BACKGROUND REPORT ON ELECTRONIC COMMERCE 1998

APEC ELECTRONIC COMMERCE TASK FORCE

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1997 Leaders' quote:

We agree that electronic commerce is one of the most important technological breakthroughs of this decade. We direct Ministers to undertake a work program on electronic commerce in the region, taking into account relevant activities of other international fora, and to report to us in Kuala Lumpur. This initiative should recognize the leading role of the business sector and promote a predictable and consistent legal and regulatory environment that enables all APEC economies to reap the benefits of electronic commerce.

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FOREWORD

APEC Leaders and Ministers at the November 1997 meetings in Vancouver instructed that a work program on electronic commerce in the region be undertaken, so as to promote a predictable and consistent legal and regulatory environment that enables all APEC economies to reap the benefits of electronic commerce. The Senior Officials at their first meeting in Penang 1998, formed a Task Force to undertake this work.

Australia and Singapore co-chaired the Task Force during 1998. The Task Force met four times, two of which included business participation. The Task Force has now fulfilled its mandate, with the delivery of the ***APEC Blueprint for Action on Electronic Commerce.***

The ***Blueprint for Action*** is in two parts. The first part sets out the policy framework for the development of electronic commerce. The second part encapsulates the work program already underway in various APEC sub-fora, suggests some additional directions for APEC work, and includes recommendations for three major APEC-wide co-operation projects.

The Task Force co-chairs would like to record their deep appreciation to the APEC membership and in particular, to all participants at the meetings. The very enthusiastic and valuable contributions have indeed facilitated the work of the Task Force co-chairs.

Electronic commerce is evolving very rapidly as a business process, which builds its strength on networking and improvements on productivity, efficiency and outreach. There is a wealth of material which all participants have contributed and which the co-chairs would like to retain and further disseminate more widely within and outside the APEC membership. For this purpose, the contributions which are in the public domain and with the concurrence of the contributors, are assembled in this ***Background Report to the APEC Blueprint for Action on Electronic Commerce***. Due to time constraints, this constitutes an interim ***Background Report.*** A final, printed version will become publicly available in early 1999.

The co-chairs would like to put on record that the ***Background Report on Electronic Commerce*** is a reference document to enhance understanding of the latest developments and discussions on electronic commerce. The views expressed in each paper reflect those of the authors and do not necessarily reflect either national positions or the consensus of the Task Force.

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CHAPTER 1

Access To Information Infrastructure

1.1 Overview (Co-Chairs)

1. The importance of the telecommunications infrastructure as the key backbone that supports all electronic commerce activities cannot be over-emphasised. Without a telecommunications infrastructure that provides sufficient capacity for information flows, e-commerce would not be possible. There are, however, a number of constraints. These constraints will need to be addressed by both technological developments and deliberate government policies.

2. The challenge for APEC member economies and other economies in general would be to work towards a secure, widely accessible, fully interconnected international network that will guarantee the availability of sufficient bandwidth for e-commerce.

Basic Telecommunications

3. The issue here is that basic telecommunications access is a fundamental prerequisite of e-commerce. Most e-commerce applications run on telephone lines in the public network. However, the lack of such basic telecommunications infrastructure may be a fundamental problem in some member economies. This is an area that is often overlooked in the excitement over e-commerce. In many of these economies, the more immediate concern is not resolving problems like network congestion but ensuring that the general population gets access to telephone connection.

4. Further, public telecommunications operators in many instances are not attuned on the networking needs of e-commerce. Instead of basic telecommunications, they prefer to offer value-added services, which may be more lucrative from the business point of view. Hence there is now a proliferation of alternative media for e-commerce, such as satellite and cable television systems.

5. For member economies already equipped with adequate basic telecommunications infrastructure, ensuring access would mean liberalising the basic telecommunications sector. In the WTO, 72 countries, including a number of APEC member economies, have made commitments under the Agreement on Basic Telecommunications to liberalise trade in basic telecommunications services.

Pricing Policies

6. In any discussion on access, pricing policies of telecommunications services is another important issue. Access to telecommunication and

hence E-commerce can be inhibited by high charges, especially when these do not reflect the costs or scarcity of the infrastructure.

7. A balance is thus needed to ensure that the charges are high enough to recover investment expenditure and operating costs and to reflect the relative scarcity of infrastructure. Yet, at the same time, the charges must not be structured as to allow abuse of monopolistic power.

8. Besides telecommunications services, there is also the pricing of the necessary hardware and software to connect to the telecommunications infrastructure. In this aspect, the Information Technology Agreement (ITA) in the World Trade Organisation (WTO) is significant as it removes tariffs of a whole range of information technology products.

Network Capacity

9. As e-commerce develops, particularly at the rate that it has been projected to, there may be a problem in terms of available bandwidth. The shortage of bandwidth can lead to network congestion. This would have a strong negative impact on e-commerce, as it affects both the current demand and its potential growth. It is thus important to build up the necessary network capacity to cope with the increased demand that e-commerce is likely to create.

Inter-Connectivity and Inter-Operability

10. For e-commerce to develop successfully within APEC, there must be also an interconnected network among the economies. This means that individual networks must be connected with each other and data can flow easily from one network to another. The other important consideration is that of inter-operability. In other words, all users of the networks must be able to communicate with one another, regardless of the computer used, the telecommunications service providers, the network and the software used.

11. There is thus a need to set frameworks and standards that would secure inter-connectivity and inter-operability in order to ensure that there is universal communications.

Issues for APEC

- What can APEC member economies do to assist other member economies with inadequate basic telecommunications infrastructure to take advantage of e-commerce?

- Is there is a direct relationship between the degree of openness in the telecommunications infrastructure and the pricing of telecommunications services? Can APEC member economies further open up their telecommunications sector to reduce their telecommunication charges? Should there be a review of their commitments under the GATS?

- Can the WTO Agreement on Basic Telecommunications be enhanced to cover "universal access"? Should there be more explicit and detailed regulatory provisions in the agreement? Can APEC member economies play an active role to push for this in the WTO?

- Basic telecommunications services have traditionally been for voice transmissions. But with e-commerce, the networks need to cater for data transmissions with increasing convergence of data and voice transmissions and the pervasiveness of Internet. Is there a need for APEC member economies to undertake an evaluation of the infrastructural needs, including connection charges as well as other costing and capacity issues, so that APEC can develop policy responses to meet the challenges of an e-commerce market place?

- How can APEC member economies promote inter-connectivity among their economies? What is the role of the industry? What are the problems that they face?

- Can APEC member economies adopt harmonised frameworks and standards to secure inter-operability?

1.2 Summaries of Discussion from Kuching and Kuala Lumpur Roundtables (Co-Chairs)

Kuching Roundtable

- APEC member economies could facilitate access to infrastructure by considering articulation of general principles, rather than promoting any specific models

  - participants identified the issue of interoperability of electronic commerce technologies, and the potential role for governments, at least in terms of suggesting principles to be considered by industry.

- APEC could provide an important information role, including with regard to

  - stages of development of electronic commerce infrastructure among regional economies (there was strong encouragement for TEL WG to further develop their work on collecting data as a basis for evaluating infrastructure needs in APEC)

  - consideration of possible development of principles/guidelines about what is needed for regional economies to become "electronic commerce-ready".

- There is a need to develop accurate comparative data on the information economy was also acknowledged, including electronic commerce performance indicators (taking into account the OECD's work on developing various measurement approaches and tools).

- There is a need to coordinate and develop electronic commerce-related training thoughout APEC

  - for business, as well as consumers

  - making use of practical case-study material where relevant

  - and recognising the importance of awareness raising and training for SMEs.

- There was acknowledgement that international bandwidth is a key infrastructure issue

  - APEC economies need to develop competitive infrastructure domestically as well as for international links

- there is a need to promote use and adaptation of existing infrastructure and bandwidth more effectively as well as building infrastructure with enhanced bandwidth capability

- APEC economies might consider how increased bandwidth capacity can be generated directly linking the economies of the western Pacific.

Kuala Lumpur Roundtable

- The Task Force noted that in APEC the TEL-WG has work under way on infrastructure issues and

  - welcomed proposed work on bandwidth economics which has continued to emerge as a key issue in the region and as a barrier to entry for some business

  - recommended that TEL-WG take advantage of the network of Internet and other industry associations in the region in compiling information to drive their work on infrastructure issues

  - encouraged future work in APEC on infrastructure issues, with an emphasis on SMEs.

- The Task Force emphasized that there was great diversity in the region in terms of availability of 'hard' infrastructure but that ‘soft’ issues are also important and

  - in particular, noted scope for APEC to examine international standards work with a view to possibly endorsing or adopting standards as appropriate

- There was considerable discussion of regulatory issues relating to infrastructure noting

  - the issue of infrastructure cost as a barrier to SME entry to e-commerce

  - the fact that many SMEs are taking up e-commerce which suggests costs are not totally prohibitive but may be at the least restrictive

  - the importance of competition with regard to bandwidth cost

  - regulatory work under way in the WTO and OECD

  - work on examining various polices to develop e-commerce around the region.

- The Task Force recommended further analysis of the economics of electronic commerce as an important basis for examining infrastructure and related regulatory and competition issues.

- The Task Force recognized that there are a number of levels of engagement in e-commerce that require different levels of infrastructure and involve different costs and electronic commerce needs to be recognized as covering a broad range of business-related activities.

  - noted that work on affordability needed to recognize that infrastructure management was as important as infrastructure provision.

- The Task Force encouraged future work on convergence and interoperability as vital in ensuring the region benefits from e-commerce.

1.3 Ecotech Proposals (Malaysia and China)

Objective

1. The purpose of this paper is to identify some of the ECOTECH activities, which can be undertaken by APEC for promoting electronic commerce in the region.

Background

2. At the Task Force meeting in Kuching, Malaysia and China had volunteered to coordinate work on technical cooperation and capacity building initiatives for promoting e-commerce. Since then, we have written to all the Task Force contacts for their input, but so far we have received inputs from only two economies which are incorporated in this paper.

