Lanka Government Network (LGN) project

1.9 ICT facilities have been given to over 300 divisional secretariats in the country. As a result citizens now get better service from those offices.

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 Many organizations use XML documents to exchange data. It is necessary to issue guidelines to all users.

SECTION III – Trade Facilitation / eBusiness / eCommerce Related PROJECT UPDATES

3.1 Sri Lanka Customs has granted electronic lodgment facilities to Customs House Agents aiming at 100% online submission by the end of 2009.

Sri Lanka Customs has initiated actions to upgrade its computer system and the project commenced in August 2009.

3.2 Sri Lanka Ports Authority is also upgrading its computer system in order to provide better facilities to their clients.

3.3 Issuing of Electronic Country of Certificate (ECO) has been further improved by providing on line Customs data to the Department of Commerce so that information can be verified prior to release the ECO.

3.4 Citizens now able to obtain copies of Birth Certificates, marriage certificates etc, from divisional secretariats. The process now takes only 15 minutes.

THAILAND Progress Report

Ministry of Information and Communication Technology

2009 Members Progress Report：THAILAND

SECTION I – GENERAL STATUS UPDATE

Thailand's Experiences on National Plans and Progress Towards Building Information Society

This section presents Thailand's information and communication technology (ICT) situation incorporating the progress made and difficulties faced in the implementation of the outcomes of the World Summit on the Information Society (WSIS) including WSIS goals and targets as contained in the Action Lines C1-C10 of the information society for all peoples. The current issues of quality, policy environment, statistical information and examples of the implementation projects are also addressed in this section.

Current Situation in Thailand in the Implementation of WSIS Outcomes

I. Role of Governments and all stakeholders in the promotion of ICTs for Development (C1)

When the first phase of WSIS took place in 2003, Thailand already adopted and started implementing the first National Information and Communication Technology (ICT) Master Plan (2002-2006) as part of the 10-year policy, ICT 2010.

At present, the Ministry of Information and Communication Technology (MICT) has completely formulated Thailand Second National ICT Master Plan (2009-2013), and will soon submit to the Cabinet for approval.   The 2nd National ICT Master Plan puts in place new policies and sharpens the focus on the development of ICT human resources both quantity and quality and the management of ICT at the national level in accordance with the principles of good governance.

The 2nd National ICT Master Plan vision is to drive the country towards Smart Thailand through ICT. "Smart Thailand" refers to a society that develops and uses ICT in a smart manner and adheres to the principles of the sufficiency economy philosophy. People at all levels of society should be information literate. This leads to benefits for themselves and society as a whole. National ICT should be managed with good governance in order to support the development of a knowledge- and innovation-based society and economy that are sustainable and stable.

Policy Objectives are:

(1) To develop ICT professionals of adequate quantity and quality to meet market demand and personnel in other fields, at all levels, that are knowledgeable, skilled in the efficient use of technology, and information literate, in order to develop Thailand into a knowledge- and innovation-based society and economy that are sustainable and stable.

(2) To develop good ICT governance using the sufficiency economy philosophy. It should emphasize independence, integration, judicious use of resources and participation by all stakeholders, in order to ensure that benefits from development will reach all stakeholders equitably, through using public-private partnerships as appropriate.

(3) To support economic sector restructuring for value creation of goods and services on the basis of knowledge and innovation by using ICT.

(4) To strengthen communities and individuals to access and use information in household and community activities, including seeking knowledge, building wisdom, participating in politics, governance and everyday life, in order to lead to self-sufficiency and poverty alleviation, especially among the disadvantaged, the disabled persons and the elderly.

(5) To build the capacity of ICT businesses and industries by emphasizing on increased domestic value-added, research and development and the use of local wisdom, Thai culture and Thai identity, in order to develop Thailand into a knowledge- and innovation-based society and economy that are sustainable and stable.

With these objectives, the ICT Master Plan specifies 3 principal goals to be achieved within the 5 years timeframe including:

(1) Ensure that at least 50 percent of the population will have the knowledge and capacity to access, create and use information in an information-literate way in order to benefit education, work and everyday life.

(2) Raise the ICT readiness ranking of the country to the top quartile in the Networked Readiness Rankings by 2013.

(3) Enhance the role and importance of the ICT industry in the national economy, by increasing its share of GDP to at least 15 percent by 2013.

In order to achieve the objectives and goals, this Master Plan has devised six development strategies as follows:

Strategy 1:   ICT professionals and Information literate human resource Development

Strategy 2:   National ICT governance

Strategy 3:   ICT infrastructure Development (with emphasis on Broadband development)

Strategy 4:   e-Governance

Strategy 5:   ICT industry Competitiveness

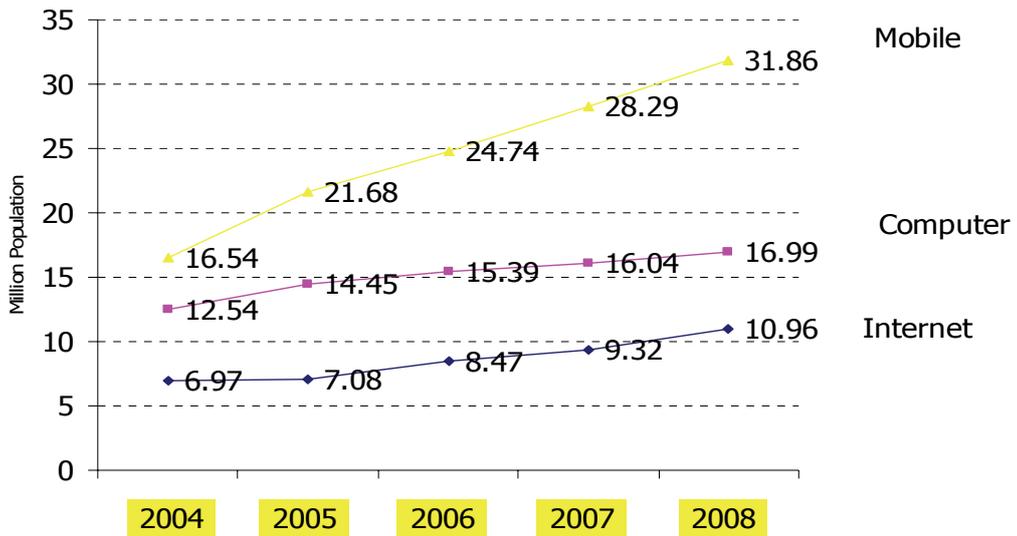Strategy 6:   Strengthening competitiveness of Thai industries through ICT

The 2nd ICT Master Plan recognizes the role of private sector in driving ICT development.   It puts forward the mechanism to strengthen private sector role by establishing an ICT Council, which will serve as the representative of the private sector in coordinating policy and cooperating with the government, in order to mobilize public-private partnerships (PPP).

II. Information and communication infrastructure: an essential foundation for the information society (C2) and Access to information and knowledge (C3)
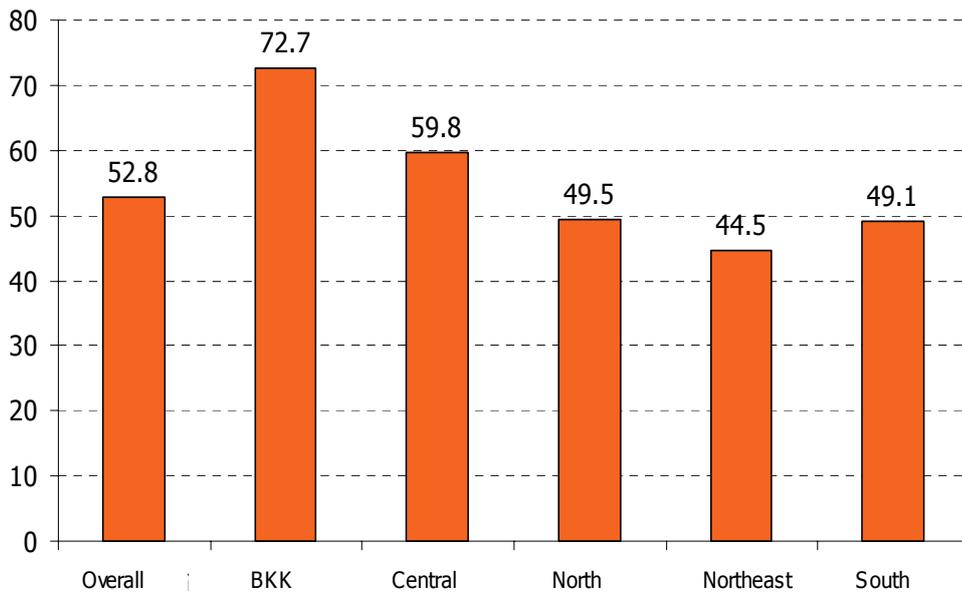
Analysis of Thailand rankings revealed that the main factor holding back the ICT development ranking of Thailand in all indices is the lack of readiness of the information infrastructure, which is still insufficient and has limited coverage. This has constrained the efficiency and effectiveness of developing and using ICT for building up knowledge, developing enterprises, and serving the government.
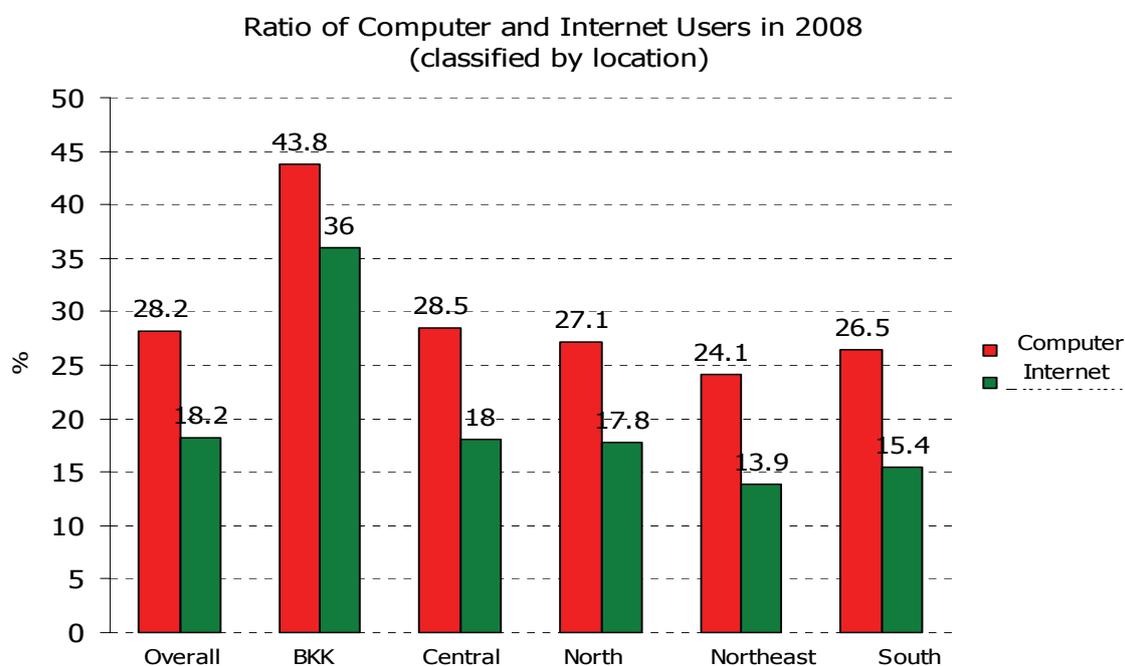
Thai households have high opportunity to access to information via television and radio. In 2004, 93 percent of households have television and 63.6 percent have radios, with the percentage in each region being not so different. The growth rate of distribution of fixed telephones has been declining steadily, with the replacement of mobile phone which increases steadily in usage. In 2008, the national percentage of users of mobile telephones was 52.8 percent, while in Bangkok and the suburbs, it was 72.7 percent, and the provincial usage was between 44.5 and 59.8 percent.