Existing Cooperative Activities

3. In drawing up the ECOTECH programme, we have to be conscious of the existing activities undertaken by various APEC fora so as to avoid duplication of efforts. Currently, APEC fora, which are active in e-commerce, include Transportation Working Group, Telecomunications Working Group, and HRD, CTI Sub-Committee on Customs Procedures and Industrial Science and Technology Working Group. Their projects and activities relating to e-commerce are listed in Annex I.

Proposed ECOTECH Activities

A. Guide for Small and Medium Enterprises

4. Most of the SMEs have heard of e-commerce, but are not very clear on how they can benefit from it. Currently, there is very little reference material on e-commerce, which can be used by the SMEs to assist them in participating in e-commerce. As such, a co-operative program to create a manual that can explain the benefits of e-commerce would be a useful guide for the SMEs.

5. It is recommended that a consultant be engaged to assist in the drafting of the manual. The manual should address the following:

   - Can the SMEs risk not addressing e-commerce?
   - How can e-commerce benefit the SMEs?

- What would the SME have to do to get into e-commerce?
- Are their existing programmes or networks in which the SME can participate?
- How much will it cost?
- Where can the SMEs get the necessary expertise?

B. Website for Small and Medium Enterprises

6. A programme to create and maintain a website for SMEs is proposed. In addition to advertising their products and services, the website would also serve to create networking among the SMEs.

C. Human Resource Capacity Building

7. Developing APEC economies lack the necessary human resources for the development of e-commerce. In order to overcome this constraint, it is proposed that APEC embark on a comprehensive HRD programme on various aspects of e-commerce. Basically, these programmes would be implemented through seminars and workshops in the following areas:

(i) Seminar on E-Commerce Application

The objective of this seminar is to enhance understanding of e-commerce relating to its applications, with particular focus on the simplification of trade procedures in all parts of trade chain.

(ii) Workshop on E-Commerce Technology

The objective of this workshop is to enhance the knowledge and skill of relevant personnel of APEC member economies in the areas of EDI and EDIFACT.

(iii) Seminar on E-Commerce Policy Formulation in APEC

The objective of this seminar is to strengthen cooperation among APEC member economies in policy formulation on e-commerce, through exchange of views on e-commerce policy framework of individual economies.

(iv) Seminar on the Establishment of E-Commerce Standards

The objective of this seminar is to strengthen cooperation among APEC member economies' standards authorities and regional and international standards organisations on standards for e-commerce.

(v) Seminar on Legal issues Related to E-commerce

The objective of this seminar is to strengthen cooperation among APEC member economies on legal issues related to e-commerce by reviewing the legislation of individual member economies.

(vi) Seminar on Information Security Technology

The objective of this seminar is to enhance understanding of the latest information security technologies and for exchanging experiences of the application of information encryption technologies.

(vii) Study on Tariffication Issues of E-Commerce

The objective of the study is to establish a reasonable tariffication policy and measures for e-commerce. It is also for exchanging experiences among member economies on the specific problems encountered in the operation of e-commerce.

(viii) Design and Establishment of Tariffication Information Network on E-Commerce

The objective is to set up an integrated tariffication information network on e-commerce.

(ix) Education and Skills Training

Education and skills training are critical to launching economies into mass use of electronic commerce. While education and skills training resources are scarce, they remain a fundamental need in all economies especially developing members who about to embark on e-commerce. The setting up of educational and skills training centres in each economy may not be financially and economically feasible. The alternative of establishing regional education/skills training institutions or a network of institutions that will provide training and scholarships (fellowships) to students from developing economies to study electronic commerce and/or multimedia is more cost-effective for developing economies. The business sector in APEC can be called to build partnerships with such regional institutions by funding chairs, buildings and equipment, besides funding a scholarship endowment fund to assist students from developing economies reading electronic commerce and/or multimedia courses.

D. Sharing of Experiences and Expertise

8. Some APEC economies are well on the way into electronic commerce. Others have just embarked on this journey while still others are

contemplating how best to jump-start electronic commerce in their economies. The developed economies of APEC have the necessary expertise and experiences, which can be shared with those economies that are about to embark on e-commerce. Some of the areas where experiences can be shared are the following:

(i) reference `document' on e-commerce policies and development strategies in various economies. The principles and approaches together with the institutional infrastructure, if any, that are adopted and established in each economy will be included in the `document';

(ii) reference `document' detailing how governments conduct business electronically. Details on the planning, implementation and the effects of various `electronic government' applications will be included in the `document';

(iii) reference `document' on SME success stories in adopting electronic commerce. Details on how they started, their strategic partners and how they managed e-commerce together with the benefits accrued will be included in the `document'.

CHAPTER 2

Trust In Information Systems And Electronic Transactions

2.1 Overview (Co-Chairs)

1. This summary draws from elements contained in the papers provided by Chinese Taipei, Australia and Japan. The basic premise here is that for businesses and consumers to use e-commerce, it is important that they must have trust in the information systems and also confidence to carry out an electronic transaction. From the policy point of view, this means in part making electronic transactions as secure and legally binding as traditional commercial transactions in order to minimise the risks that businesses and consumers face.

2. E-commerce is conceptually similar to the traditional paper-based commercial transactions. Controls have to be put in place to create the necessary level of security and certainty in the transactions. As electronic transactions involve transfer of information across networks, these are achieved through information security functions such as authentication, confidentiality and data integrity. This would then commonly imply the use of cryptography-based technologies like encryption and digital signatures.

3. The papers from Chinese Taipei and Japan have focused on this aspect of secure electronic transactions. The issues discussed here are both policy and technical in nature. On the policy side, reference is made to the OECD Guidelines on Cryptography Policy, which sets out 8 broad principles aimed at creating a co-ordinated approach on cryptography. Beyond this, member economies could consider an international framework as suggested by Japan. This would ensure that obstacles to e-commerce are not created by discriminatory treatment of other member economies' cryptographic methods. One concrete example is cross-certification. By recognising the certificates issued in other member economies and harmonising the policies on their use, e-commerce would be greatly facilitated.

4. Beyond international consensus on the policy framework, it is also necessary for member economies to develop complementing domestic legislative framework, so that e-commerce transactions and digital signatures are afforded a clear legal status as with traditional paper-based commercial transactions. Without the legislative framework, businesses will face lingering uncertainties (e.g. how is a contract formed electronically, are digitally signed documents equally binding as paper-based signed documents) in embracing e-commerce.

5. With regard to technical issues, mention is made of technical neutrality, i.e. e-commerce transactions must not hinge on specific cryptographic technology, in view of possible development of new technologies. Cryptography by nature cannot be inter-operable. If it were, it would defeat its capability to hide information from unauthorised eyes. The more important issue to consider would be that of establishing clear technical standards for exchange. However, with the ever connected

and growing communication networks, clear technical standards for cryptographic methods must be established so that there is compatibility and portability of systems. It is important for such standards to be promulgated and promoted widely, so that communication and e-commerce transactions can be provided securely end-to-end, irrespective of where parties reside.

6. From a slightly broader perspective, secure electronic transactions contribute to the bigger issue of consumer protection in e-commerce. The issue of consumer protection is taken up at length in the Australian paper. The Australian approach to consumer protection is an integrated one. Consumer protection laws are complemented by industry self-regulation, including consumer dispute resolution schemes, and consumer education regarding their rights and responsibilities. A logical extension of consumer protection is a certification or accreditation of approved e-businesses. By providing such a "mark of approval", consumers will be in a better position to discern trustworthy e-businesses from those that are not.

7. In formulating an international approach, one of the difficulties concerns which appropriate legislation apply in cross-border transactions. Again, the need for an international framework is raised here. Within an international framework, governments should consider what they view as appropriate for consumer protection and how business-to-business disputes could be handled. The international framework would then act as a check on the adequacy of domestic legislative and self–regulatory e-commerce policy and provide a basis for discussion between jurisdictions which seek some common approach to problems. In terms of enforcement, co-operation between enforcement agencies may overcome some of the jurisdictional problems inherent in e-commerce. For civil disputes, co-operation between international and domestic arbitration bodies may be useful.

8. Where there are areas of overlap in issues discussed in other international fora (e.g. OECD, WTO), it is recommended that APEC avoid duplicating efforts but recognise and co-operate with other international fora in this regard.

Issues for APEC

- A survey could be undertaken on the technical standards in cryptography currently being used by member countries. This will be a first step towards developing common technical standards for compatibility and portability of systems. Reference should be made with regard to current international discussions on cryptography, rather than addressing the issues from scratch.

- How can APEC member economies promote cross-border certification among themselves? Some broad principles for cross-certification can first be identified and commonly agreed upon. Subsequently, bilateral

arrangements should be investigated, with a view to refining these principles through practical experiences. With a baseline of bilateral cross-certification arrangements, a multilateral arrangement can then be pursued.

- How can APEC member economies contribute to the development of an international framework on consumer protection and cross-border business-to-business disputes? Again, can there be a similar APEC-wide framework? Should there be an information exchange among APEC member economies with respect to approaches to domestic consumer protection?

- How can APEC member economies encourage their respective industries to develop and adhere to self-regulatory regimes? How can an e-business certification or accreditation system be cultivated?

- Can there be joint, co-operative law enforcement actions to address unfair trading practices? How should APEC member economies begin to approach this? What approaches can be taken for civil disputes?

- Are there advantages of providing ancillary e-commerce services (e.g. a regional electronic trade and financial clearing house, electronic notary services, etc.) to facilitate greater e-commerce activities between APEC member economies? What are other ancillary e-commerce services that should be considered?

2.2 Summaries of Discussion from Kuching and Kuala Lumpur Roundtables (Co-Chairs)

Kuching

- Participants noted that efforts to build trust and confidence need to fit with and build on existing frameworks and relationships for commerce and consumer protection
    - these efforts need to recognise the diversity of approach in regional economies
    - off-line laws and practices are relevant online, as are existing relationships.
- It was recognised that systems do not need to be uniformly secure or draw from the same technology, but to work well enough for the value of electronic commerce to exceed the risks
    - different types of transactions might require different levels of security
    - to an extent, suspicion of what is new is a factor contributing to consumer hesitation and does not necessarily require new systems, technologies or regulation, but promotion of understanding and use of the new mechanisms.
- Consideration of guidelines and global arrangements developed elsewhere was seen as important, and the meeting supported continued monitoring and review of those developments as a basis for further consideration of electronic commerce security and trust issues in APEC
    - OECD, WIPO and UNCITRAL developments were noted in this regard.
- Discussion focused on the differences in trust and confidence issues of business-to-business and business-to-consumer transactions, while noting that business-to-business flows are presently by far the largest portion of transactions.
- It was considered important that any guidelines or agreements on issues such as authentication and digital signatures not be so prescriptive that they prevent the stimulation of electronic commerce
    - mindful that trust needs to be fostered by such steps but cannot be imposed

- and mindful that pilots and demonstrations are powerful tools in building confidence among potential users.

- The meeting noted that feeling confident with other jurisdictions internationally may require some international frameworks or harmonisation but, at the very least, will require building feelings of confidence in being involved in business in those other jurisdictions

  - in this sense there is little difference to existing forms of international commerce.

Kuala Lumpur

- The Task Force noted OECD work on privacy, authentication and consumer protection and recommended APEC examination of this work with a view to picking up aspects of relevance to APEC economies.

  - welcomed announcements of plans for a joint specialists' workshop on authentication between the OECD, APEC and EU early in 1999 and urged business sector involvement.

- The Task Force recognized the importance of training in raising awareness and building trust in the use of electronic commerce. The Task Force agreed to explore the potential for using pre-existing funding sources and self-funding for training in 3 broad areas of policy, business and technicians.

- The Task Force recognized the need for cross-certification as a possible mechanism for the interoperability of systems to facilitate the promotion of cross-border e-commerce. The Task Force recommended a group of experts be established within TEL-WG to examine potential implementation issues including the joint Singapore/Canada proposal on cross-certification.

  - noting the difference between delivery and governance aspects of certification

  - urging business sector involvement in experts' examination of these issues

- The Task Force suggested consideration of APEC demonstration of digital signing for future Ministers' or Leaders' agreements as appropriate.

- Discussion recognized that basic business relationships provided the trust aspect of electronic transactions, as with other forms of transactions, but the security of identification and verification of business partners and transactions was where electronic forms posed different problems.

- Discussion also recognized the role that can be played by industry self-regulation and codes of practice in building trust in e-commerce and encouraged APEC examination of various models already being developed.

2.3 Promoting Trust and Confidence in Electronic Commerce (Chinese Taipei)

Introduction

1. Because of the continuing growth in the use of computer systems within Electronic Transactions. Business information is becoming more valuables, and the production, distribution and use of information is an increasingly important economic activity. While open information and communications networks make electronic transmission of all kinds of digitized data fast, cheap and simple, the ability to make and distribute perfect copies of all kinds of data creates a number of challenges for the protection of intellectual property. Trade in creative content can provide economic incentives to fuel the development of information and communications technologies, and intellectual property protection is essential to stimulate the production of, and trade in, high-quality content. So how to protect those valuable information which may be protected by intellectual property law becomes a very essential issue.

2. Electronic commerce offers great opportunities for the business community and consumers, however it also brings with it some significant risks. The explosive worldwide growth of open networks has raised a legitimate concern with respect to the adequacy of security and privacy measures for information and communications systems and the data, which is transmitted and stored on those systems. Systems and data are increasing vulnerable to unauthorized access and use, misappropriation, alteration and destruction. This vulnerability can erode trust in electronic transactions.

3. Within electronic commerce, information is availability, confidentiality and integrity. Security of information and communication systems involves the protection of the availability, confidentiality and integrity of those systems and the data that is transmitted and stored on them. The quality of security for information and communication systems and the data that is stored and transmitted on them depends not only on the technical measures, including the use of both hardware and software tools, but also on good managerial, organizational and operational procedures. Global electronic commerce highlights the importance of common standards and procedures for security techniques.

4. Security of computer systems is an international matter because the computer systems themselves via Internet often cross national boundaries and the issues to which they give rise may most effectively be resolved by international consultation and co-operation. Therefore, to establish a secure commerce environment on the Internet and win confidence among not only the APEC members but also global nations becomes an important milestone for all members in APEC.

Secure Electronic Commerce and Cryptography

5. In order to make good use of commercial opportunities offered by electronic communication via Internet, a secure and trustworthy environment is necessary?

6. Both technical and legal solutions are required to replace in the electronic world the physical security of the paper-based world. It is important that solutions are trustworthy and that consumers have confidence in them.

7. Cryptography is an important component of secure information and communications systems and a variety of applications have been developed those incorporate cryptographic methods to provide data security. Cryptography is an effective tool for ensuring both the confidentiality and the integrity of data, and each of these uses offers certain benefits.

8. Cryptographic technologies are nowadays widely recognized as the essential tool foe security and trust in electronic communication. Digital signatures and encryption are two important applications of cryptography. Digital signatures can help to prove the origin of data and verify whether data has been altered.

9. Encryption can help keeping data and communication confidential.

10. Encryption is an essential tool in providing security in the information age. Encryption is based on the use of mathematical procedures to scramble data so that it is extremely difficult for anyone other than authorized recipients to recover the original "plaintext".

Policy Issues

11. Regarding security policy issues, we would like to call for all members in APEC to set up security policy followed by all members. The security policy may reference Guidelines for the Security of Information Systems and Guidelines for Cryptography Policy created by the OECD.

12. In 1997 the OECD issued Guidelines for cryptography policy,which set out eight principles. A number of economies have adopted the principles and used them in legislation, standards or codes of conduct. The Guidelines are primarily aimed at governments but with anticipation that they will be widely read and followed by both the private and public sectors. These principles are:

12.1 TRUST IN CRYPTOGRAPHY METHODS

Cryptography methods should be trustworthy in order to generate confidence in the use of information and communication systems.

12.2 CHOICE OF CRYPTOGRAPHIC METHODS

Users should have a right to choose any cryptographic methods, subject to applicable law.

12.3 MARKET DRIVEN DEVELOPMENT OF CRYPTOGRAPHIC METHODS

Cryptographic methods should be developed in response to the needs, demands and responsibilities of individuals, businesses and governments.

12.4 STANDARDS FOR CRYPTOGRAPHIC METHODS

Technical standards, criteria and protocols for cryptographic methods should be developed and promulgated at the national and international level.

12.5 PROTECTION OF PRIVACY AND PERSONAL DATA

The fundamental rights of individuals to privacy, including secrecy of communications and protection of personal data, should be respected in national cryptography policies and in the implementation and use of cryptographic methods.

12.6 LAWFUL ACCESS

National cryptography policies may allow lawful access to plaintext, or cryptographic keys, have encrypted data. Theses policies must respect the other principles contained in the guidelines to the greatest extent possible.

12.7 LIABILITY

Whether established by contract or legislation, the liability of individuals and entities that offer cryptographic services or hold or access cryptographic keys should be clearly stated.

12.8 INTERNATIONAL CO-OPERATION

Governments should co-operate cryptography policies. As part of this effort, governments should remove, or avoid creating in the name of cryptography policy, unjustified obstacles to trade.

13. The Guidelines for Cryptography Policy are intended:

13.1 To promote the use of cryptography;

13.2 To foster confidence in information and communications infrastructures, networks and systems and the manner in which they are used;

13.3 To help ensure the security of data, and to protect privacy, in national and global information and communications infrastructures, networks and systems;

13.4 To promote this use of cryptography without unduly jeopardizing public safety, law enforcement, and national security;

13.5 To raise awareness of the need for compatible cryptography policies and laws, as well as the need for interoperable, portable and mobile cryptographic methods in national and global information and communications networks;

13.6 To assist decision-makers in the public and private sectors in developing and implementing coherent national and international policies, methods, measures, practices and procedures for the effective use of cryptography;

13.7 To promote co-operation between the public and private sectors in the development and implementation of national and international cryptography policies, methods, measures, practices and procedures;

13.8 To facilitate international trade by promoting cost-effective, interoperable, portable and mobile cryptographic systems;

13.9 To promote international co-operation among governments, business and research communities, and standards-making bodies in achieving coordinated use of cryptographic methods.

14. One of the most hotly debated policy issues in the encryption field today is key length, which refers to the number of bits in a particular encryption key. The difficulty of breaking a key is decreasing as computers get faster, there has been increased demand for legislative overhaul. Key length continues to be a controversial issue. In June 1997, a team using a “brute force” attack cracked the DES cipher, which uses fixed-size, 56-bit encryption keys. Many global companies are seeking stronger encryption products to meet their security needs. The main focus of the industry is on the prospects for using strong encryption to promote secure electronic commerce and on the need to be able to export cryptographically strong products to be competitive.

15. The GEC framework states that security concerns must balance the needs for strong encryption technology necessary to protect legitimate electronic transactions with the needs of law enforcement to encryption that might be used for illegal purpose. Key management systems could provide a basis for a possible solution, which could balance the interest of users and law enforcement authorities; these techniques could also be used to recover data, when keys are lost. Processes for lawful access of cryptographic keys must recognize the distinction between keys, which are used to protect confidentiality, and keys, which are used for other purposes only. A cryptographic key that provides fir

identity or integrity only should not be made available without the consent of the individual or entity in lawful possession of that key.

16. The United States and other national governments have sought to prevent widespread use of cryptography unless "key recovery" mechanisms guaranteeing law enforcement access to plaintext are built into systems. For the time being, there seems to be no consensus about supporting for the U.S. Government‘s policy proposals for control of strong data encryptions. Some countries believe that import/export restrictions on cryptography may act, as a barrier to free trade, and this issue should be addressed at the Word Trade Organization and other international organizations.

17. If APEC member economies are to consider policies on cryptography that provide lawful access, governments should carefully weigh the benefits for public safety, law enforcement and national security, as well as the risk of misuse, the additional expense of any supporting infrastructures, the prospects of technical failure, and other costs.

18. Governments have traditionally played a role in helping to establish trust in economic transactions, but in the rapidly changing world of information technology, the private sector plays an increasingly important role. Industry is called upon to develop technological solutions to meet the needs of businesses and consumers for different levels of security, certification, privacy and consumer redress. As a result, governments should implement technology-neutral policies, so, as not to limit or hamper electronic commerce or create regulations that will hinder electronic business transactions. In order to promote international trade, governments should avoid developing cryptography policies and practices, which create, unjustified barriers to global electronic commerce. No government should impede the free flow of encrypted data passing through its jurisdiction merely on the basis of cryptography policy.