Number of population with ICT access and use

Million Population

Mobile

Computer

Internet

	2004	2005	2006	2007	2008

Mobile: 16.54, 21.68, 24.74, 28.29, 31.86

Computer: 12.54, 14.45, 15.39, 16.04, 16.99

Internet: 6.97, 7.08, 8.47, 9.32, 10.96

Mobile Users Penetration per 100 Inhabitants (2008)

Overall	BKK	Central	North	Northeast	South
52.8	72.7	59.8	49.5	44.5	49.1

**Ratio of Computer and Internet Users in 2008
(classified by location)**

With increasing importance of ICT to humankind, Thailand has taken the issue of building up information infrastructure seriously. Her present constitution (2007, Article 79), indicates that information infrastructure is one of the public utilities that State shall facilitate its provision when delegating powers to local governments for the purpose of autonomy and self-determination of local affairs. Recognizing the important of this issue, MICT has initiated projects to combat the problems as well as putting emphasis on the development of ICT infrastructure in the 2nd National ICT Master Plan. In addition, the 3rd strategy of the second National ICT Master Plan sets goal for high-speed networks with minimum speed of 4 Mbps at a fair price to be rendered to population at large. Educational establishments as well as other learning centers and healthcare service centers are to be connected to Broadband with even higher speed to facilitate multimedia needed for the services. Parallel to the master plan formulation, Thailand has witnessed projects aimed at inducing investment as well as reaching out to the underserved people. Examples of the initiatives are:

a. Backbone Expansion: Quantity and Quality Improvement through new technologies

MICT encourages two state enterprises under its supervision, TOT Public Company Limited (TOT) and CAT Telecom Public Company Limited (CAT), to invest substantially in expanding its broadband services. TOT, for example, is in the process of expanding the

existing core network by using IP technology with a main purpose to unite technology and services; voice, data and multimedia services on a single network based on the Next Generation Network (NGN) platform. This is to enhance the efficiency and flexibility of network management to be convenient in maintenance through a control center and can adequately accommodate a wide array of new and advanced services such as ICT solutions, WiMAX, 3G, etc. This will benefit and enhance network productivity and competitive advantage in multi-services offering and replace the existing outdated fixed-line network and the current IP network. In the future, TOT plans to replace all existing outdated switching equipment with NGN in order to more efficiently provide voice, broadband and video services.

b. Last mile access: reaching the remote areas

MICT pursues a policy to enhance opportunities for members of communities over the whole country to access knowledge and information and communication technology. The policy particularly aims to narrow the digital gap and enable a religious leader, a local leader, and the community members from all age groups to apply knowledge and ICT in their community telecenter, which is established by the ministry, to their day-to-day life in order to improve the quality of life and promote the community development. The Center is to be located at the center of the community, being religious places, government offices, or other places appropriate to the community.

In the first phase, in fiscal year 2007, twenty centers were set up, but the centers expanded quite remarkably during the past two years, taken into account the requests from communities. According to the plan, there will be 266 telecenters being set up nationwide.

Thailand also leaps the benefit of wireless technologies to provide last mile access in remote and specific places. For example, the National Telecommunication Commission or NTC has granted permission for pilot projects to try out the use of Wimax technologies to provide Internet and Broadband access in remote areas. Pilot projects are also conducted by NTC and Mae Fah Luang University in Chiang Rai Province, and by NECTEC (The National Electronics and Computer Technology Center) and JICA (Japan International Cooperation Agency) in association with Mae Hong Son Province.

One main instrument in achieving last mile connectivity is through Universal Service Obligation (USO), notified and supervised by NTC. Following the Notification of USO, the licensees have installed, up to 2008, public payphones in 1,346 villages, fixed lines and payphones in 1,405 local health centers, and 200 telephone numbers in social organizations.

c. The disadvantaged group

As prescribed in the Notification of USO by NTC, the telecom service providers

(licensees) are obliged to operate in accordance with USO condition and provide social services.   Initially, most of the attention on USO services focused on services to remote, underserved geography.   However, there were also services to different targets such as (i) the issuance of telephone cards for the disabled and low-income individual (including the elderly) who have registered with the Ministry of Social Development and Human Security.   It is expected that one million phone cards are to be distributed to the disabled, senior citizens, and low-income citizens within the year 2009.   (ii) The installation of public telephones and facilities for the disabled in accordance with the regulations of the Committee for Rehabilitation of Disabled Persons on the disabled person's equipment or facilities standards, B.E. 2544 (2001).

In 2008, Royal Thai Government by MICT initiated two projects to promote a more equitable society through the use of ICT for the disadvantaged groups. These two projects are: 1) Promote web accessibility for visually impaired Internet users by raising awareness and providing web accessibility training to web site designers according to the Web Accessibility initiative (WAI) of the World Wide Web Consortium (W3C); 2) Provide information technology training sessions to people who are economically and/or physically disadvantaged.

III. Capacity building (C4)

Human capital is the most valuable asset for any country.   Thailand's priorities and effort to equip ICT skills to her population tend to be within educational establishments. The connectivity provided to schools and higher educations has been improved tremendously as illustrated in the following table.

However, as the philosophy of "life-long learning" is embedded in Thai educational reform, there is also the need to extend ICT as a learning tool to those outside the educational establishment.   In this respect, MICT telecenter also plays a major role as learning centers for those in the remote villages.   Yet the infrastructure is necessary but not sufficient if the people do not possess skills to make use of the technologies.   Therefore, in the 2nd National ICT Master Plan, the goal was set to ensure that at least 50 percent of Thai population could have the knowledge and capacity to access, create, and use information in an information-literate way in order to benefit education, work, and everyday life.

Selected indicators in ICT for Education

Description	Basic Education	Vocational	Higher Education
No. of students per 1 computer	14	8	11
No. of teachers per 1 computer	10	5	3
No. of computer labs per establishment	1	5	14
Ratio of establishment with computer lab	72.8	99.3	98.7
Ratio of establishment with computers	99.7	100	100
Ratio of establishment with Internet access	97.2	99.6	100
Ratio of computers which was used for teaching propose	72.6	76	55

Source：Adapted from NSO survey on ICT in education establishment 2007.

In terms of ICT human resources, there has been a continuous expansion alongside the expansion of ICT usage. Presently, Thailand has a growing skilled labor force both in the public and private sector. Graduates in related fields at the tertiary and vocational level are also increasing. Nonetheless, there is still a major shortage of ICT human resources, both in terms of quantity as well as quality, particularly highly-skilled personnel and specialized personnel in various sub-sectors.

As for personnel requirements, there are several studies all pointing in the same direction that Thailand still has a dire need for more ICT personnel. For example, in the software industry, it was forecast that approximately 6,000 highly-skilled technical workers would be needed. The three frontrunners in personnel demand are

1) programmer/software developers,

2) software engineers/software analysts and designers, and

3) database administrators.

In other areas like hardware, the need is also substantial; it is expected that annual demand is more than 20,000 persons on average.

In addition, it was found that although there are increasingly more students interested in studying ICT, with 19,735 university graduates, there is still a problem related to the qualification of these students. From the brainstorming exercise conducted as part of drafting this Master Plan, a number of entrepreneurs are of the view that the ICT curricula of various universities are still lagging behind the rapid change in technology. It has become the burden of businesses to upgrade these students so that they can perform as needed.

IV. Building confidence and security in the use of ICTs (C5)

While the 2nd ICT Master Plan has incorporated the issue of information and network security in its 3rd strategy on Information Infrastructure development, MICT is creating the national ICT Security Master Plan, which serves as the guidelines for organizations, government and private sectors, as well as citizens at large. In addition to formulating policies, progress has been made on the following initiatives.

a) Law Establishment and Enforcement

Thailand's Electronic Transaction Act was already been in place at the time of WSIS Phase I (2003). Since then Thailand has attempted to strengthen its legal infrastructure, resulting in the enactment of the Computer Crime Act in 2007. In accordance with the enactment of the Computer-Related Crime Act B.E. 2550 (2007), MICT has embarked on numerous activities to ensure the enforcement and implementation of the law including:

- The project to raise awareness and understanding of the objectives of the Computer Crime Act as well as the MICT Notification on Traffic Data Log Requirement. Cyber crime awareness and skill levels have been raised through frequent training courses and public seminars organized through the collaborative efforts of multiple government agencies throughout the country. As a result, law enforcement officers and judicial personnel are now more knowledgeable and better equipped to deal with cybercrime cases.

- Another complement project is to survey and evaluate the effectiveness and problems

in enforcing the laws. MICT will then receive recommendations how they can best promote the law compliance.

- MICT, as the Computer Crime Act executor, has appointed highly skilled officers from multiple law enforcement agencies, including the Royal Thai Police, the Department of Special Investigation, the National Intelligence Agency, and MICT itself to act as designated authorities for the enforcement of the Computer Crime Act 2007. Plan to establish special unit to deal with aspects of computer crime is in place. This special unit includes the Computer Crime Surveillance Center, which will work around the clock to monitor and safeguard computer-related crime, and the Computer Forensic Center, which will assist other agencies in the investigation and will develop guidelines/standards for computer-related crime investigation and computer forensic.

- In addition, the Thai Computer Emergency Response Team (ThaiCERT) at NECTEC, has provided IT Audit security, which estimates the risks of the information systems and networks of the organization. The service also sets up the system intrusion tests, in order to detect the system's weaknesses, and estimate the security level of the system. ThaiCERT also analyzes the system's status and recommends the security improvement plans for the organization.

b) Safer Internet Environment for general use and children

ICT Housekeeper Project is to promote safe, positive and ethical use of computer and Internet by providing parents with a tool to manage Internet access and prevent children from viewing inappropriate material. The project also increases awareness to general public of the potential dangers some website and computer games might pose to children and Internet users. The project will also distribute this tool to schools and generate extra activities to disseminate knowledge on how to use the tools effectively.

V. Enabling environment (C6)

The Government has to create a conducive environment for ICT development, ICT usage by society, business, and government service provision as well as for nourishing ICT industry. The 2nd National ICT Master Plan recognizes that Thailand still needs to develop and improve related laws and regulations and their enforcement mechanisms in order to facilitate the use of ICT and the conduct of e-Commerce particularly to accelerate the process of information infrastructure law, data protection law. Achievements have been made in some areas as follows:

- Generating transparent, predictable laws and regulations to ensure free and fair competition, particularly in telecommunication area. NTC has been set up as the first

independent telecommunications regulator. Its duties and responsibilities are to regulate telecommunications services through formulating a Master Plan on Telecommunications Activities, to set criteria and categories of telecommunications services, to permit and regulate the use of spectrum for telecommunications services, and to grant licenses to the telecommunications operators.

- Encouraging the use of ICT to facilitate business transaction by strengthening the enforcement of the Electronic Transaction Act 2001 through developing related laws and regulations. For instance, the Electronic Transaction Commission drafted and proposed a Royal Decree in monitoring and managing e-payment service provider by virtue of Section 32 of the Electronic Transactions Act B.E. 2544 (A.D.2001). The new Royal Decree Governing Control and Supervision of Electronic Payment Service Business (Electronic Payment Services Decree or EPSD) has entered into effect on January 14, 2009. The general purpose of this new law is to introduce an oversight of the electronic debit service business which, prior to the Decree, was not fully addressed by finance company, credit card or banking regulations that already existed. Other law drafting are also in the pipeline such as data protection law and the law to monitor and manage CA providers.

VI. ICT applications: benefits in all aspects of life (C7)

In ICT 2010, Thailand has characterized 5 main application areas where ICT can greatly benefit society and economy: e-Education; e-Society; e-Commerce; e-Industry, and e-Government. A few highlights on progress and projects are as follows:

1) e-government – Thailand has set up the e-government infrastructure under the Government Information Network (GIN) project by setting up network to exchange information among government organizations to keep information under the same standard to enable the government to provide One Stop Service to the public. The government has set up the projects for providing public services for instance, e-citizen project, by this project the government has created a website for all kinds of public services, e-revenue project, by this project enables the people to conduct transaction related to taxes online.

Moreover, Thailand has started the Government Finance Management Information System (GFMIS) to facilitate the administration of the Ministry of Finance and finance function in other ministries. e-Auction system has also been initiated to ensure efficiency and transparency in government procurement. In addition, MICT has set up a project to develop a central e-mail system for all government agencies, emphasizing on the security and safety of the system.

2) e-business – Thailand has supported ICT in business sectors as well by directing

strategies to promote SMEs in her both ICT Master Plans. As for sectoral development, the 2nd National ICT Master Plan emphasis is on tourism, healthcare services, and agriculture.

Currently, Thailand is encouraging more business entrepreneurs and consumers to take up e-commerce. In 2005, the Division of Commercial Electronics, Department of Commercial Development has originated the user of trust mark in e-commerce to create reliability in the consumers. In 2007, the Department of Commercial Development provided online teaching to educate entrepreneurs on how to set up their own website and handle e-marketing to encourage more entrepreneurs to turn to e-commerce.

3) e-education - The 2nd National ICT Master Plan devises mechanisms to promote the use of ICT as a tool for teaching/learning at all levels of the educational system. This include the need to train/develop skills in ICT for teachers in schools so that they can use ICT in teaching various subjects; the need to improve the curriculum at all levels, in order to place an emphasis on the ability to think, analyze, and solve problems, with ICT serving as a tool. Besides, it is necessary to develop electronic teaching materials with appropriate contents for various subjects at all levels and to promote the development of learning centers in schools that are equipped with various electronic media for various subjects and grades. Promoting on-line communities for students as a forum for exchanging knowledge and opinions related with the learning subjects is also encouraging.