19. In order to promote the broad international acceptance of cryptography and enable the full potential of the global information and communications network, cryptography policies developed by a country should be coordinated as much as possible with similar policies of other countries through bilateral and multilateral cooperation and agreement.

20. Since a number of APEC member economies are also members of the OECD, we recommends that other member economies also consider the OECD cryptography guidelines when formulating their own policies for cryptography.

Technical Issues

21. With regard to technical issues, perhaps the biggest technical challenge for on-line commerce pertains to securing transactions over

the Internet. Standardization is an important ingredient of security mechanisms. It is important for governments and industry to work together to provide the necessary architecture and standards so that information and communications systems can reach their full potential. It is important that cryptographic methods be interoperable, mobil and portable at the global level. Interoperability means the technical ability of multiple cryptographic methods to function together. Mobility means the technical ability of cryptographic methods to function in multiple information and communications infrastructures. Portability means the technical ability of cryptographic methods to be adapted and function in multiple systems. We urge all members in APEC working together on these issues and setting up technical standards which may adopt existing international technical standards.

22. From the technical point of view, digital economy including electronic bank system, electronic payment and funds transfer system, electronic cash system etc. needs encryption technology to provide confidentiality and security of transaction information. Nowadays encryption technology used in commercial product is a combination of symmetric key (DES) and asymmetric key (public keys).

23. Standardizing symmetric and asymmetric key algorithm for encryption technology used by APEC members is a top priority task. In order to establish a secure e-commerce environment, we like to pose several security issues, which we think they are the minimum requirements to meet e-commerce needs:

23.1 Confidentiality of Information

It is important that the account and payment information is transmitted securely without being accessible to unauthorized parties. A potential fraud can occur by an intruder intercepting all traffic and filtering the account information, such as the credit card number, expiration data, and the cardholder name.

Data confidentiality is ensured through the use of message encryption.

23.2 Data Integrity

The payment protocol must ensure that the message content is not modified during transmission between the sender and the receiver. The payment information from the sender (cardholder) includes personal data, order information, and instructions for the payment. We must provide the means to ensure that the message content is protected from any modifications.

Data integrity is provided through the use of digital signatures.

23.3 Authentication

It is essential to authenticate cardholder and merchant to be a legitimate entity before any transaction performed.

This goal can be achieved through the use of digital signatures.

23.4 Interoperability

The payment protocols must provide the capability that it can operate on a variety of hardware and software platforms without providing preference to one over another.

Interoperability is provided by the use of specific protocols and message formats.

Questions that APEC should be asking about this issue

24. There are several questions regarding encryption and security issues. We summarized as follows:

- How strong the encryption technology is needed for e-commerce?
- How to build up key escrow/ recovery system that can be accepted by all members in APEC to obstruct illegal behavior in electronic transactions?
- What kind of standards we should be followed?

Conclusion: Implications for APEC and what APEC may be able to contribute

25. We live on commerce. We buy things we need with what we can offer in return.

26. Money is the means to transact the commerce. Because of technology breakthrough, a revolution is underway. We are heading towards a cashless society using digital currency and online commerce over the Internet. Predictions vary on the rate at which this revolution is moving, but move is must. We hope that APEC can play a leading role in these respects and promote e-commerce in Asia area.

27. Finally, Chinese Taipei desires to play active role in Encryption field. We hope our contribution is helpful and our point of view regarding encryption is valuable to all members. We would like to keep working on this issue. If you have any questions regarding this report, please contact us as your convenient.

2.4 APEC Issues on Electronic Signatures (Japan)

Introduction

1. Electronic authentication is used for verifying the identity of a party to a transaction and checking that the data is not altered over networks. It is an essential element to ensure reliability in electronic commerce. Electronic signatures are one means of electronic authentication, and the most widely used is the digital signature based on the asymmetric cryptography system.

2. With the digital signature, identification and authentication are conducted through verifying a digital signature with the public key corresponding to the secret key used by an author (signer) to generate the digital signature.

3. A third party, who certifies the relationship between a public key and its owner, by issuing public key certificates, is called certification authority (CA). Authentication by a CA is considered to be necessary, particularly in communicating with many and unspecified persons over open networks.

Policy issues

Institutional position of CA

4. In legalizing electronic signatures, there are some cases where an institutional framework governing CAs is introduced to ensure the reliability of CAs. Currently under consideration, and approaches already in operation, are the mandatory licensing, the voluntary licensing, giving legal effect, and leaving to voluntary actions by the private sector.

International framework

5. If an economy introduces any laws and/or regulations, it is expected that those laws and/or regulations should be minimal, and that dealing should not create obstacles to cross-border electronic commerce with other economiesí electronic authentication in a discriminatory way.

Requirements of CA

6. Examples of requirements of CAs are as follows:

- Ensuring security and reliability
- Technical components
- Procedures of identification
- Contents of a certificate
- Publication of revoked certificates on a revocation list
- Protection of personal data of users

7. In some CA services, different levels of certificates are issued according to the importance of transactions. There exists a view that elements of minimum requirements are considered to vary by the level of certificate.

Technical issues - Technical neutrality

8. Technologies for authentication between communicating parties include the asymmetric cryptography system, the symmetric cryptography system, biometrics and passwords.

9. The asymmetric cryptography system is the most widely used. Since various authentication methods and technologies are rapidly developing, it is important to allow parties to a transaction to freely choose appropriate electronic authentication independent of specific technologies.

Commercial issues

Role of government

10. The basic role of government should be to create an environment where the vitality of the private sector is recognized, and the efforts of the private sector in formulating rules or guidelines should be encouraged. If involvement of the government is needed, it should be minimal and not hinder the development of business.

Form of transactions

11. Closed transactions are conducted with specific parties continuously, and open transactions with many and unspecified parties, mostly on a temporary basis. Also, transactions are conducted within a business, between businesses, and between businesses and consumers.

12. Transaction ranges from low price commodities to expensive settlement between businesses in value.

13. In investigating CA issues, it should be considered that parties to a transaction are allowed to determine the appropriate technological and business methods of electronic authentication for their transaction, since the required level and functions of electronic authentication vary by transaction.

Frameworks, principles, other agreements or work on this issue

- Public and private/business sector
- Domestic, regional and international

Australia Strategies for the implementation of a Public Key Authentication Framework in Australia

Japan Guidelines for Certification Authorities (MPT)

Report on the Legal System of Electronic Commerce (MOJ)

Certification Authority Guidelines (ECOM)

U.S.A UCC2B, Uniform Electronic Transactions Act

UNCITRAL

Draft uniform rules on electronic signatures are under discussion. The draft currently inclines toward allowing certain public standards to be set for operations of CAs etc., while allowing CAs which are not based on such legislative framework (dual approach).

Other issues and information

14. Including, but not limited to:

- Details of documents, studies, etc., of interest produced on this issue

EU ensuring security and trust in electronic communication

Germany Digital Signature Act

U.K. Licensing of Trusted Third Parties for the provision of encryption services

- Details of meetings, conferences and seminars in 1998 on this issue

EU Expert hearing on digital signatures and encryption (April 23-24)

Questions that APEC should be asking about this issue

- What contribution can APEC make to the studies on a legal framework for electronic authentications, which are under discussion at other international organizations, etc.?

- What contribution can APEC make to promote cross-border electronic authentication among member economies?

Conclusion: implications for APEC and what APEC may be able to contribute

15. It is important to build user confidence in order to promote cross-border electronic commerce within the APEC region. For that purpose, the promotion of the provision and use of CA services within the region by realizing cross-border electronic authentication is necessary for secure electronic commerce.

16. APEC can contribute to this by:

- Coordination, cooperation and information exchange with other international organizations
- Information exchange on each economyís approach
- Promotion of experimental projects to ensure cross-border interoperability of certification authorities

2.5 Cross-Certification within APEC (Canada and Singapore)

Introduction

1. The world is fast evolving into an information age characterised by broad connectivity and a growing importance of Information Technology (IT) in all walks of life. With e-commerce now becoming a new mode of trading, previous inhibitions due to physical border demarcations and time zone differences will become things of the past. Electronic businesses will be empowered to explore newer delivery channels and targeted marketing segments, otherwise inaccessible due to geographical limitations. For this vision to become a reality, however, there is a need to establish trusted environments to provide certainty and transparency to transactions undertaken beyond national borders. In other words, businesses and consumers alike must have trust in the systems and also confidence to carry out the transactions.

2. From the policy point of view, this means in part making electronic transactions as secure and legally binding as traditional commercial transactions in order to minimise the risks that businesses and consumers face. This can be achieved through cryptography-based technologies such as encryption and digital signatures using public-key certificates to identify users and secure transaction data. The comprehensive system required to provide public-key encryption and digital signatures is known as a Public Key Infrastructure (PKI). Once a PKI is in place, parties within the trading system will have the full assurance that message flows among all parties are secure and that the transacting partner can be identified and even held accountable under common business laws.

3. The nature of a PKI, however, is such that the users are often defined by a physical geographical boundary, most typically an economy. Thus, in order to facilitate the exchange of identities and protected business data and hence e-commerce, it is important for cross-domain interoperability of PKIs among economies to exist. This is known as cross-certification.

4. On 1 June 1998, a technical PKI interoperability trial was demonstrated between the Governments of Canada and Singapore. This marks the world's first such government-to-government cross-certification arrangement, representing a major milestone in the elimination of barriers to global e-commerce. It is the sincere wish of both countries to share their experience and knowledge in the areas of PKI development and cross-certification with the rest of the APEC economies, so as to further achieve APEC's trade and investment goals for the region.

Proposal

5. The proposal is for the Task Force to recommend to Ministers and Leaders that APEC member economy aim to implement cross-certification within APEC. As highlighted, this proposal has the benefits of:

- demonstrating the commitment by APEC member economies to facilitate exchange of identities and data across borders and in the process, enhance electronic transactions;

- increasing the level of trust and confidence by users of e-commerce, if implemented; and hence

- contributing to the promotion of a predictable and consistent legal and regulatory environment as mandated by the Ministers/Leaders.

6. The proposal had in fact been first raised by Singapore at the Task Force's meeting in Kuching, Malaysia on 12-13 June 98. At the meeting, Singapore had suggested that there was a compelling need to facilitate an e-commerce-enhancing growth environment through the forging of closer relations between buyers and sellers across borders. This is a role that APEC, with its diverse and yet complimentary economic interests, was ideally suited to take on.

Details of Cross-Certification

7. Cross-certification will be manifested in what are termed cross-certified PKIs. These allows the provision of protected electronic gateways across borders, thus ensuring privacy and authentication for businesses, individuals and governments transacting within the cross-certified environment. With such a mechanism in place, it will then be possible for two transacting parties in different APEC member economies to adequately identify each other electronically and send protected business data to one another. This helps to establish a zone of trust across borders, and hence facilitates trade.

8. Technical interoperability of PKIs has been demonstrated to be feasible (for example, the technical cross-certification of the Government of Canada PKI and Singapore's PKI). Through this technical trial, it has been illustrated that it is indeed possible to link the PKIs of two economies to allow buyers and sellers within two geographically distinct localities to interact with confidence.

9. Besides the technical provision of the cross-certified environment, there is also the critical need to harmonise the necessary policies (for example, legal presumption of digital signatures, quality of service of certificate authorities (CAs), transborder legal liabilities) governing cross-certification, as real trading will take place under this technology umbrella.

10. Depending on the parties engaging in the arrangement, cross-certification can take the form of one of the following three models:

- Government-to-Government;
- Industry-to-Industry; and
- Government-to-Industry.

Cross-Certification Action Sequence

11. To tap on the unlimited potential of e-commerce, it is important for cross-certification links to exist within APEC member economies. As a start, there should be active efforts in linking the PKIs of APEC economies. The typical cross-certification process is outlined below:

8.1 *Establishment of intent*. This serves as a preliminary indication of willingness on the part of interested parties to see to the establishment of a cross-certified environment among PKIs.

8.2 *Establishment of legal agreements and policy harmonisation*. Before the technical sequences of cross-certification can be executed, there needs to be the establishment of legal agreements among the parties. Some pertinent issues that need to be considered would be the lifetime of the cross-certification link, implications of revocation by any party and liability implications when losses are sustained on any side..

8.3 *Exchange of certificate policies (CP) and certificate practice statements (CPS) among the parties*. For all parties to establish an adequate degree of trust in the security of each other's PKI, it is important for each to have an appreciation of the other's established policies. This is done through the exchange of CP, which are guidelines to be enforced upon a CA within a PKI, and CPS, which outlines the self-defined guidelines that the CA has published to potential customers as being its code of practice. An understanding of the *modus operandi* of a specific PKI will be translated into real undertakings towards policy harmonisation specifically in the establishment of mutually recognised CPs.

8.4 *Exchange of site-survey documents among the parties*. The site-survey document serves to provide a concise depiction of the technical landscape operated by both parties. This is a necessary pre-requisite that both parties will need to complete before any technical cross-certification can proceed. Once completed, both parties can then proceed to highlight the potential pitfalls that may surface due to divergence in approach.

8.5 *Initiate mutual site-survey of facilities among the parties*. To facilitate the trust relationship between to cross-certifying PKIs, it is a widely accepted protocol for mutual invitation to perform site inspection

of the PKI installation. Such a physical site-survey serves as a verification exercise in ascertaining the relevance and correctness of the site survey document. It also serves as a face-to-face meeting to resolve outstanding disagreements and arrangements towards the actual execution of cross-certification.

8.6 Execute DSP-DSP directory chaining. DSP (directory system protocol)-DSP chaining is a relative straightforward exercise unless the nature of the two directory services are incompatible to a large extent. Where possible, directory vendor involvement should be solicited so that issues can be quickly resolved. With the necessary distinguished name (DN), Internet protocol (IP) addresses and port numbers provided in the site-survey document, directory chaining can then be executed.

8.7 Execute cross-certification sequences once directories are chained. Once directories chaining facilities are established, this implies that certificate queries can be facilitated across multiple search bases, between one directory service and another via defined ports over the Internet. With the ability to search each other's repository entries, cross certification can then be initiated via the retrieval of each other's root public key certificates and signing them for distribution within the local repository.

Enabling Cross-Certification within APEC

12. To enable cross-certification within APEC, the following areas are proposed for action:

- Exchanging information about PKI among APEC economies;
- Conducting technical trials to test interoperability of systems across APEC member economies;
- Contributing to the harmonisation of e-commerce policies especially in the area of cross-certification;
- Facilitating the establishment of CAs within APEC member economies; and
- Mutually recognising digital signatures based on PKI to support cross-border transactions.

13. An APEC Cross-Certification Task Group could be established to look into these action items, under the auspices of an acknowledged and operating working group. The charter of the Task Group would be to:

- Promote greater awareness of the importance of cross-certification for cross-border e-commerce;

- Develop a generic framework of technical and policy procedures that will facilitate cross-certification; and

- Develop a program of action that will eventually result in a network of cross-certified PKIs among member economies.

2.6 Privacy and Electronic Commerce (US)

Introduction

1. Electronic commerce and other information technologies are transforming the face of global commerce and will drive the engine of economic growth well into the 21st century. They can drastically reduce transaction costs, make distances between buyers and sellers irrelevant, and provide access to global markets, even to small- and medium-sized companies.

2. Information technologies also allow information to be collected, compiled, analyzed, and delivered around the world more quickly and efficiently than ever before. Where information was once difficult, time-consuming and expensive to obtain and store, it is now often available with a few simple clicks of a computer mouse.

3. Consumers benefit from increased access to information. They can cruise the Internet seeking all sorts of information. Companies too can benefit. The Internet allows them to reach potential customers easily and cheaply. Increased access to customers can reduce marketing and inventory costs. Moreover, in today's global economy, technology makes it easier to integrate data from several sources to create an information-rich packet about an individual. As a result, consumer information has become a "hot" commodity. Not surprisingly, there is a growing demand for all kinds of information.

4. The great promise of electronic commerce then is also its greatest threat. The increased market for personal information coupled with the ability to collect and compile it easily has led to an enormous increase in the amount of information collected about consumers as they perform commercial transactions and cruise the Internet. The inherently global nature of the Internet further complicates the matter. Citizens of one country can easily visit websites in other countries, leaving behind valuable information.

5. Polls suggest that consumers are wary of using the Internet because of concerns about their privacy. If electronic commerce to realize its enormous potential consumers must be confident that there personal information is protected against misuse. Electronic commerce in the next century will thrive only to the extent that individuals' privacy is protected.

Policy Issues

6. A recent poll published in the March 16, 1998 issue of **BusinessWeek,** indicated that 61% of the those who don't do online would be more likely to start using the Internet if they thought their personal information would be protected. The same poll indicates that 52% of those who have gone on-line but haven't bought anything on-line, are concerned that the company they buy from would use their personal information to send them unwanted information. Ultimately, consumers will have to feel comfortable with how their personal information is used and their ability to controls its use if they are to use electronic commerce to its full extent.

7. At the same time, as noted above, one great benefit of the Internet is its ability to make enormous amounts of information readily available and easy to manipulate, sort, and compile. Indeed, information and the ability to collect and disseminate it is the foundation of an information economy. Information is the "capital" of an information society and can produce enormous social benefits. A global information economy thus depends on the free flow of information. The challenge is to balance carefully and in as tailored a way as possible the competing values of protecting individuals' right to privacy against the need for the free flow of information.

International Consensus on Substantive Principles

8. International consensus on privacy protection centers on the Organization for Economic Cooperation and Development's Guidelines on the Protection of Privacy and Transborder Flows of Personal Data (the OECD Guidelines). Issued in 1980, the OECD Guidelines embody well-established principles of fair information practices. These principles, which form the basis of the US Privacy Act of 1974, have two purposes: 1) to form the basis for data protection regimes and 2) ensure the free flow of information between and among nations. The OECD Guidelines set out eight principles of fair information practices:

1) Collection Limitation Principle - There should be limits to the collection of personal data and any such data should be obtained by lawful and fair means and, where appropriate, with the knowledge or consent of the data subject.

2) Data Quality Principle - Personal data should be relevant to the purposes for which they are to be used, and, to the extent necessary for those purposes, should be accurate, complete and kept up-to-date.

3) Purpose Specification Principle - The purposes for which personal data are collected should be specified not later than at the time of data collection and the subsequent use limited to the fulfilment of those purposes or such others as are not incompatible with those purposes and as are specified on each occasion of change of purpose.

4) Use Limitation Principle - Personal data should not be disclosed, made available or otherwise used for purposes other than those specified in accordance with Paragraph 3 except:

a) with the consent of the data subject; or

b) by the authority of law.

5) Security Safeguards Principle - Personal data should be protected by reasonable security safeguards against such risks as loss or unauthorized access, destruction, use, modification or disclosure of data.

6) Openness Principle - There should be a general policy of openness about developments, practices and policies with respect to personal data. Means should be readily available of establishing the existence and nature of personal data, and the main purposes of their use, as well as the identity and usual residence of the data controller.

7) Individual Participation Principle - An individual should have the right:

a) to obtain from a data controller, or otherwise, confirmation of whether or not the data controller has data relating to him;

b) to have communicated to him, data relating to him, 1) within a reasonable time; 2) at a charge, if any, that is not excessive; 3) in a reasonable manner; and 4) in a form that is readily intelligible to him;

c) to be given reasons if a request made under subparagraphs (a) and (b) is denied, and to be able to challenge such denial; and

d) to challenge data relating to him and, if the challenge is successful to have the data erased, rectified, completed or amended.

8) Accountability Principle - A data controller should be accountable for complying with measures, which give effect to the principles stated above.

9. The OECD Guidelines have served as the basis for virtually all privacy legislation and codes of conduct that have been developed over the years. At a recent OECD workshop on privacy, the Guidelines were reaffirmed as relevant to the information age.