A few past initiatives in e-Education should be highlighted. Distance Learning Foundation (DLF e-learning) project, for instance, has started in 2003 under the co-operation of the Department of ICT and communications and the department of Foreign Affairs. The DLF e-learning is a project that support distance learning with its programs broadcasted through satellite for secondary schools all over the country.

4) e-health – For the application of ICT concerning health matters, the government has set up a project to keep patients' records in an electronic form and has linked WAN system between public health centers and other hospitals to integrate information for health centers and to facilitate the exchange of information among them.

5) e-environment – The Ministry of Natural Resources and Environment has set up GIS web portal by using ArcIMS to propagate information relating to the environment to the public through the Internet. Thailand has also waken up to the potential natural disaster after Tsunami. Consequently, the 2nd ICT Master Plan stipulate the measure to allocate ICT budgets to units responsible for warning and managing disasters so they can procure modern equipment to efficiently monitor natural disasters.

6) e-agriculture – Thailand considers agriculture an important foundation of the country's development. MICT has cooperated with the Ministry of Agriculture and Cooperative and

the Ministry of Foreign Affairs in using ICT to develop agricultural sectors. The website, www.ekaset.net, has been set up as a center to provide agricultural knowledge and information.

VII. Cultural diversity and identity, linguistic diversity and local content (C8)

The Ministry of Culture has planned for management of information on knowledge relating to religions, arts and cultures using information technology to develop its database system for information providing services and public relations. It has created websites to disseminate religions, arts and cultures to kids, youths, and people. The Ministry of Culture also has a project to develop or manage database about laws relating to the Ministry of Culture and publish it on the Internet enabling people and government agencies to access such information.

The Thailand Knowledge Center (TKC) has been set up by MICT that collects, compiles and disseminates local community knowledge on its website. TKC is currently under content development phase to provide more diverse contents. MICT has been assigned to provide books relating to ICT in foreign languages to be translated into Thai language to promote learning without language barriers and to support the writing of new books. There is also a plan to develop websites for gathering the translated content including the new written books so that people can access to such content more conveniently.

NECTEC has conducted research and development in multilingual machine translation, created the LEXiTRON website which is an online Thai-English and English-Thai dictionary. The program can be downloaded from the website. In addition, NECTEC has developed the ParSit program that can translate English website into Thai. Both LEXiTRON and ParSit are available free of charge. Moreover, there are some projects that the government agencies are cooperating with people of local communities to enable them to use and benefit from the use of their traditional knowledge.

VIII. Media (C9)

Media has a central role in dissemination of information and knowledge without border. In the technological convergent environment, media can provide the info through various means and channels, being traditional broadcasting technologies or new ICT. Hence, there is a need for new regulatory regime for all content providers regardless of the technology they use. In accordance with Section 47 of the new Constitution of Thailand B.E. 2550, a single independent regulatory body shall be established to regulate both telecommunications and

broadcasting services. To respond the requirement of the Constitution, the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunication Services B.E. 2543 (2000) is to be revised, and it is now under the process of consideration by the House of Representatives.

In support of the establishment of the single independent regulatory body or be named "The National Broadcasting and Telecommunications Commission" (NBTC), the Broadcasting and Television Act has been published in the Royal Gazette on March 4, 2008. The preparation before taking the new role, the Office of the NTC has set up a committee on Broadcasting and Television and four sub-committees to study, compile, analyze and submit proposal for consideration by the Commission.

There are a number of government agencies and associations responsible in reviewing and ensuring that all contents are appropriate before broadcasting them on any kinds of media. For instance, the White Media Association coordinates with government agencies, mass media agencies, organizations including the public in creative media productions and consumption. The Thai Webmaster Association promotes webmaster professionals and upgrades quality of its members in all aspects including the information technology, academic and ethic by emphasizing on training and educating people to create websites with appropriate contents.

IX. Ethical dimensions of the Information Society (C10)

To prevent misuse of information technology, to protect privacy and to promote personal rights, Thailand has enacted the Computer Related Crime Act 2007 and is working on the draft of Data Protection Act that will make both operators and end-users to aware of how to rightly and morally use of ICT. In addition, government agencies and private sectors are aware that it is important to control the access to websites that may affect people ethics. Therefore, they have organized projects aiming to reduce such problems e.g. Clean Internet dial up service, organized by CAT Telecom Public Company Limited, providing services that screens websites connecting through its dial-up system preventing the users from entering into websites that contain inappropriate content; the House Keeper project, organized by the MICT a project developing software to prevent linking to inappropriate websites by screening inappropriate content, pictures and media which is downloadable free of charge; Cyber Inspector, a project of the MICT focuses on promoting proper and safe Internet usage.

Nevertheless, the best way to prevent any unethical use of ICT is to educate users. Therefore, in the 2nd National ICT Master Plan the ICT curriculum in schools has shift towards teaching the ethics of using ICT as part of the required curriculum at all levels. This, in effect, contributes to building up information literacy among Thais.

Conclusion and Recommendations

In overview, Thailand has implemented many projects that are in line with WSIS outcome in every Action Line. Since the outcomes of WSIS are concerned with all agencies, not only public sector but also private and civil society sector, there needs to be encouragement at the policy level for ideas concerning WSIS to be incorporated into the procedure of formulating a strategic plan for the development of information systems of all ministries as well as all associated agencies. In terms of international and regional cooperation, the government should urgently create and implement policies and seek international cooperation on infrastructure development projects to promote ICT access and awareness of ICT benefit. The government should coordinate within the region to reduce technological gap between developed and less developed areas and to strengthen ICT at the regional level. In addition, the government should help both national and international organizations in promoting the use of existing ICT equipment in projects supporting the goals of WSIS.

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 Thailand e-Government Interoperability Framework (TH e-GIF)

In response to the government's directive in promoting cost-efficient exchange of information and linked-up services between applications of different platforms for citizens, Ministry of Information and Communication Technology (MICT) has completed the preparation of Thailand e-Government Interoperability Framework (TH e-GIF). The framework aims to provide contractors commissioned to develop software solutions for government agencies with a set of guidelines that forms a basis of interoperability among applications in respect to process, data, and technical communication protocol.

Thailand e-Government Interoperability Framework comprises of two major parts. While the first part deals with managerial aspect of applications integration and development, the second part provides a set of common rules that guides different phases of application development from the elicitation business requirements in terms of process and information to the derivation of XML Schema from information model. The common rules are based on internationally-accepted standards. They include:

– UN/CEFACT's Modeling Methodology for an analysis and modeling of process and

information requirements

- UN/CEFACT Recommendation No. 34 on Data Rationalization and Standardization for International trade as a guideline for aligning data elements used within and across information domain

- UN/CEFACT Core Components Technical Specification (ISO 15000-5) for the construction of information model

- UN/CEFACT XML Naming and Design Rules for transforming CCTS-based information model to XML schema

Technical specifications including communication protocol and security measure required to ensure secure and interoperable exchange of information as well as organizational mechanisms for the management of Thailand e-Government Interoperability Standard have also been attached to the latter part.

Since TH e-GIF has been launched, MICT had initiated the electronic document transaction using cross platform interconnection system as a pilot task based on   TH e-GIF standard to facilitate the governmental business. At present, MICT is in the third phase which has developed TH e-GIF standard in many categories e.g. Public Health, Labour, Commerce etc.

SECTION III – e-Readiness and e-Application -- eGovernment/eBusiness Related PROJECT UPDATES

3.1 The e-Government Interoperability Project: A Case of Official Electronic Correspondence Letters Exchange between Heterogeneous Software Products in Thailand

In Thailand, since 2006, many government departments have developed and utilized Electronic Correspondence Letters Management System called "e-CMS" in order to store and manage official correspondence letters communicating among them. However, the e-CMS systems had been unable to electronically interoperate across the departments. To achieve the interoperability, the project was proposed. It aimed to accomplish an interoperable electronic exchange of official correspondence letters among legacy e-CMS systems. The project involved 29 ministerial departments and 15 software vendors with more than 15 different e-CMS software products. The heterogeneous applications were developed from various software technologies, including .NET, JSP, ASP and PHP. The project required processes of data harmonization, modelling and standardizations using a number of

UN/CEFACT specifications, UMM, CCTS and XML NDR, and other international standards based on Thailand e-Government Interoperability Framework (TH e-GIF). TH e-GIF was established in November 2006 as a national guideline of interoperability achievement. The framework comprises a collection of technical standards, methodologies, guidelines and policies.   In the project, a data standardized set and XML schema standard of e-CMS were developed by experts from many ministerial departments and software vendors using the techniques guided in TH e-GIF. The XML standard has been defined as the first national XML schema standard. Regarding the interoperability systems, in stead of re-designing the whole e-CMS software which is time-consuming and expensive, the project designed and developed extended software modules based on web service technology to the legacy systems. All the systems are connected over a Thai government network called "Government Infrastructure Network (GIN)" with security applications using the techniques such as SSL, XML encryption and XML signature.

3.2 The Establishment of National Root CA

At Present, Electronic Transaction is the key form of rapid information exchange. It has played a significant role in exchanging information between parties in both government and private sector. The utilization of electronic transaction can be witnesses through a number of on-line business transactions, online stock exchange, and so forth.

However, the Internet threats which may occur during the transaction could harm the information, as a result, damaged the business and government operation. The Public Key Infrastructure (PKI), an emerging technology to protect information from intruders by making data confidential and to authenticate person, is a solution to this kind of threats.

The Certification Authority (CA) is a trusted third party that issue certificates to confirm and authenticate the person from real world to cyber world. However, certificate users may face some communication problems if one party using certificates from a CA provider that different from others parties so it could not be recognized.

Therefore, the Trust Model System has been adopted in order to solve this issue. Each CA provider will be certified by other high-level CA in a hierarchical form, and the top-most CA provider is called the Root CA. Furthermore, The Electronic Transaction Commissions who acts and regulates electronic transaction policies in Thailand has agreed that the hierarchical trust model is suitable for Thailand.
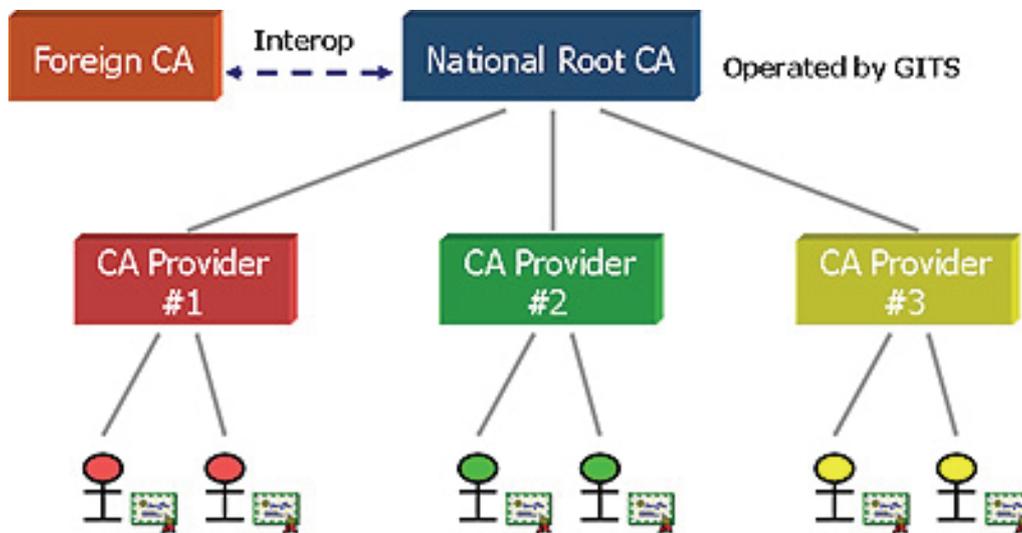
Trust Model in Thailand

Source：Ministry of Information and Communication Technology

National Root CA (NRCA) is aimed to interoperable between certificates issued by different CA providers, promote reliability, and reduce complexity for electronic transactions in both domestic and international domain.

NRCA can be assumed as a critical infrastructure that urgently needs to develop. Currently, NRCA is set up by the Government Information Technology Services (GITS), which have been appointed by the Ministry of Information and Communication (MICT), to operate this project.

3.3 Thailand Single Window e-Logistics

Recognized as a means to promote trade efficiency and national competitiveness, Single Window e-Logistics has been prioritized as one of the national agenda since 2003. Several projects have been going on implementing to affirm Thailand's commitment in accomplishing the ASEAN Agreement and Protocol to Establish and Implement ASEAN Single Window.