10. While there is consensus on the substantive principles, different countries have adopted different approaches to implementing the OECD Guidelines. The two basic approaches are generally described as comprehensive legislation and self-regulation, although these labels

oversimplify matters somewhat. Self-regulatory approaches invariably include some form of legislation and comprehensive legislative approaches usually also include elements of self-regulation.

Different Approaches to Implementing Privacy Protection

Comprehensive Legislative Approaches to Privacy

11. The comprehensive legislative approach to privacy generally involves broad, all encompassing "omnibus" legislation that applies to all industry sectors. Approximately 25 countries have adopted such legislation, including three APEC Members economies. They are Hong Kong, New Zealand, and Taiwan.

12. This approach is typified by the European Union's Directive on Data Protection. The Directive, which was adopted in 1995 and must be fully implemented by the 15 EU member states by October 1998, grows out of Europe's historical and legal traditions. Protection of one's personal information is considered a basic human right in Europe and is codified in the European Convention for the Protection of Human Rights and Fundamental Freedoms. This emphasis on privacy protection has its roots in some of the abuses of World War II and the Cold War. Additionally, Europe has a tradition of promulgating laws that seek to guard against future harms, particularly those with societal implications.

13. The scope of the Directive is extraordinarily comprehensive. It has two basic objectives: 1) to protect individuals with respect to the "processing" of personal information (defined as information relating to an identified or identifiable natural person), and 2) to ensure the free flow of personal information within the European Union through the coordination of national laws. It applies to all processing of data, manual as well as automatically, and all organizations holding personal data. It excludes from its reach only data used in the course of purely personal or household activity. Sets forth below are the Directive's basic terms:

Data Quality - The Directive requires that all personal information must be processed fairly and lawfully, so that, for example, a person whose personal information is at issue knows that it is being collected and used and is informed of the proposed uses.

Legitimate Data Processing - Most basically, this requires obtaining the consent of the data subject before information is processed unless specific exemptions apply.

Sensitive Data - "Sensitive" data, such as that pertaining to racial or ethnic origins, political or religious beliefs, or health or sex life, may not be processed at all unless processing comes within exceptions.

Security - The Directive requires that "appropriate technical and organizational measures to protect data" against destruction, loss, alteration, or unauthorized disclosure or access is taken.

Data Controllers - Those processing data must appoint a "data controller" responsible for all data processing, who must register with government authorities and notify them before processing any data.

Government Authority - Each member country must establish an independent public authority to supervise the protection of personal data.

Transfers of Data outside the EU - The Directive requires that Member States enact laws prohibiting the transfer of personal data to non-member countries that fail to ensure an adequate level of protection.

14. Comprehensive or omnibus privacy legislation has been criticized on the grounds that it is unduly centralized, bureaucratic, rigid and expensive to implement. And, some have questioned whether it can be enforced in today's distributed network environment. Legislated approaches may also have limited utility in the world of electronic commerce since their effectiveness is limited by a nation's boundaries and the dynamic pace of technological development. On the positive side, legislative approaches are said to provide clear rules.

Self-Regulation

15. "Self-regulation" encompasses a range of meanings. At one end of the spectrum, the term is used quite narrowly to refer only to those instances where the government has formally delegated the power to regulate an industry. At the other end of the spectrum, the term is used when the private sector perceives the need to regulate itself for whatever reason and does so. Self-regulation and privacy legislation is not mutually exclusive. Indeed, many regimes rely on both. We use the term here in its broadest sense to encompass all these meanings.

16. Regardless of the definition, for self-regulation to be effective, it must involve substantive rules that articulate basic principles and provide some means for customers to know the rules and that companies actually do what they promise to do, that customer can have their complaints heard and resolved fairly, and that companies suffer some consequences if they fail to comply.

17. Several APEC economies take self-regulatory approaches to privacy protection. These include the US, Australia, Japan, and Canada. These countries also all rely, to some extent on some legislation. Provided below is a brief discussion of some representative self-regulatory approaches to privacy.

U.S. Approach. The US relies on a mix of sector-specific legislation, regulation, and private sector codes of conduct and market forces. It passed comprehensive legislation governing the Government's use of information in 1974. The US has also adopted sectoral legislation in areas where there have been abuses (Video Privacy Protection Act of 1988 and the Fair Credit Reporting Act) or where the market is not fully competitive (privacy provisions of The Telecommunications Act of 1996 and the Cable Communications Policy Act). Most generally, however, the US has relied on industry codes of conduct to protect privacy.

When the Clinton Administration released **A Framework for Global Electronic Commerce,** in 1997, it reaffirmed the Administration's commitment to effective self-regulatory privacy protection. It also noted that technology would probably resolve many online privacy concerns.

Since then, the US Government has been working closely with the US private sector to encourage it to development and implementation of effective privacy self-regulation. In January 1998, the Department of Commerce released a draft discussion paper to focus the policy discussion about the essential elements of effective self-regulation. The draft elements are:

Draft U.S. Elements of Effective Self-Regulation

A. Principles of Fair Information Practices

1. Awareness. At a minimum, consumers need to know the identity of the collector of their personal information, the intended uses of the information, and the means by which they may limit its disclosure. Companies collecting and using data are responsible for raising consumer awareness and can do so through the following avenues:

Privacy policies. Privacy policies articulate the manner in which a company collects, uses, and protects data, and the choices they offer consumers to exercise rights in their personal information is used. On the basis of this policy, consumers can determine whether and to what extent they wish to make information available to companies.

Notification. A Company's privacy policy should be made known to consumers.Notification should be written in language that is clear and easily understood, should be displayed prominently, and should be made available before consumers are asked to relinquish information to the company.

Consumer education. Companies should teach consumers to ask for relevant knowledge about why information is being collected, what the information will be used for, how it will be protected, the consequences of providing or withholding information, and any recourse they may have. Consumer education enables consumers to make informed decisions about how they allow their personal data to be used as they participate in the information economy. Consumer education may be

carried out by individual companies, trade associations, or industry public service campaigns.

2. Choice. Consumers should be given the opportunity to exercise choice with respect to whether and how their personal information is used, either by businesses with which they have direct contact or by third parties. Consumers should be provided with simple, readily visible, available, and affordable mechanisms whether through technological means or otherwise to exercise this option. For certain kinds of information, e.g., medical information or information related to children, affirmative choice by consumers may be appropriate. In these cases, companies should not use personal information unless its use is explicitly consented to by the individual or, in the case of children, his or her parent or guardian.

3. Data Security. Companies creating, maintaining, using or disseminating records of identifiable personal information should take reasonable measures to assure its reliability for its intended use and should take reasonable precautions to protect it from loss, misuse, alteration or destruction. Companies should also strive to assure that the level of protection extended by third parties to which they transfer personal information is at a level comparable to its own.

4. Consumer Access. Consumers should have the opportunity for reasonable, appropriate access to information about them that a company holds, and be able to correct or amend that information when necessary. The extent of access may vary from industry to industry. Providing access to consumer information can be costly to companies, and thus decisions about the level of appropriate access should take into account the nature of the information collected, the number of locations in which it is stored, the nature of the enterprise, and the ways in which the information is to be used.

B. Enforcement.

To be effective, a self-regulatory privacy regime should include mechanisms to assure compliance with the rules and appropriate recourse to an injured party when rules are not followed. Such mechanisms are essential tools to enable consumers to exercise their privacy rights, and should, therefore, be readily available and affordable to consumers. They may take several forms, as proposed below, and businesses may need to use more than one depending upon the nature of the enterprise and the kind of information the company collects and uses. The discussion of enforcement tools below is in no way intended to be limiting. The private sector may design the means to provide enforcement that best suit its needs and the needs of consumers.

1. Consumer recourse. Companies that collect and use personally identifiable information should offer consumers mechanisms by which

their complaints can be resolved. Such mechanisms should be readily available and affordable.

2. Verification. Verification provides attestation that the assertions businesses make about their privacy practices are true and those privacy practices have been implemented as represented. The nature and the extent of verification depends upon the kind of information with which a company deals companies using highly sensitive information may be held to a higher standard of verification. Because verification may be costly for business, work needs to be done to arrive at appropriate, cost-effective ways to provide companies with the means to provide verification.

3. Consequences. For self-regulation to be effective, failure to comply with fair information practices should have consequences. Among these may be cancellation of the right to use a certifying seal or logo, posting the name of the non-complier on a publicly available "bad-actor" list, or disqualification from membership in an industry trade association. Non-compliers could be required to pay the costs of determining their non-compliance. Ultimately, sanctions should be stiff enough to be meaningful and swift enough to assure consumers that their concerns are addressed in a timely fashion. When companies make assertions that they are abiding by certain privacy practices and then fail to do so, they may be liable for fraud and subject to action by the Federal Trade Commission.

Canada's Approach. Canada has taken a somewhat different approach to privacy self regulation, although it too has a statue that applies to all government use of personal information. In the early 1990's the Canadian Standards Association (CSA) gathered representatives from the public sector, industry (including transportation, telecommunications, information technology, insurance, health and banking), consumer advocacy groups, unions, and other interest groups to develop a common code to protect personal information.

In 1996, the Standards Council of Canada put the CSA Code through a lengthy standard-setting process and adopted it as a national standard, giving it added legitimacy. Recently, the government announced that it intends to legislate privacy protection by the year 2000. It appears likely that the legislation will codify some version of the principles contained in the CSA standard. The group developed the ***Model Code for the Protection of Personal Information***, which is based on OECD Guidelines (see appendix A).

Japan's Approach. Japan also takes a self-regulatory approach to privacy. In 1989, Ministry of International Trade and Industry issued ***Guidelines Concerning the Protection of Personal Information Associated with Electronic Computer Data Processing in the Private Sector*****,** which are also based on the OECD Guidelines. Japan's Guidelines were revised in March 1997 to reflect technological

advances, instances of market failure, and evolving policy trends in other countries and regions. The revisions provided for increased consumer access to their information and implemented auditing mechanisms and consumer education.

The Guidelines' intent is to promote private sector adoption of voluntary measures for protecting personal data. The Guidelines allow for differences among industry sectors and are predicated on the promotion of independent efforts by the private sector. Certain industry sectors in Japan are also now developing a system for granting privacy marks to indicate adherence to privacy policies.