Viet Nam Progress Report

Ministry of Industry and Trade (MOIT)
Viet Nam E-Commerce and Information Technology Agency (VECITA)

2009 Members Progress Report：Viet Nam

SECTION I – GENERAL CONDITION UPDATE

1. Making policies on E- commerce

Promulgation of legal texts under the Law on Electronic Transactions and the Law on Information Technology: The current legal system governing electronic transaction in Vietnam is constructed around two pillars, the Law on Electronic Transactions 2005 and the Law on Information Technology 2006. The former has laid the legal foundation for electronic transactions by recognizing the legal effects of data messages and giving detailed regulation for electronic signatures – the element to ensure the reliability of data messages. The Law on Electronic Transactions mainly regulates electronic transactions in state agencies and business, commerce, and civil relationships. On the other hand, the Law on Information Technology is composed of basic provisions on the application and development of information technology and measures to develop the infrastructure for these activities. Combined together, these two laws regulate almost all elements related to the use of information technology and e-commerce in socioeconomic activities in Vietnam.

In 2006 and 2007, four decrees guiding the implementation of the Law on Electronic Transactions were issued, namely the Decree on E-commerce, the Decree on Digital Signatures and Digital Signature Certifying Services, the Decree on Electronic Transactions in Finance, and the Decree on Electronic Transactions in Banking. In addition, the promulgation of the Decree on the Use of Information Technology in State Agencies and the Decree on Anti-spam, which guided both the Law of Electronic Transactions and the Law of Information Technology, has contributed to sufficing the legal framework for developing electronic transactions in some of the essential areas of socio-economic activities.

The decrees on e-commerce, electronic transactions in finance, and electronic transactions in banking focus on guiding the implementation of the Law on Electronic Transactions in the aspect of "data messages", by specifying elements of the legal effects of data messages in commercial, financial and banking activities. The Decree on the Use of Information Technology in State Agencies and the Decree on Anti-spam have provided detailed guidance for some specific areas of electronic transaction application. The Decree on Digital Signatures has formed the legal basis for the development of digital signatures and digital signature certifying services – the prerequisites for developing electronic transactions on a mass scale.

Law	
29/11/2005	Law on Electronic Transactions
29/6/2006	Law on Information Technology
Decrees to provide guidance on law	
09/6/2006	Decree No. 57/2006/ND-CP on E-commerce
15/2/2007	Decree No. 26/2007/ND-CP guiding the implementation of the E-transaction Law on digital signature and C/A services
23/2/2007	Decree No. 27/2007/ND-CP on electronic transactions in financial activities
08/3/2007	Decree No. 35/2007/ND-CP on electronic transactions in banking activities
10/4/2007	Decree No. 64/2007/ND-CP on information technology application in State agencies
13/8/2008	Decree No. 90/2008/ND-CP on anti-spam
28/08/2008	Decree No. 97/2008/ND-CP on the management, provision and use of Internet services and electronic information on the Internet

12/04/2007	Decision No. 51/2007/QD-TTg by the Prime Minister approving the Program on the Development of Vietnam Software Industry towards 2010
23/04/2007	Decision No. 55/2007/QD-TTg by the Prime Minister approving the list of priority industries and spearhead industries for the 2007 - 2010 period, vision towards 2020 and a number of incentive policies for these industries
03/05/2007	Decision No. 56/2007/QD-TTg by the Prime Minister approving the Program on the Development of Vietnam Digital Content Industry towards 2010
28/05/2007	Decision No. 75/2007/QD-TTg by the Prime Minister approving the Master Plan on the Development of Vietnam Electronic Industry towards 2010 and Vision for 2020
07/07/2007	Directive No. 07/CT-BBCVT of the Ministry of Post and Telecommunication on Strategic Orientation for the Development of Vietnam Information and Communication Technology in the 2011 – 2020 period ("Take-off Strategy")
26/10/2007	Decision No. 05/2007/QD-BTTTT by Ministry of Post and Telecommunication approving the development planning for Vietnam IT human resources towards 2020
24/03/2008	Decision No.43/2008/QD-TTg by the Prime Minister approving the Plan of Information Technology Application in State Agencies

□**Table 1.1 : E-commerce - related policies**

Handling of violations	
10/4/2007	Decree 63/2007/ND-CP on administrative sanctions for violations in information technology
16/01/2008	Decree No 06/2008/ND-CP on administrative fines in commercial activities
Circular guiding the implementation of some provisions in decrees	
21/7/2008	Circular No. 09/2008/TT-BCT guiding the E-commerce Decree regarding information supply and contract conclusion on e-commerce websites
15/9/2008	Circular No. 78/2008/TT-BTC guiding the implementation of Decree No. 27/2007/ND-CP of February 23, 2007 on e-transactions in financial activities
Draft	Circular guiding electronic transactions in securities trading

□Table 1.2：**Legal texts stipulating the handling of trading fraud and unlawful competition in E-commerce**

At present, handing acts of trading fraud and unlawful competition in e-commerce is mainly based on the following legal texts":

- Criminal Code 1999;

- Law on E-Transaction 2005;

- Information Technology Law 2006;

- Decree No 63/2007/ND-CP stipulating administrative penalties in the information technology area;

- Decree No 06/2008/ND-CP stipulating administrative penalties in trading activities;

- Decision No 71/2004/QD-BCA on ensuring safety and security in providing and using Internet services in Vietnam.

However, all the above legal texts help only to identify criminal acts, not to define penalty frame for criminal acts over the Internet. Therefore, investigation agencies still face difficulties in handling criminals even when the subject and act of crimes have been already identified.

2. Educational institutions are stepping up E-commerce teaching

To evaluate the current situation of e-commerce training and education after three years' implementation of the Master Plan, and to make recommendations on promoting the teaching in the remaining two years of the Plan, the Ministry of Industry and Trade has conducted comprehensive survey of universities and colleges across the country.

The survey results showed that by the end of 2008, 49 educational institutions taught e-commerce (30 universities and 19 colleges). Of the 30 universities, one already established the faculty of e-commerce, 19 assigned the teaching task to the department of economics and business administration, 10 assigned it to the department of information technology, and 8 taught e-commerce as a module. Of the 19 colleges, one already established the faculty of e-commerce, 9 assigned the teaching task to the department of economics and business administration, 9 assigned it to the department of information technology and 3 taught e-commerce as a module.

＜**Figure 2.1：Number of institutions teaching e-commerce over the years**＞
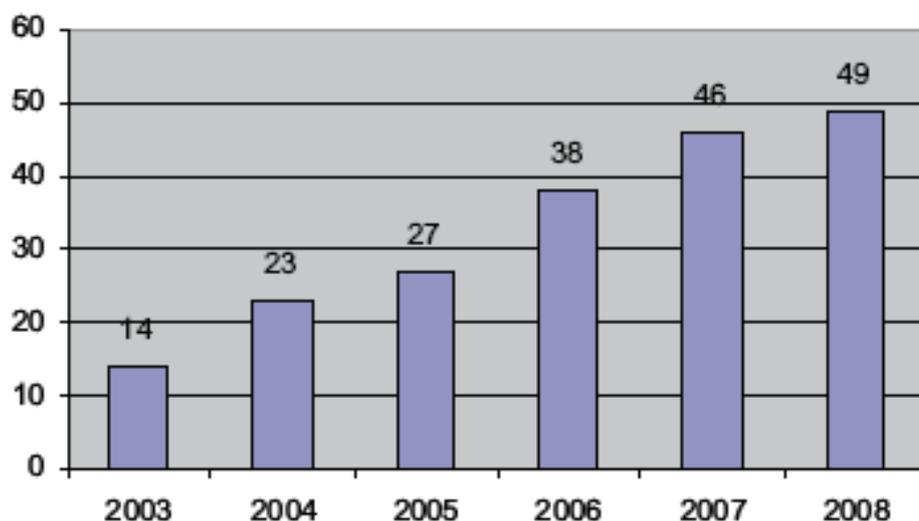
Regarding the teaching plan for the coming time, 33 out of 108 surveyed institutions plan tointroduce e-commerce major and 52 plan to start teaching e-commerce in the near future.

3. Many agencies and localities started to develop online public services

One of the targets set out in the Master Plan is "By 2020, government agencies shall have offered all public services online, of which the priorities are such services as taxation, customs, procedures for imports and exports, investment and business registration related procedures.

During the first three years' implementation of the Master Plan, ministries and agencies have actively engaged in and achieved positive outcomes for a number of important public services such as electronic customs, electronic tax declaration and clearance, electronic certificate of origin issuance, and e-commerce application in public procurement. The Ministry of Finance started to conduct the project on e-customs in 2005 and so far, such objectives as shortening the time for customs clearance and reducing the paperwork have been met. The percentage of exports done through e-customs has increased over the years, from 8% of total exports revenue in 2006 to 16% in 2007 and 17.5% in the first nine months of 2008.

One of the outstanding achievements in providing online public services is the System of electronic certificate of origin issuance by the Ministry of Industry and Trade (eCoSys). It started in early 2006 to help exporters reduce costs and improve their competitiveness. By 2008, eCoSys had been operational nationwide. Any business in need of preferential CO for their exports can apply via the electronic CO system of the Ministry of Industry and Trade, without being present in person as before.

4. Electronic payment continued its rapid growth

While 2007 was seen as marking the rapid takeoff of electronic payment, 2008 is the year of robust and solid development. Regarding the national payment system, after years of preparation, the State Bank of Vietnam officially kick started the interbank electronic payment system phase II on 8 November 2008.

Currently, more and more members are being admitted and the coverage of the system is being expanded. It is expected that the system will be operational across the country in the second quarter of 2009. Once completed, it will be able to process 2 million transactions per day, improving the payment quality and capital liquidity of the economy.

Card payment services also had a sound year of development. By the end of 2008, 39 banking institutions had issued 13.4 million payment cards, up by 46% compared with 2007. There were 7,051 ATMs, up by over 46% against the year before, and more than 24,000 POS. The payment systems of the two biggest card payment alliances, Banknetvn and Smartlink, which account for more than 90% of the card payment market share, have now been linked together.

In 2008, thanks to the dynamics of banks and enterprises, a variety of electronic payment services were born. The number of e-commerce websites providing online payment rose dramatically from only a few in 2007 to over 50 in 2008. These websites are owned by companies in different business areas such as banking, air transportation, tourism, retailing, etc.

According to the State Bank of Vietnam, together with the rapid development of non-cash payment services, the proportion of cash in total payment methods has decreased to 14% by the end of 2008, as compared with 18% in 2007. It can be foreseen that thanks to the robust development of electronic payment facilities and non-cash payment services in 2008, the 2009 - 2010 period shall witness drastic transformations of the payment area in Vietnam.

In addition to the above 5 major features, ministries and agencies have introduced a range of policies to promote science and technology application for practical purposes, encourage enterprises to invest in technology and utilize common standards, especially electronic data interchange (EDI and ebXML), in e-commerce. The third chapter of this Report will present an overview of the establishment, dissemination and application of e-commerce-supporting technological standards in enterprises of different sectors.

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 OVERVIEW

2.1.1 Establishment and popularization of e-commerce support technology standards

Awareness of the importance of e-commerce applications development to exchange information and data in trading activities facilitation and management, as of 2000, Vietnam businesses in many sectors started to establish business network combined with electronic data interchange applications according to international standards or standards that were defined by businesses themselves. However, in recent years, State management agencies have only further focused on establishment and popularization of e-commerce standards to improve awareness for managerial staffs and provide technical implementation support for many business types.

From 2002 until now, Ministry of Science and Technology with the mission of state

Viet Nam

management agencies in formulating e-commerce standards has formulated, promulgated and popularized many set of standards related to e-commerce sector, including standards related to trade data interchange, electronic data interchange for administration, commerce and transport (EDIFACT), data elements and interchange formats, XML schema definition, information processing, etc…including:

- TCVN ISO 7372:2003, Trade Data Interchange – Trade Data Element Directory.

- TCVN ISO 9735:2004, Electronic Data Interchange for Administrative, Commerce, and Transport (EDIFACT).

- TCVN ISO 8601:2004, Data Elements and Interchange Formats – Information Interchange – Representation of dates and times.

- TCVN ISO/TS 20625:2002, Electronic Data Interchange for Administrative, Commerce, and Transport (EDIFACT) – XML Schema Definition based on recommendations of EDIFACT.

- TCVN ISO 14662:1997, Information Technology – Open-EDI reference Module.

- TCVN ISO 6093:1985, Information Processing – Representation of numerical values in character strings for information interchange.

- TCVN ISO/TS 150000 ebXML: 2006 – Electronic business Extensible Markup Language.

- TCVN 7789 (part 1-6):2007: Information Technology – Metadata Repository.

To improve comprehensive Information and Technology (IT) application in State agencies, Ministry of Information and Communication promulgated Decision 19/2008/QD-BTTTT dated 09/04/2008 stipulating IT application standards in State agencies and Decision 20/2008/QD-BTTTT dated 09/04/2008 promulgating IT application standard directory in State agencies in which there are many standards related to e-commerce sector under the group of data integration, information access and data specification.

Ministry of Finance and State Bank promulgated many legal texts guiding businesses unanimously use IT standards that are applicable to the sectors of card payment, inter-bank international transfer (such as ISO 8583, SWIFT) and information integration and interchange (based on XML foundation). Ministry of Finance also promulgated many legal texts guiding IT performance and application in customs activities (The Decision No. 50/2005/QD-BTC dated 19/07/2005 by Minister of Finance stipulated pilot implementation process of electronic customs procedures for import and export cargoes, official letter 3339/TCHQ-HDH of General Department of Vietnam Customs dated 19/08/2005 guided e-customs procedures and processes, The Decision No. 1447/QD-TCHQ dated 23/02/2007 promulgated temporary regulations on formatting a number of remote e-customs declarations for customs information system). Presently, electronic data interchange from local customs departments to General Department of Vietnam Customs

focused on web/Internet and traditional XML foundation. With the objectives of modernizing customs activities and harmonizing with international standards, General Department of Vietnam Customs have studied WCO and EDIFACT electronic data interchange standards to implement in the near future.

The Ministry of Industry and Trade began establishing and implementing electronic certificate of origin issuing system (eCoSys) since 2006. Previously, eCoSys was developed based on web/Internet and traditional XML. In 2008-2009, Ministry of Industry and Trade studied, established and promulgated the National technical regulation on electronic data interchange for issuing certificate of origin. This national technical regulation applied to agencies issuing electronic certificate of origin (eCO), agencies and individuals using eCO issuing service and value-added network companies. In addition, this regulation also stipulated technical processes and criteria related to electronic data interchange methods for issuing eCO that were managed or authorized to manage by Ministry of Industry and Trade, including initiation, implementation, control and supervision of electronic data interchange transactions for issuing eCO. This regulation application will better support for State agencies in managing import and export digital data and gradually facilitate transborder trade activities based on connection with eCO issuing systems of other countries in the region and the world according to advanced technology standards – EDIFACT of United Nations.

Besides the above technology standards, a number of agencies and businesses in the sector of finance – banking, communication – information technology, industry, trade and service also established, promulgated, and used IT standards that applicable to the sectors of information interchange, card payment, international transfer and system integration (such as XML, ISO 8583, SWIFT, etc…).

2.1.2 E-commerce support technology standard application

In 2008, Vietnam E-commerce and Information technology agency (VECITA) conducted survey of about 50 agencies and enterprises through interviews and questionnaires. The content of the survey focused on evaluating e-commerce support technology standard applications in agencies and enterprises. Below is the general assessment of e-commerce support technology standard applications of surveyed enterprises.

Although ministries, industries have actively deployed technology standard establishment and popularization to serve e-commerce application establishment for State management agencies and businesses, the result of survey showed that the awareness of e-commerce common standards are still low. 43.5% of 50 surveyed agencies and businesses knew those standards, 56.5% did not. Especially, the percentage of experts who know thoroughly e-commerce standard definition on electronic data interchange only accounts for 3-4% of respondents.

Although the e-commerce technology awareness of business alliances is still low, a number of large enterprises have quickly approached and deployed e-commerce technology applications to business and manufacture activities. 72.9% of survey agencies and businesses applied e-commerce support technology standards. After a period of developing and operating, up to now some e-commerce application information systems were implemented effectively by businesses. From the first experience and success, businesses have continuously promoted the system improvement and upgrading through technology system upgrading projects, or new construction and investment projects.

Lists of surveyed State agencies and businesses on e-commerce support technology standard application

No.	Agencies, Business
	State Agencies
1	Ministry of Industry and Trade
2	Ministry of Science and Technology
3	Ministry of Finance
5	Ministry of Information and Communications
6	State Bank of Vietnam
7	General Department of Vietnam Customs
	Sector of Transportation
8	Vietnam Airlines
9	Port Authority of My Tho Province
10	Port Authority of Ho Chi Minh City
11	Haiphong Port Holding Limited Liability Company
12	Haivan Transport and Travel Limited Company
	Sector of Finance and Banking
13	Vietnam Commercial Bank
14	Bank for Investment and Development of Vietnam
15	Saigon Thuong Tin Commercial Joint – Stock Bank
16	Indochina Bank
18	Ho Chi Minh City Stock Exchange
19	Hanoi Securities Trading Center

20	VCBS securities company
21	Vietnam National Financial Switching Joint – Stock Company (Banknetvn)
22	SmartLink Card Service Joint – Stock Company
23	Capital Securities Company
24	TrangAn Securities Joint – Stock Company
25	RongViet Securities Joint – Stock Company
	Sector of Communications and Information Technology
26	Viettel Corporation
27	Vietnam Computing and Electronic Company
28	Lacviet Computing Corporation
29	Vietravel Company
30	VTC Intecom company
31	Vietnam Association of Software and Communication
32	Hoang Minh Technology Joint – Stock Company (SANOTC)
33	PeaceSoft Solution Company
34	Technological Application and Production company
35	Vietsoftware Incorporation
36	Opportunity Solution and Business Joint – Stock Company
37	Cantho Software Park
	Sector of Manufacture and Retail Distribution
38	Vietnam Steel Corporation
39	Vietnam Tobacco Corporation
40	Hanoi Beverages Corporation (HABECO)
41	Saigon Beverages Corporation (SABECO)
42	Education Publishing House
43	Unilever Joint – Venture Company of Vietnam
44	Honda Limited Company of Vietnam
45	Toyota Limited Company of Vietnam
46	Yamaha Motor Limited Company of Vietnam
47	Hanoi Synthetic Paint Joint - Stock Company
48	Hong Ha Stationary Joint – Stock Company

Currently, businesses are quite interested in applying advanced technology standards to modernize business processes and improve distribution processes. E-commerce support technology standard application of agencies and businesses serves various targets. The result of survey showed that 27.8% of surveyed enterprises mainly apply technology standards to provide information for online transactions with partners. E-commerce support technology standard applications to modernize business information systems such as accounting – finance data processing, customer relationship management, warehouse management, or resource planning were applied with quite equal proportions fluctuating between 10-16%. The result of survey reported that 10.1% of businesses apply standards to online payment according to the common development tendency of payment system via Internet, this number will have highly increased over the next s. Since the awareness and capability of deploying e-commerce support technology standard applications to professional activities are still low, small and medium enterprises mainly apply these standards to promote advertisement, business and information presentation on their websites.

Purposes of e-commerce support technology standard applications

No.	Application purposes	Rate
1	Online transaction information Management	27.80%
2	Accounting and Finance Management	15.90%
3	Customer Relationship Management	12.70%
4	Warehouse Data Management	11.30%
5	Online Payment	10.10%
6	Resource Planning	9.50%
7	Supply chain Management	4.80%
8	Other	7.90%

E-commerce support technology standards have been applied in enterprises including:

– XML standard

– International standards related to electronic data interchange (such as EDIFACT standards, GS1, ISO 8583, SWIFT, and ISO 9735).

– Other data processing standards.

Now, 48.3% of surveyed businesses reported that they apply XML and other standards based on XML foundation, all these standards were established and promulgated by businesses themselves. XML – extensible markup language can meet requirements on

structured business data interchange among business data bases; it therefore became popular standard, useful tool to help electronic data and document transfer more conveniently. Moreover, XML simplifies data integration and interchange between different computer systems, especially systems connect to Internet, and consequently XML is applied universally in e-commerce application activities.

Besides using XML, many Vietnam businesses have built and promulgated their own standards; others applied international popular standards such as EDIFACT, GS1, etc…

＜**Picture 2.1：The Percentage of e-commerce technology application in businesses**＞
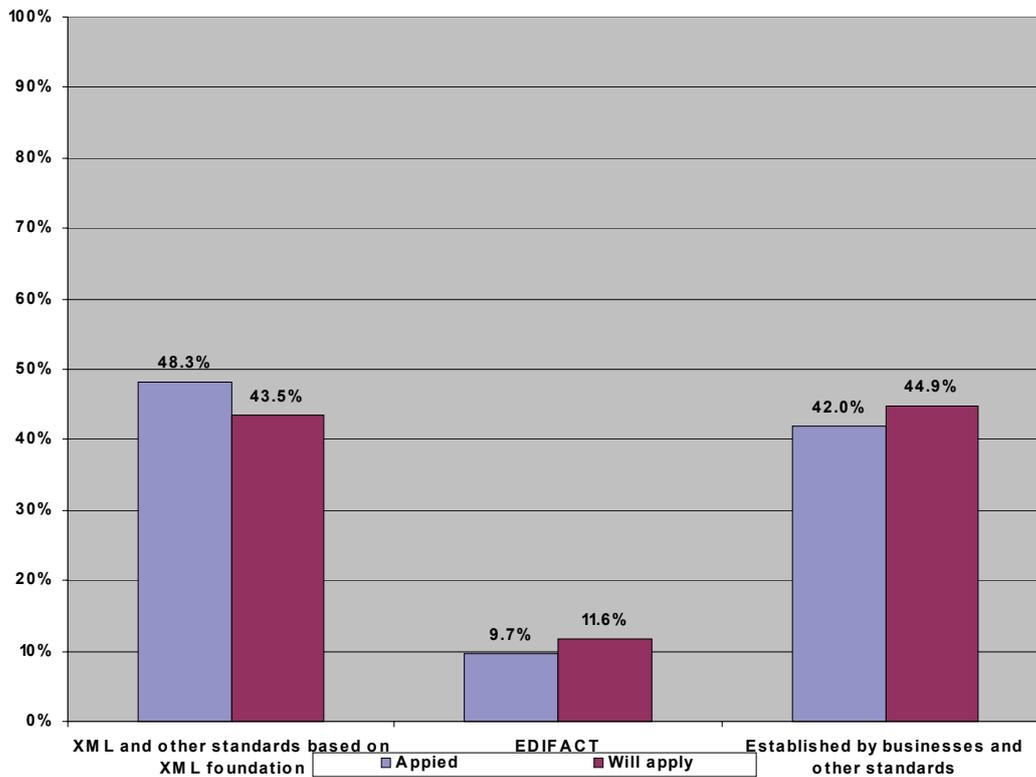
About the e-commerce support technology standard deployment, businesses currently applied by deploying by themselves or co-operating with domestic and foreign partners. About 75% of surveyed enterprises showed that e-commerce support technology standard application mainly received technology transfer from overseas, 20% used technologies that were developed by domestic companies, 5% self-deployed.

Methods of e-commerce support technology standard applications
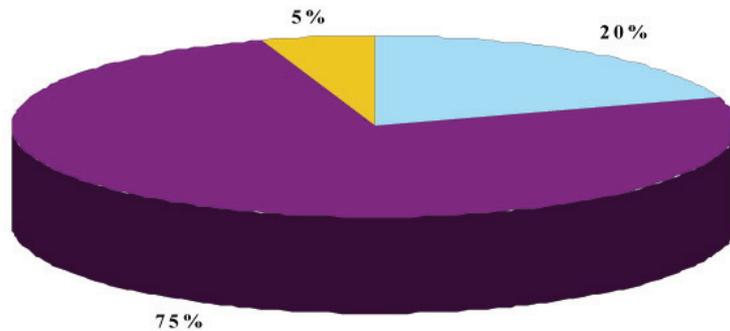
Domestic integration ■ **International co-operation** ■ **Self-deployment**

The result of survey showed that businesses' determination to e-commerce support technology standard application is very high. Parallel with e-commerce and information technology development, technology standard application tendency to trade activities according to business to business (B2B) model is vigorous, consequently standard development and studying is very necessary. With this in mind, agencies and businesses are very ready in promoting and modernizing management, business and manufacture processes.