Australia's Approach. Australia has had a statute since 1988 that governs the Government's use of personal information. With respect to the private sector's use of personal information, after considering privacy legislation, the Australian Government instead decided to promote privacy self-regulation. In February 1998, the Australian Government, after informal discussions with business and consumers, issued *The National Principles for the Fair Handling of Personal Information*. These are to form the basis of industry developed voluntary privacy codes of conduct and are based on the OECD Guidelines. The Guidelines leave for resolution at a later date issues such as dispute resolution mechanisms, compliance, and information regarding employees of organizations (see appendix B).

There are a variety of reasons why industry codes of conduct and privacy principles provide an attractive alternative to government regulation. They build upon industry's collective expertise and can be readily tailored to each industry sector. In addition, they can be less expensive and burdensome to implement and enforce and in any event they shift the burden and costs of enforcement from the public fisc to the private sector. In addition, in the global networked economy, codes of conduct apply wherever a company does business and are not defined by a country's borders. The interactive nature of the Internet will allow the market place to produce optimal balance between data protection and the free flow of information. Finally, self-regulation's flexibility allows it to keep pace with technology.

Technical Issues

18. Technology will offer solutions to many privacy concerns in the online environment, and will serve as an important tool to protect privacy.

19. The Platform for Internet Content Selection (PICS), which was developed by the World Wide Web Consortium to filter out undesirable content, is being adapted to provide privacy protection. The Platform for Privacy Preferences (P3P) will allow users to set their browsers according to their individual privacy preferences. Once the browser is set, P3P will allow consumers either to avoid web-sites that do not provide desired privacy practices or to enter into a negotiation with the

web site. P3P will enable web sites and users to reach an explicit understanding about that site's privacy practices and how one's personal data is handled according the user's preferences.

20. Open Profiling Standard (OPS) is another technology assigned development to ensure data privacy. Functionally similar to P3P, OPS is designed to protect an individual's privacy through the secure storage, transport and control of user data. In other words, OPS allow the user to control the release of data in a secure manner as opposed to P3P, which provides an agreement between the user and the Web site on how data is complied.

Commercial Issues

21. Electronic commerce is an important technological breakthrough that provides enormous opportunities for economic and social growth. It is important therefore that privacy protection be implemented so that electronic commerce develops to its full potential. At the same time, privacy protection should not be implemented in such a way that it unduly interferes with the free flow of information. And, regardless of the approach they adopt, countries should recognize approaches to privacy protection different from those they adopt.

22. It is important to consider the full range of personal information essential to business that routinely is processed and crosses borders. For example, multinational companies with offices in different countries may have as a cost saving step centralized payroll processing and thus need to transmit personal data to that centralized location. They may also need to share personnel files across borders to assess eligibility for promotions, employee benefits, or transfers. Even the compilation of a simple employee address list for a multinational company involves the transfer of personal information across borders. The tourism industry relies on the sharing across borders of enormous amounts of highly personal information, such as the dietary preferences of a religious individual. The pharmaceutical industry depends on the ability to share personal information among companies located in different countries in order to conduct long term research. Investment bankers routinely rely on personnel information regarding key executives in conducting market analysis and evaluating the suitability of companies for merger and investment possibilities.

23. Clearly, an approach to privacy protection that is unnecessarily inflexible, overly broad, or evaluates the "adequacy" of another country's privacy protections through the lens of its own approach to privacy can have unintended but nonetheless very serious consequences in an information society. As the brief list of examples provided above indicates, interfering with the free flow of information at this time would also interfere with the ability to conduct business in a global economy.

Framework, Principles, & Other Agreements On Privacy

Public and Private/Business Sector

1. Platform for Privacy Preferences (P3P): http://www.w3c.org/P3P/
2. Better Business Bureau Online: http://www.bbbonline.org/
3. TRUSTe: http://www.etrust.org/

Domestic, Regional and international

1. OECD Privacy Guidelines: http://www.oecd.org/
2. US Government Electronic Commerce Homepage: http://www.ecommerce.gov
3. European Union: http://europa.eu.int/comm/dg15/
4. Canada's Privacy: http://e-com.ic.gc.ca/
5. Japan: http://www.miti.go.jp
6. Australia: http://www.hreoc.gov.au/privacy/natprinc.htm

Other Issues - Conferences

OECD Ministerial Conference, "A Borderless World: Realizing the Potential of Global Electronic Commerce", October 7-9, 1998, Ottawa, Ontario, Canada

Questions

Comprehensive Government Legislation

- How will a comprehensive legislative approach to privacy impact the free flow of information between nations?
- How expensive will such legislation be to implement? Will governments need to build another bureaucracy to monitor privacy protection?
- How will such legislative approaches ensure compliance?
- What are the benefits of such a legislative approach versus those of a self-regulatory approach?

Self-Regulation

- How difficult will it be for consumers to obtain information regarding a company's privacy policies when visiting a website? What assurances will consumers have that companies comply with their stated policies?

- How will companies handle complaints that an individual's privacy rights were violated?

- If legislation is required in a self-regulator system, will it be flexible enough to allow technological innovation or act as an impediment?

Conclusion

24. Privacy can be protected effectively in a variety of ways. The approach taken by different economies will undoubtedly mirror their histories and traditions. The OECD Guidelines are the foundation for virtually all privacy regimes. And, since many APEC economies are also members of the OECD, we recommend that member economies consider the OECD Guidelines when formulating their own privacy policies. We also recommend that privacy protections be implemented in a flexible, dynamic way. It is essential that whatever approach is adopted, that it provide effective privacy protection and maintain the free flow of information.

APPENDIX A

Canada's Model Code for the Protection of Personal Information

Accountability: An organization is responsible for personal information under its control, and shall designate an individual or individuals that are accountable for the organization's compliance with the Code's principles.

Identifying Purposes: The purposes for which personal information is collected shall be identified by the organization at or before the time the information is collected.

Consent: The knowledge and consent of the individual are required for the collection, use or disclosure of personal information, except where inappropriate.

Limiting Collection: The collection of personal information shall be limited to that which is necessary for the purposes identified by the organization. Information shall be collected by fair and lawful means.

Limiting Use, Disclosure and Retention: Personal information shall not be used or disclosed for purposes other than those for which it was collected, except with the consent of the individual or as required by law. Personal information shall be retained only as long as is necessary for the fulfilment of those purposes.

Accuracy: Personal information shall be as accurate, complete and up-to-date as is necessary for the purposes for which it is to be used.

Safeguards: Personal information shall be protected by security safeguards appropriate to the sensitivity of the information.

Openness: An organization shall make readily available to individuals specific information about its policies and practices relating to the management of personal information.

Individual Access: Upon request, an individual shall be informed of the existence, use and disclosure of his or her personal information, and shall be given access to that information. An individual shall be able to challenge the accuracy and completeness of the information and have it amended as appropriate.

Challenging Compliance: An individual shall be able to address a challenge concerning compliance with the above principles to the designated individual or individuals accountable for the organization's compliance.

APPENDIX B.

Australia's The National Principles for the Fair Handling of Personal Information

Collection

We will only collect information that is necessary for what we do

1.1 An organization should only collect personal information that is necessary for one or more of its legitimate functions or activities.

We will be fair in the way we collect information about you

1.2 An organization should only collect personal information by lawful and fair means and not in an unreasonably intrusive way.

We will tell you who we are and what we intend to do with information about you

1.3 At or before the time an organization collects personal information from the subject of the information (or, if that is not practicable, as soon as practicable thereafter), it should take reasonable steps to ensure that the subject of the information is aware of:

(a) the identity of the organization and how to contact it;

(b) the fact that he or she is able to gain access to the information;

(c) the purposes for which the information is collected;

(d) to whom (or the types of individuals or organizations to which) it usually discloses information of this kind;

(e) any law that requires the particular information to be collected; and

(f) the main consequences (if any) for the individual if all or part of the information is not provided.

Where practicable, we will collect personal information directly from you

1.4 Where it is reasonable and practicable to do so, an organization should collect personal information directly from the subject of the information.

If we collect information about you from someone else we will, wherever possible, make sure you know we have done this

1.5 Where an organization collects personal information from a third party, it should take reasonable steps to ensure that the subject of the information is or has been made aware of the matters listed under item 1.3 above.

Use and Disclosure

We will only use or disclose information about you in ways that are consistent with your expectations or are required in the public interest

2. An organization should only use or disclose personal information for a purpose other than the primary purpose of collection (a 'secondary purpose') if:

(a) (i) the secondary purpose is related to the primary purpose of collection; and

(ii) the subject of the information would reasonably expect the organization to use or disclose the information for the secondary purpose; or

(b) the individual has consented to the use or disclosure; or

(c) (i) the organization uses the information for the purpose of direct marketing; and

(ii) it is impracticable for the organization to seek the individual's consent before using the information; and

(iii) the organization gives the individual the express opportunity, at the time of first contact or thereafter upon request, and at no cost, to decline to receive any further direct marketing communications; or

(d) the organization reasonably believes that the use or disclosure is necessary to prevent or lessen a serious and imminent threat to an individual's life or health; or

(e) the organization has reason to suspect that unlawful activity has been, is being or may be engaged in, and uses or discloses the personal information as a necessary part of its investigation of the matter or in reporting its concerns to relevant persons or authorities; or

(f) the use or disclosure is required or specifically authorized by law; or

(g) the use or disclosure is reasonably necessary for the enforcement of the criminal law or of a law imposing a pecuniary penalty or for the protection of the public revenue; or

(h) an intelligence or law enforcement agency asks the organization to use or disclose the personal information on the basis that the use or disclosure is necessary to safeguard the national security of Australia.

2.2 If an organization uses or discloses personal information under paragraph 2.1(g), it should make a note of the use or disclosure.

Data Quality

We will ensure that information about you is accurate when we collect or use it

3 An organization should take reasonable steps to make sure that the personal information it collects, uses or discloses is, accurate, complete and up to date.

Data Security

We will keep information about you secure

4.1 An organization should take reasonable steps to protect the personal information it holds from misuse and loss and from unauthorized access, modification or disclosure.

4.2 An organization should take reasonable steps to destroy or permanently de-identify personal information if it is no longer needed for any purpose.