■ Level 0-3 ■ Level 4-6 ■ Level 7-9
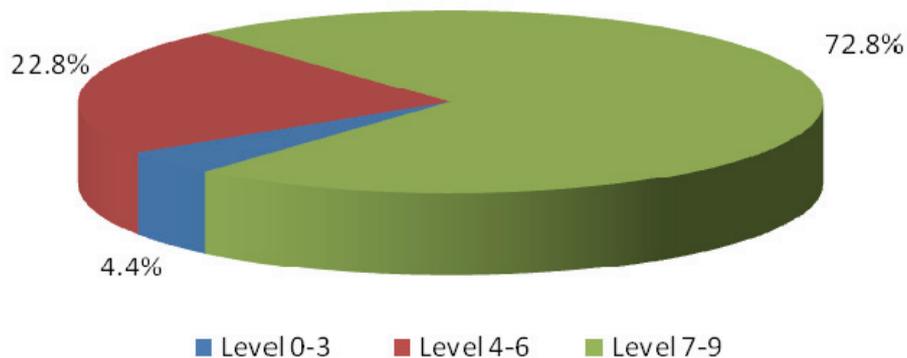
Business determination to e-commerce support technology standard application (estimated levels from 0 – 9)

The result of survey showed that 72,8% of businesses have high determination (level 7-9) in studying and applying e-commerce support technology standard in practice in order to improve e-commerce effects and limit risks in online transactions. E-commerce support technology standards play an important role in promoting co-operation and connection
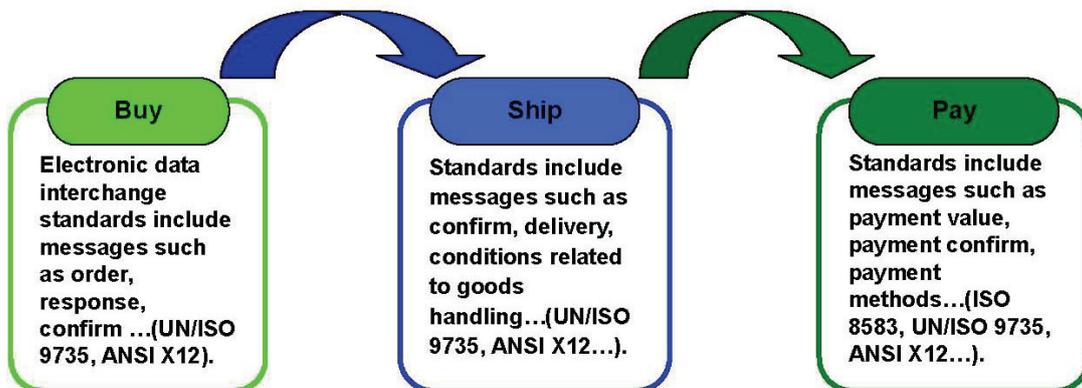
among businesses, consequently 22,8% of businesses have determination level 4-6 and only 4,4% have level 0-3.

2.2 BUSINESS ACTIVITIES AND E-COMMERCE SUPPORT TECHNOLOGY STANDARD APPLICATION

2.2.1 E-commerce support technology standard application and business transaction processes:

E-commerce support technology standards were mainly established and developed to serve 3 steps of e-commerce transaction process, including Buy, Ship, and Pay. In addition to e-commerce technology standards supported to applications, there are other standards built to ensure infrastructure such as communications protocol standards, security services standards, data backup standards, etc…All these e-commerce support technology standards are very important, supporting for the successful development of e-commerce services.

Three basic steps of an e-commerce transaction process

Buy
Electronic data interchange standards include messages such as order, response, confirm …(UN/ISO 9735, ANSI X12).

Ship
Standards include messages such as confirm, delivery, conditions related to goods handling…(UN/ISO 9735, ANSI X12…).

Pay
Standards include messages such as payment value, payment confirm, payment methods…(ISO 8583, UN/ISO 9735, ANSI X12…).

Buy: When businesses buy goods from partners, they have to look up and order. To computerize this process, UN/CEFACT issued a set of electronic data interchange (EDI) standards – UN/ISO 97535, including 10 parts and more than 200 related messages. Another organizations such as CII of Japan and ANSI X12 of United States, etc… have sets of EDI standards similar to UN/CEFACT EDI ones.

Ship: related to logistics services, including warehouse management, and delivery, etc…These concepts are popular in many countries in the world, but quite new in Vietnam.

According to statistics of international organizations, the annual costs of a country for logistic services are great. Although EU nations and United States have many experiences on logistics string management, their costs for logistics also account for 10% of GDP. For developing countries, this cost is extremely higher, for example, logistics service costs of China account for 19% of its GDP. Standard application such as UN/ISO 9735 of UN/CEFACT, ANSI X12 to delivery management and goods handling will make logistics service costs substantial reduction.

Currently, international EDI standard application in Vietnam to serve logistic services has been low; most businesses use their own standards. However, some large agencies and businesses deployed international EDI standards. Haiphong Port applied EDIFACT messages as of 2003 to manage transporting containers and connect to international shipping agencies such as MAERSK, MCC, HANJIN, MOL, WAN HAI, APM, etc… Unilever Vietnam began implementing EDI project applied to process of order and delivery goods at about 240 distributors, connected to centralized management system in German. Ministry of Industry and Trade deployed ELVIS, using messages such as SANCRT, REQDOC, CUSRES (version 99A) to transfer electronic visa to United States Customs. Currently, Ministry of Industry and Trade prepares to apply EDI to electronic certificate of origin issuing system (eCoSys).

Other services such as goods handling and purchase were implemented online such as e-ticket selling, electronic recharge through SMT, etc… Vietnam Airlines sells tickets through its website

After e-ticket selling of Jetstar Pacific Airlines, since 17/12/2008, passengers can book tickets for flights of Vietnam Airlines on its website and pay airfare at the firm's booking offices. Vietnam Airlines plans to offer online payment service for international flights as of February 2009 for passengers with five kinds of credit cards, namely Visa, Master, Amex, JCB, and Diner Club. As of June 2009, the airline will offer online payment service for local flights through credit cards issued by local banks, like Vietcombank Connect 24 of the Bank for Foreign Trade of Vietnam and Techcombank Fast Access of the Vietnam Technological and Commercial Bank, on its website and via SMS. Passengers can also look for flight schedules, airfare, book and pay airfare online, change flights, and golden lotus plus program for customer loyalty on the company's website

http://www.vietnamnet.vn

Pay: Technology standards using in electronic payment in Vietnam include ISO 8583 (card payment standard) and SWIFT (international transfer standard). A number of agencies in finance – banking sector use their own standards that were built based on SWIFT and XML structure. Standards that were used in electronic data interchange systems of securities

companies with Ho Chi Minh City Stock Exchange (HOSE) and Hanoi Securities Trading Centre (HASTC) are self-establishment by businesses themselves and unanimous through Excel structure, flat file or XML. UN/CEFACT and ANSI X12 issued messages related to payment. Domestic payment systems used these above-mentioned international standards.

Connecting securities balance system with inter-bank electronic payment system

On 26/9/2008, State Bank of Vietnam co-operated with State Securities Commission of Vietnam to establish and deploy securities balance detail project. Vietnam securities balance system connects to inter-bank electronic payment system of State Bank of Vietnam. To implement this project, investors have to open deposit accounts at commercial banks. Investors' success transaction orders are respectively with withdrawal or transfer their deposit account. Presently, inter-bank electronic payment system has 35000 transactions per day with total value of 10000 billion dongs, and on peak day, 50000 transactions with total value of 60000-70000 billion dongs. After completing second phase by the end of 2009, average process capacity of this system can reach 350000 transactions per day and up to 2 million transactions per day in 2012.

http://www.sggp.org.vn/kinhte/2008

2.2.2 E-commerce support technology standard application for business network development of large-scale industries.

In trend towards promoting e-commerce support technology standard application to practice, Vietnam businesses are tending to construction, development of business models using electronic instruments (electronic business network) to extend production, distribution, manufacture network, reduce cost and improve service quality as well as competitiveness.

E-commerce application will make an impact to all aspects of business activities. Consequently, when enterprises apply e-commerce for business development, they need to invest properly in IT infrastructure, study and deploy e-commerce applications and establish business processes in accordance with practical requirements on the basic of applying advanced technology standards. Up to now, many businesses established and operated electronic business networks, bringing practical effects in the sector of finance – banking, transportation, manufacture – distribution, ICT, etc…Electronic business networks were step by step established and applied widely in many banks such as Vietcombank, ACB, VPBank, Sacombank, Finance switching companies Smartlink, Banknet, large state corporations: Electricity of Vietnam, PetroVietnam, Vietnam National Steel Corporation,

Vinamilk, and other entertainment – communication companies: VASC, VTC Games, etc…
The above-mentioned businesses are operating nationwide on a large scale with business
processes that are gradually standardized according to international standards.

Many businesses are gradually applying specific e-commerce models that are quite
popular in Vietnam such as B2B, B2C to each step of business and manufacture process.
These businesses deployed effectively advanced e-commerce technology applications,
bringing practical effects to businesses as well as the society.

Reality shows that e-commerce support technology standard application, especially
electronic business network investment and development to practical activities will change
business processes and operation scale, innovate business methods and technology
processes as well as related electronic services, etc…This will make impacts to awareness,
psychology of each manager, employee, worker of enterprises. The above impacts will
bring the last result for enterprises - improve business and manufacture effects, reduce
cost, create new competitiveness. To achieve these advantages, the above-mentioned
businesses focused on developing and investing in the following sectors:

- IT infrastructure: a number of businesses built their private network system, invested
  in large IT centers to connect branches, business divisions and representative offices
  on a large scale. Modern IT infrastructure allows managers to supervise remotely
  business activities for making timely decisions. Private network is also infrastructure
  to implement properly high value-added e-commerce services, such as private
  networks of banks, EVN or financial and securities companies, etc…

- Using electronic instruments in business operation: Businesses implement report
  planning, information interchange, payment of tax, services and other fees through
  completely or partial electronic methods. Due to electronic business network,
  enterprises (especially carrier agencies) used it to manage warehouse, implement
  effectively logistics services. Businesses can communicate with their partners through
  common information system with virtual warehouse. Data received from partners will
  be transferred to information systems through related partners' host computer or be
  stored at business data centre. A number of agencies deployed successfully online
  public services. Through websites, related individuals and organizations can
  implement online declarations. This allows businesses to preview document
  information, and goods information at warehouses in order to manage effectively,
  typically electronic customs procedure services, electronic certificate of origin
  (Ministry of Industry and Trade, VCCI), electronic transaction application at State
  Treasury.

- Online data interchange implementation: reduce cost and time related to paper
  document interchange and store. E-commerce system will automatically send
  electronic data to related partners. Currently, some businesses use advances
  technologies such as XML, EDIFACT based on combination of Internet EDI system to

exchange electronic data with external and internal partners.

EDI APLICATION IN INDUSTRY AND SERVICE SECTORS:

Presently, some e-commerce systems are applied at various scales by enterprises and brought vigorous effects to business and production activities. E-commerce support technology standards of United Nation or other international standards that have been popularized and applied include ISO 15000 ebXML, UN/ISO 9735, ISO SDMX (statistic data meta exchange), XML (applied for structured data), ISO 8583 and SWIFT (applied for card payment and transfer in finance – banking sector)

In Vietnam, the most popular standard that majority of agencies and businesses know and apply for electronic data interchange is XML. This standard is used for database backup, data interchange among different agencies, businesses or among branches of an organization, enterprise in the banking industry, securities companies or customs, etc…Most surveyed agencies and businesses applied self-established standards based on XML foundation. For example, General Department of Vietnam Customs deployed standards based on XML foundation combined with model recommended by World Customs Organization in order to exchange data with enterprises using electronic customs services, Ministry of Industry and Trade unified XML form with Vietnam Chamber of Commerce and Industry and local import-export management agencies, Vietnam industrial zones, export processing zones to backup and transfer eCO issuing data to eCoSys system.

Some businesses such as Haiphong Port – are pioneers in deploying electronic data interchange in bill of lading management and processing for external and internal shipping agencies. This program was established according to international standard UN/ISO EDIFACT 9735 to manage Port's container data. Unilever Vietnam established EDI network as of 2007 based on electronic data interchange standards to manage goods by barcode EANCOM13 according to GS1 standard.

The result of survey showed that electronic data interchange applications in Vietnam are developing at simple level and many applications were only applied in internal business or industry. Implementing international e-commerce support technology standard application and EDI standard application to practical is meticulous process; therefore it needs to be implemented through many steps from studying, building pilot project to project deployment on a large scale. Especially, the support, advanced technology transfers, and co-operation with international consultant experts will be the key element bringing firm success to e-commerce project. In addition, most technology standards related to E-commerce and IT now are built by business themselves. Consequently, to achieve advanced e-commerce applications in service, industry and trade activities, it is necessary to have a popularization process with strong labor resources including experts and

technical officers who are methodically trained in order to implement large projects with advanced e-commerce technologies.

Temporary regulations on standardization in Finance and Customs Industry

According to Temporary regulations on standardizing IT infrastructure applying for central and local Financial agencies and regulations on IT standards in Finance industry promulgated by Ministry of Finance to recommend and orientate hard ware purchase, computing software establishment. There are some obligatory standards and regulations in some sectors: application software development, electronic email interchange, electronic data interchange, computer network establishment, Internet connection, information system security. Data interchange among industrial applications is recommended using one of 3 following interchange methods:

  - File data transfer: using file text;
  - File data transfer, data structure using XML format;
  - Directly data transfer among applications.

(Extracted from regulation's content promulgated enclosed with Official letter numbered 1690/TC-THTK dated 18/06/2004 by Ministry of Finance.

General Department of Vietnam Customs promulgated e-customs guiding document with information criteria for electronic customs declarations, including information criteria of 6 groups and 4 columns:

  - Column criteria include: criteria number order; criteria name, criteria description, criteria belong fiducially catalogue, criteria have to input to computer.
  - Group criteria include:
  Group 1: common information criteria group: for each consignment;
  Group 2: goods information criteria group
  Group 3: Bill of lading information criteria group
  Group 4: Authorization information criteria group
  Group 5: Certificate of Origin information criteria group
  Group 6: Valuable declaration information criteria group

Data, information interchange and connection between local customs departments and Customs statistics office in Hanoi were implemented according to XML and file Excel format data structure.

(Extracted from the content of guiding document enclosed with Official letter numbered 3339/TCHQ/HDH dated 19/9/2005 by General Department of Vietnam Customs

SECTION III - e-Application/ eBusiness Related PROJECT UPDATES (TYPICAL E-COMMERCE MODELS)

1. EDI system of the Haiphong Port

Haiphong Port is the pioneering company applying electronic data interchange system (EDI system) successfully and effectively. This port has constructed the EDI program under international standards EDIFACT, which links to obtain container management data from its current MIS management information to make the electronic report for carriers, and shipping agents.

Since 2003, Haiphong Port has officially applied this EDI system to connect with APM Shipping . After more than 6 months, EDI system was completely built and Haiphong Port officially used EDI data in managing and exploiting containers. Until now, EDI application plays an important role in Port's operation. EDI system of Haiphong Port has effectively operated to exchange electronic data with large shipping agents such as MAERSK, MCC, HANJIN, MOL, WAN HAI, APM, etc…EDI program under international standards helps to synchronize, standardize container data management between Haiphong Port and shipping agencies and at the same time enhance Port's service capability.

EDI system of Haiphong Port includes two parts:

– Container exploitation (CODECO): includes demonstrators, container moving plan: container gate-in/gate-out, cargo handling.

– Ship exploitation (COARRI): includes demonstrators: container loading/unloading and transporting.

After a few years of implementation, now the rate of using online transaction use has been up to over 90%, the data are updated fast, accurately, and completely, the quality of management has been remarkably improved… Through EDI, carriers exploit and use all data about container management of the port, save cost, time, and human resources, and improve the efficiencies of their use and management.

The operation model of EDI system in Haiphong Port
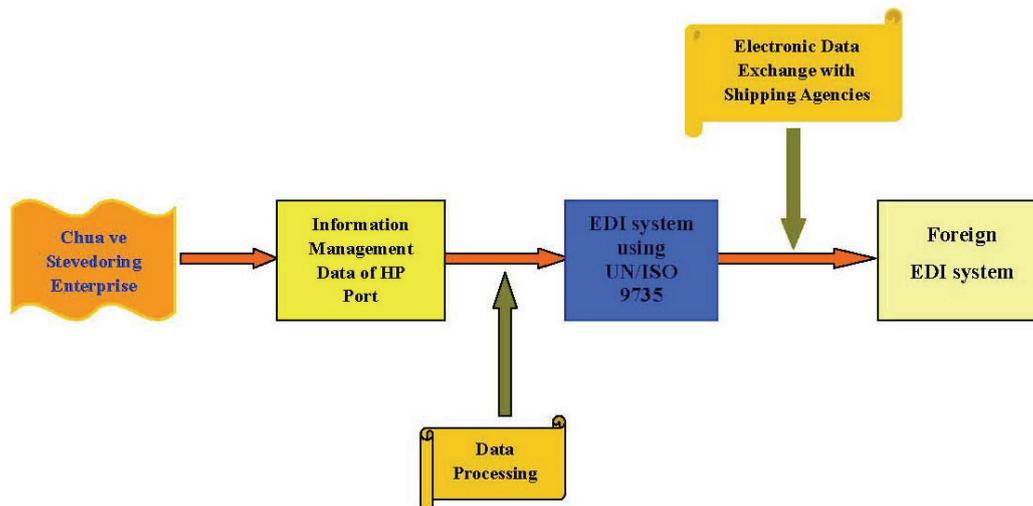
2. Connecting system of Vietnam National Financial Switching Joint – Stock Company (Banknetvn)

In the renovation process, banking industry has important contributions to the national social – economic development. Moving toward modernization of banking activities based on advanced technology standards, up to now, more than 90% of banking services have been computerized; in which many services perform interchange electronic data via network and especially electronic payment system.

Banknetvn is a leading company in electronic payment application. Established on 09/08/2004, up to now, this company have implemented Banknetvn switching system at the data processing center, and connected to the member banks: Vietnam Bank for Agriculture and Rural Development (Agribank), Bank for Investment and Development of Vietnam (BIDV), Vietnam Industrial and Commercial Bank (Vietinbank), Saigon Thuong Tin Commercial Joint – Stock Bank (Sacombank), Eastern Asia Commercial Joint – Stock Bank (EAB), Saigon Bank for Industry and Trade (Saigonbank).

In addition to member banks under Banknetvn Alliance, this system is also connected with 27 banks under Smartlink Alliance (connected on 23/05/2008). This connection created a biggest national bank switching system. After 3 months of official connection, there were about 400.000 transactions per month with the total amount up to 840 billion VND, growth rate on transaction value reach 47% per month in average. Until now, Banknetvn – Smartlink system already completed the connection of automated teller machine system (ATM) of all member

banks (first phase) with payment network including 42 banks more than 4.500 ATM with 9,2 millions issued payment cards. Currently, this system is implementing the second phase to interconnect POS systems of the member banks and cooperate in providing other value added services.

Banknetvn switching system applies some standards such as:

- Magnetic card with card standard according to ISO/IEC 7811
- Equipment to receive information from POS device according to EMV Standard (Europay, MasterCard, and Visa: Smartcard Standard for online payment system)
- Financial transaction using EDI according to ISO 8583
- Secure system according to 3DES, HSM (Host Security Module) standard

Banknetvn Switching System has the following functions: switching processing for card transactions, clearing, settlement request generating, report generating, fee calculating and management, and other value-added services.

Scope of operation:

- Connecting bankcard systems, payment card system between banks eligible for bankcard issuance, acceptance, payment and other institutions eligible providing payment services.
- Performing clearing and settlement for bankcard transactions between banks eligible for bankcard issuance, acceptance, payment, and other institutions eligible for providing payment services.
- Providing and installing systems and equipments for bankcard issuance, acceptance and payment, payment cards for outsourcing service.
- Providing technology solutions in the field of bankcard issuance, acceptance and payment and in payment systems for customers.
- Providing installation and maintenance services for equipment of bankcard issuance, acceptance, payment and payment cards for customers.
- Producing, processing blank card, printing cards for customers in accordance with laws.

3. State Treasury information system

State Treasury is in the process of completing the information – computing system modernization project up to 2010 and building information technology (IT) application strategy up to 2020 based on State Treasury Development Strategy up to 2020 approved by the Prime Minister in 2007. One of the most basic and important objectives affirmed in this strategy is that "Up to 2010, State Treasury activities are implemented on modern IT foundation and forming electronic State Treasury. The milestone of IT application strategy of State Treasury up to 2010 is to build State Treasury overall information system architecture, in which the focus is on treasury and budget management information system to meet the requests of finance and budget management innovation, expand State Treasury computing applications that are centralized and integrated with treasury and budget management information system (TABMIS)

4. Electronic Data Exchange System of Unilever Vietnam and Metro Cash & Carry

In 2007, Unilever Vietnam and Metro Cash and Carry agreed to implement Electronic data interchange project (EDI project). They are the first two businesses applying EDI in Vietnam. After 9 months of building barcode mapping and connecting technologies with each other via hubs, the data have been read, understood and automatically processed. After 1 year, Metro Cash & Carry examined and successfully exchange invoices.

The main standard that the 2 businesses used including barcode EANCOM13 in accordance to GS1 standard to unify for each order and delivery product (Buyer order the product via its barcode and the Supplier will deliver the right product with its barcode), GLN standard of GS1 organization for Buyer's code and Supplier's code. In addition, other standards such as UN/EDIFACT and XML have been studied to apply in the near future. Other codes such as order and delivery place code, supplier's code were built according to EAN13 and have been registered.

Besides invoices, EDI project will expand to apply EDI to exchange other transactions such as invoice processing, electronic delivery notes. On the basic of this project, in the near future, Metro Cash and Carry will expand to other suppliers. Presently, Unilever is applying EDI to order process for one supermarket and about 240 suppliers, from this project, Unilever will expand to other suppliers nationwide.

5. Information and Technology Development and Investment Company (Intecom)

Intecom under Multi Media Corporation (VTC) is a pioneering agency in supplying digital content service, with activities such as VTC Game – game online, VTC Mobile – services via mobiles, VTC News – magazines, VTC Paygate – electronic payment infrastructure for digital content services on network and mobile, VTC Software – construction software centre and software system development centre for digital service.

Up to now, VTC Paygate has over 13 million registered accounts in which more than 1,7 million accounts that occurred top-up transactions, and more than 1,2 million surplus accounts with diversified V-coin establishment resources including direct top-up, prepaid card, bank transfer, international payment, SMS, fix phone (premium 1900 dial number).

Electronic payment solutions of VTC eBank include:

- Application models: top-up connection, two-way transfer connection, connection to build sale payment portal, service charges, etc…
- Application scale: VTC eBank now has ability to serve maximum 2 billion accounts, current transactions is over 32.000.

Paygate technology solutions of Intercom have used service-oriented architecture (SOA). Data and transfer-line security uses HTTPS/SSL protocol; transaction certification between host computers uses digital certification technology RSA. Data standards have been used including XML, finance transaction message standard ISO 8583, self-defined data structure standard regulations. Connection protocols includes HTTP/HTTPS, RMI, Socket TCP/IP, SOAP, MSQUEUE, etc…About the integrated solutions with agencies, business in the sector of bank, finance, communication, Intercom with its partners has unified protocols, criteria and transaction procedure by adjusting and improving international standards suitable with application conditions in Vietnam. After 2-year applying VTC e-bank solutions, business result of Intercom has substantial advances

VTC eBank turnover growth   **(Unit: Million dongs)**

Year	2006	2007	2008
Digital content services turnover	140	220	340
Commerce transaction turnover		120	460

In one day, VTC e-bank has more than 30.000 transactions deposit to the system and more than 30.000 businesses use Vcoin for services. Presently, there are always more than 1.7 million accounts have deposit of over 10 million registered accounts. In 2009, based on VTC Paygate foundation and VTC online all-purpose card, Intercom will carry out:

– Developing electronic payment system

– Establishing centralized connection payment system: connecting banks and POSs.

– Extending scale, applying the stands such as EDI to automate order/distribution process, card payment, etc…

In conclusion, the result of the 2008 survey on technology standard application showed that, now most small and medium-scale businesses have not favorable conditions to understand and implement technology standards that are applicable to e-commerce. The rate of businesses applying e-commerce support technology standards in general and electronic data interchange standard in particular in Vietnam is still relatively low. Technology transfer from overseas to develop e-commerce applications only focused on some agencies, large-scale businesses of some Ministry in large provinces and cities through projects at all levels. However, the transfer of e-commerce support technology standards to Vietnam up to now lacked of long-term strategy, overall and reasonable implementation plan to make breakthroughs for e-commerce application development in our country.

2009 eBusiness Asia Committee

eBusiness Asia Committee

Progress Report

2009 eBusiness Asia Committee Progress Report

SECTION 1 - General Status Update

1.1 Membership status

The eBusiness Asia Committee (eAC) was established in December / 2000 for facilitating the e-Business environment in Asian region by implementing ebXML and/or XML based emerging technology. eAC has moved under AFACT as a special committee since October of 2008. Currently there are 24 members.

The members are :

1. Japan
— ECOM (Electronic Commerce Promotion Council of Japan):www.ecom.or.jp
— Fujitsu (www.fujitsu.com)
— NEC (www.nec.com)
— NTTDATA (www.nttdata.co.jp)
— Oracle Japan

2. Republic of Korea
— KIEC (Korea Institute for Electronic Commerce): www.kiec.or.kr
— B2B International
— Posdata (www.posdata.co.kr)
— KTNET (www.ktnet.co.kr)
— Korea Policy Tech Univercity

3. Chinese Taipei
— III (Institute for Information Industry) www.iii.org.tw
— GCOM (www.global-com.com.tw)
— TCA
— Trade Van
— NTNU

4. Malaysia
— DagangNet (www.dagangnet.com)
— Royal Malaysian Customs (www.customs.gov.my)

5. Thailand
- NECTEC (National Electronics and Computer Technology Center)
  www.nectec.or.th
- I3T

6. China
- CECID (Center for E-Commerce Infrastructure Development) of Hong Kong
  www.cecid.hku.hk
- SKLSE (State Key Laboratory of Software Engineering), Wuhan University
  www.sklse.org
- CNIS

7. Singapore
- CrimsonLogic (www.crimsonlogic.com.sg)

8. Other region
- OASIS UBL

eAC has several participants from AFACT other than eAC members, such as India, Vietnam, Sri Lanka, Saudi Arabia, Iran for the recent meetings.

SECTION II – ebXML Based Standards Development

2.1 Interoperability Task Report

The Interoperable task of the ebXML Asia Committee is engaging in the interoperable in Functional Service View of ebXML standardization, that is Information Technology side, and currently dedicated to the interoperability test among the solutions developed by each member.

Up to now eBusiness Asia Committee has issued ebXML interoperability certification on ebXML Messaging Service specification v2.0, including basic functions and reliable messaging, for 22 companies and organizations passed the interoperability test.

The following table shows the solutions passed the certification.

	Aug / 2003	May / 2004	Aug / 2008
Level 2 Certificate Reliability	CECID (Hong Kong) CrimsonLogic (Singapore) Fujitsu (Japan) GCOM (Taipei) Hitachi (Japan) IIIT (Thailand) Innodigital (Korea) KTNET (Korea) NEC (Japan) POSDATA (Korea) Samsung SDS (Korea) SKLSE (China)	Algo21(Japan) B2B Internet (Korea) CJS (Japan) Dasan (Korea) ETRI (Korea) Infoteria (Japan) NTT Data (Japan)	
Level 3 Certificate Security		CECID (Hong Kong) CrimsonLogic (Singapore) Fujitsu (Japan) Infoteria (Japan) IIIT (Thailand) Innodigital (Korea) KTNET (Korea) NEC (Japan) SKLSE (China)	Data Application (Japan) B2BInternet (Korea) EsumTech (Kotrea)

In 2008-2009, we are considering the new project for interoperability as follows.

WSR interoperability

ebMS V3.0 interoperability

Service Data Object for SOA (proposed by Korea)

SaaS Platform federation (proposed by Japan)

2.2 Core Component Task Group

The Core Component task of the eBusiness Asia Committee is engaging in the part of Business Operational View of ebXML standardization, which is standardization of the business information entities and the methodology for standardizing them.

The world wide activities to standardize Business Process and Business Information are going on within the UN/CEFACT. The eBusiness Asia Committee is one of the nominated organizations participating the harmonization group (TBG17) of UN/CEFACT. Which means that the eBusiness Asia Committee can submit the new Core Components to UN/CEFACT based on Asian business requirements. The eBusiness Asia Committee is supporting the standardization of Business Information components based on the harmonization process within Asia.

SECTION III – eBusiness Related Project Updates

3.1 Chemical Material Information Management

Japanese automobile industry and electronics industry are harmonizing the article information model for chemical material information management, such as MSDS, ELV, RoHS, REACH. At UN/CEFACT Forum in Rome (April / 2009), ECOM(Japan) and LMI(US) have proposed the joint project for harmonizing the information model for chemical material information management.

UN/CEFACT TBG17 is expecting the submission of the article information model for harmonization from eBusiness Asia Committee of AFACT.
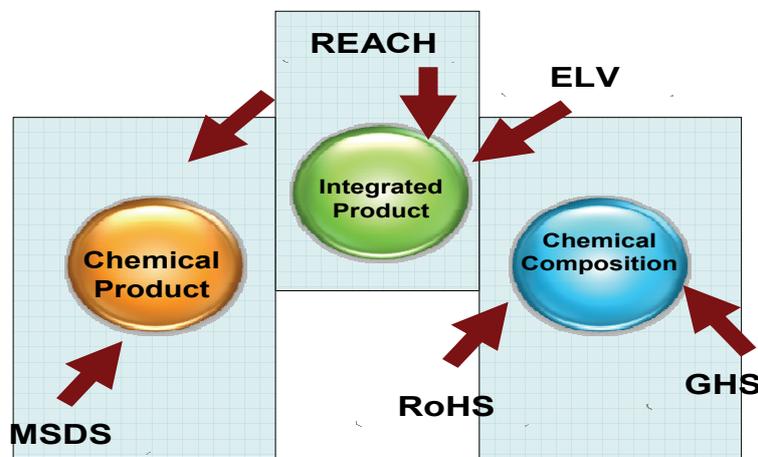
2009 Associate Member

Progress Report

Pan-Asian E-Commerce Alliance (PAA) Progress Report

Pan-Asian E-Commerce Alliance (PAA)

Progress Report

2009 Associate Member Progress Report：PAA

SECTION I – GENERAL CONDITION UPDATE

1.1 Introduction

1.1.1 The Pan-Asian E-Commerce Alliance is the first regional e-Commerce alliance in Asia that aims to promote and provide secure, trusted, reliable and value-adding IT infrastructure and facilities for efficient global trade and logistics. This includes the mutual recognition of digital certificates issued by members' Certificate Authorities for use in electronic documents exchanged among the parties. Combined membership of the parties now exceeds 200,000 organizations, representing almost all active trading enterprises in the Asian market.

1.1.2 Current PAA Members comprise Tradelink of Hong Kong, Trade-Van of Chinese Taipei, CrimsonLogic of Singapore, KTNET of Korea, CIECC of China, NACCS of Japan, Dagang Net of Malaysia, TEDMEV of Macau and CAT Telecom Public Co. Ltd of Thailand. In addition, Intercommerce of Philippines, Trade Gate of Australia, TEDI Club of Japan and PT EDI of Indonesia have joined PAA as associate members.

SECTION II – EDIFACT/ebXML/XML Based STANDARDS DEVELOPMENT

2.1 Communication Protocol

2.1.1 PAA interconnection Specification was developed based on ebXML MS v2.0 Revision C and ebXML Collaboration Protocol Profile and Agreement v2.0. The specification is approved and endorsed by PAA Steering Committee in February, 2003.

2.1.2 All PAA members are currently connected to each other based on the PAA interconnection Specification.

2.2 Messaging Standards

2.2.1 PAA uses standard XML as the native syntax for processing managing information to create PAA document format and some were adoption from UBL. It follows some of the guiding principles for XML tools and methodologies such as Compliance with standard UML; Compliance with ebXML where relevant; and etc.

2.2.2 The following are some of the PAA documents format for PAA projects:

- Purchase Order
- Invoice
- Advance Shipping Notice
- Packing List
- Air Way Bill
- Trade Documents format for Export Declaration
- Certificate of Origin

2.2.3 The following are some of the code list adopted:

- Location Code – UN/LOCCODE
- Country code – ISO 3166
- Currency code – ISO 4217
- Unit of measurement – UN/ECE No. 20
- Weight unit – UN/ECE No. 20
- Volume unit – UN/ECE No. 20
- Package type – UN/ECE No. 21
- Mode of transport – UN/ECE No. 19
- Container type – ISO 6346

2.3 PKI Mutual Recognition Framework

2.3.1 The PAA Certificate Policy Authority ("Policy Authority" or "PAA Policy Authority") was established to define a common Certificate Policy and administer the recognition of the Certificate Policies and Certification Practice Statements (CPS) used by Alliance members against this common Certificate Policy.

PAA Certificate Policy adheres to RFC 2527.   CAs are free to adopt their own policies and practices for those areas that do not have any specific stipulations within their CPS, which must also adhere to RFC 2527.

2.3.2 This Certificate Policy ("Policy") is intended for use within the Public Key Infrastructure (PKI) established by the members of the Alliance as defined and managed by the Pan Asian Certificate Policy Authority Limited ("Authority").

2.3.3 This Policy contains the set of rules that govern the issuance and use of digital certificates among the members of the Alliance, and indicates the applicability of the certificates to the communities within the Alliance.   Specifically, the Policy is intended to support the Alliance and its Members in the following areas:

- Provide high level of assurance that enables secure and reliable transmission of business and transaction documents, and contribute to assuring non-repudiation of business transactions;
- Facilitate inter-connection of network services to provide e-commerce transaction application services for the business community; and
- Support a Pan Asian portal enabling global business connection and communication.

SECTION III – Trade Facilitation / eBusiness / eCommerce Related PROJECT UPDATES

3.1 Secure Electronic Cross Border Trade Transactions

Leveraging the PAA legal framework for electronic cross border trade transactions and the mutual recognition of digital certificates amongst members of the alliance, PAA has over the years developed a suite of services and solutions for the PAA economies. We enable and facilitate our customers to exchange trade documents electronically with local and overseas business partners in a secure environment. Through the PAA network, an importer from an importing economy can seamlessly inherit and reuse trade declaration data from the corresponding exporter of an exporting economy for the local trade declaration.

In recent months, we have made significant achievements and contributions for the freight industry. Freight forwarders of various PAA economies can now exchange a range of trade documents such as Air Way Bill, Commercial Invoice, Packing List, and Bill of Lading Advice with their counterparts both effectively and efficiently.

3.2 Electronic Certificate of Origin

As an APEC Pathfinder initiative, PAA has been actively involved in the development and facilitation of exchange of electronic certificate of origin between import and export economies. It is envisaged that initiative will bring values to both the traders and the government authorities. With the blessing and support from the local authorities, Chinese Taipei and Korea are now going full stream ahead on establishing the first ECO project. The project involves both the public and private sectors from the two economies. It is anticipated that first ECO exchange will be carried out within this year. In the mean time, other economies like Hong Kong, Japan and Singapore are exploring the possibility to participate.

Contact Information

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2009 AFACT Heads of Delegations

2009 eBusiness Asia Committee

2009 Working Groups Chairmen

2009 Associate Member

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Meeting History

Meeting History

	Year	Date	Place	Remark
1st	1990	Nov. 5~6	Tokyo, Japan	JS/EB Plenary
2nd	1991	Jun. 25~26	Singapore	JKS/EB Plenary & EDICOM '91
3rd	1991	Oct. 28~29	Tokyo, Japan	AS/EB Plenary
4th	1992	Jun. 11~12	Tokyo, Japan	AS/EB Plenary & EDICOM '92
5th	1992	Oct. 29~30	Seoul, Korea	AS/EB Plenary
6th	1993	May. 20~21	Beijing, China	AS/EB Plenary
7th	1993	Oct. 25~27	Seoul, Korea	AS/EB Plenary & EDICOM '93
8th	1994	Jun. 6~8	Kuala Lumpur, Malaysia	AS/EB Plenary
9th	1994	Nov. 28~30	Chinese Taipei	AS/EB Plenary & EDICOM '94
10th	1995	Jun. 5~7	Bangkok, Thailand	AS/EB Plenary
11th	1995	Nov. 1~3	Kuala Lumpur, Malaysia	AS/EB Plenary & EDICOM '95
12th	1996	Jun. 4~7	Manila, Philippines	AS/EB Plenary
13th	1996	Oct. 28~30	New Delhi, India	AS/EB Plenary & EDICOM '96
14th	1997	Apr. 30~May. 2	Singapore	AS/EB Plenary & EDICOM '97
15th	1997	Nov. 2~6	Colombo, Sri Lanka	AS/EB Plenary

	Year	Date	Place	Remark
16th	1998	Jul. 4~10	Tehran, Iran	AS/EB Plenary
Management Team Meeting	1999	Apr. 22~23	Singapore	
17th	1999	Sep. 5~10	Seoul, Korea	AS/EB→AFACT Plenary & EDICOM '99
18th	2000	Sep. 11~15	Chinese Taipei	AFACT Plenary & EDICOM '00
19th	2001	Oct. 1~3	Jakarta, Indonesia	AFACT Plenary & EDICOM '01
20th	2002	Oct. 28~Nov. 1	Kuala Lumpur, Malaysia	AFACT Plenary & EDICOM '02
21st	2004	Jan. 11~14	Karachi, Pakistan	AFACT Plenary & EDICOM '03
22nd	2004	Sep. 19~22	Singapore	AFACT Plenary & EDICOM '04
23rd	2005	Oct. 24~27	Hanoi, Viet Nam	AFACT Plenary & EDICOM '05
24th	2006	Aug. 7~11	Karachi, Pakistan	AFACT Plenary & EDICOM '06
25th	2007	Aug. 6~10	Bangkok, Thailand	AFACT Plenary & EDICOM '07
26th	2008	Oct. 13~16	Seoul, Korea	AFACT Plenary & EDICOM '08
27th	2009	Nov. 2~6	New Delhi, India	AFACT Plenary & EDICOM '09

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