Openness

We will be open with you about what kinds of personal information we hold and what we do with it

5.1 An organization should have clearly expressed policies on its management of personal information, which should be readily available.

5.2 An organization, on request, should take reasonable steps to let individuals know, generally, what sort of personal information it holds, for what purposes, and how it collects, holds, uses and discloses that information.

Access and Correction

Wherever possible we will let you see the information we hold about you and correct it if it is wrong

6.1 Where an organization holds personal information about an individual, it should provide the individual with access to the information on request, except to the extent that:

(a) providing access would pose a serious and imminent threat to the life or health of any individual; or

(b) providing access would have an unreasonable impact upon the privacy of other individuals; or

(c) providing access would be unduly onerous for the organization; or

(d) the request for access is frivolous or vexatious; or

(e) providing access would be likely to prejudice an investigation of possible unlawful activity; or

(f) providing access would be unlawful; or

(g) denying access is specifically authorized by law; or

(h) the information relates to existing legal dispute resolution proceedings between the organization and the individual, and the information would not be accessible by the process of discovery in those proceedings; or

(i) providing access would reveal the intentions of the organization in relation to negotiations with the individual in such a way as to prejudice those negotiations; or

(j) an intelligence or law enforcement agency asks the organization not to provide access on the basis that providing access would be likely to cause damage to the national security of Australia.

6.2 Where providing access would reveal evaluative information generated within the organization in connection with a commercially sensitive decision-making process, the organization may give the individual an explanation for the decision rather than direct access to the information.

6.3 If an organization has given an individual an explanation under 6.2, and the individual believes that direct access to the evaluative information is necessary to provide a reasonable explanation of the reasons for the decision, the individual should have access to an independent process to review whether that is so.

6.4 Wherever direct access by the individual is impracticable or inappropriate, the organization and the individual should consider whether the use of mutually agreed intermediaries would allow sufficient access to meet the needs of both parties.

6.5 If an organization levies charges for providing access to personal information, those charges:

(a) should not be excessive; and

(b) should not apply to lodging a request for access.

6.6 If an organization holds personal information about an individual and the individual is able to establish that the information is not accurate, complete and up to date, the organization should take reasonable steps to correct the information so that it is accurate, complete and up to date.

6.7 If the individual and the organization disagree about whether the information is accurate, complete and up to date, and the individual asks the organization to associate with the information a statement claiming that the

information is not accurate, complete or up to date, the organization should take reasonable steps to do so.

6.8 An organization should provide reasons for denial of access or correction.

Identifiers

We will limit our use of identifiers that government agencies have assigned to you

7.1 An organization should not adopt as its own identifier an identifier that has been assigned by a government agency (or by an agent of, or contractor to, government agency acting in its capacity as agent or contractor).

7.2 An organization should not use or disclose an identifier assigned to an individual by a government agency (or by an agent of or contractor to government agency acting in its capacity as agent or contractor) unless one of paragraphs 2.1(d) to 2.1(h) applies.

Anonymity

If we can (and you want to) we will deal with you anonymously

8 Wherever it is lawful and practicable, individuals should have the option of not identifying themselves when entering transactions.

Transborder Data Flows

We will take steps to protect your privacy if we send personal information about you outside Australia

9 An organization should only transfer personal information outside Australia if:

(a) the organization reasonably believes that the recipient of the information is subject to a statute, binding scheme or contract which effectively upholds principles for fair information handling that are substantially similar to these principles; or

(b) the individual concerned consents to the transfer;

(c) the transfer is necessary for the performance of a contract between the individual concerned and the organization, or for the implementation of pre-contractual measures taken in response to the individual's request; or

(d) the transfer is necessary for the conclusion or performance of a contract concluded in the interest of the individual concerned between the organization and a third party; or

(e) the transfer is for the benefit of the individual concerned, and

(i) it is not practicable to obtain the consent of the subject of the information to that transfer; and

(ii) if it were practicable to obtain such consent, the subject of the information would be likely to give it; or

(f) the organization has taken reasonable steps to ensure that the information which it has transferred will not be collected, held, used or disclosed by the recipient of the information inconsistently with these principles.

Sensitive Information

We will limit the collection of highly sensitive information about you

10.1 An organization should not collect personal information revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, trade-union membership, or details of health or sex life unless:

(a) the subject of the information has consented; or

(b) the collection is required or specifically authorized by law; or

(c) the collection is necessary to prevent or lessen a serious and imminent threat to the life or health of any individual, where the subject of the information is physically or legally incapable of giving consent; or

(d) in the course of the legitimate activities of a non-profit-seeking body with a racial, ethnic, political, philosophical, religious or trade-union aim and on condition that the information relates solely to the members of the body or to individuals who have regular contact with it in connection with its purposes and that the information is not disclosed without the consent of the subject of the information; or

(e) the collection is necessary for the establishment, exercise or defence of a legal claim.

10.2 Paragraph 10.1 does not apply where:

(a) the information is required for the purposes of preventative medicine, medical diagnosis, the provision of care or treatment or the management of health-care services, and

(b) is collected

(i) as required by law; or

(ii) in accordance with rules established by competent bodies dealing with obligations of professional confidentiality.

2.7 Consumer Protection in Electronic Commerce (Australia)

Introduction

1. Electronic commerce has become one of the most topical consumer issues of the 1990s. As businesses and consumers expand their use of electronic commerce, the consumer protection issues, which arise, are becoming more important. Recent figues suggest that business done on the Internet is doubling every 100 days.

2. Instances of consumer protection problems in electronic commerce can be expected to rise with this projected increase in Internet access.

3. In this global context, the need for greater cooperation between jurisdictions becomes apparent.

4. This paper draws heavily on Australian responses to consumer issues in electronic commerce, outlines some international developments and canvasses some issues, which may be relevant to APEC member economies. It is intended to provide a basis for possible discussion among APEC members, and between APEC and other organisations.

The challenge

5. Use of electronic commerce to conduct consumer transactions will be encouraged by addressing

   - Information deficiencies;
   - After-sales difficulties;
   - Misleading, fraudulent and unethical conduct;
   - Payment systems difficulties; and
   - Privacy issues.

6. The concerns can be addressed by actions of governments, agreement and cooperation between governments, by business and between businesses.

7. In many respects, the issues raised by electronic commerce are the same as for any other form of commerce. There are, however, distinctive characteristics of the online environment. The electronic marketplace is a relatively new market facility in which a wide range of

industries can function, often in a similar manner, and at great speed. Businesses can operate with a much greater degree of anonymity, creating possible difficulties for consumers who wish to establish the location and reliability of a vendor. Security of payment systems is put at risk by the potential for unauthorised third party access to transaction information.

8. Privacy is also an area of concern due to the Internet's potential for capture of personal information and the practice of user profiling.

9. Consumer protection in electronic commerce is also complicated by the question of which law to apply in transactions which cross national borders. Where consumers deal directly with a supplier outside their jurisdiction, domestic consumer protection may cease to apply, or become fraught with complexity or contention. Protection for consumers may differ according to whether the business with which they are dealing is functioning within a country's national boundaries or functioning in the transborder environment. This question may be further complicated if different aspects of the transaction take place in a number of jurisdictions.

Developments in Australia

National activity

10. The Australian Government strongly supports the development of electronic commerce. It is addressing areas of consumer concern to ensure that the growth of electronic commerce is sustained and encouraged. The Prime Minister recently released Investing for Growth, a Government Statement on Australia's information technology strategy. This strategy includes adopting the Organisation for Economic Co-operation and Development's (OECD) guidelines on cryptography, and facilitating the establishment of a national system for the authentication of users in electronic commerce.

11. Importantly, the strategy recognises that consumer confidence is crucial for the continued growth of electronic commerce.

12. The Ministerial Council on Consumers Affairs (MCCA), a council of Australian Commonwealth, State and Territory and New Zealand Consumer Affairs Ministers, designated electronic commerce as a priority area for 1997-98. At MCCA's initiative, 30 October 1997 was the inaugural National Consumer Day.

13. The theme of the day was to promote a positive message to raise consumer awareness of alternative shopping media such as electronic commerce, and the publication Shopping in the Electronic Age: You are not the consumer you were yesterday was released.

14. MCCA has an ongoing interest in electronic commerce and further consumer education initiatives may be undertaken in future to complement those begun on National Consumer Day.

15. Australia and New Zealand are currently working on MCCA's chief electronic commerce project for 1998, the creation of a joint New Zealand and Australian Internet directory providing links to consumer-related bodies, agencies and information sites including industry self-regulation bodies, relevant legislation, fair trading enforcement agencies and other regulatory bodies. This directory will be linked to a previous MCCA project, the National Consumer Home Page.

16. In October 1997 the Federal Minister for Customs and Consumer Affairs released Draft Principles for Consumer Protection in Electronic Commerce. The document was designed to promote the provision of certain basic protections for consumers in online transactions, and forms the basis of the issues discussed in this paper. The Minister released it as a final set of Principles on 16 April 1998. The finalised Principles were prepared following extensive consultation with State, Territory and Federal consumer protection agencies, government departments and industry bodies. The content of the Draft Guidelines for Consumer Protection in Electronic Commerce prepared by the Organisation for Economic Development and Co-operation and mentioned below was influenced considerably by the Australian Principles document.

Australian Competition and Consumer Commission

17. On 16 October 1997, the Australian Competition and Consumer Commission (ACCC) and approximately thirty other consumer enforcement agencies internationally swept the Internet as part of a global enforcement activity to identify suspect Internet sites. The ACCC identified 300 suspect sites. Also of interest is a discussion paper issued by the Australian Competition and Consumer Commission in September 1997 titled The Global Enforcement Challenge. The paper examines the difficulties of regulating the global marketplace, particularly given the proliferation of the Internet.

18. The ACCC is organising a major conference on enforcement issues in electronic commerce to be held in Sydney on 9 - 11 November 1998 to discuss and develop the issues outlined in its "The Global Enforcement Challenge" Project, addressing consumer enforcement issues associated with cross-border commerce mechanisms, including electronic commerce. The purpose of the conference is to engender consumer confidence in the global marketplace through the development of mechanisms for enhanced global fair-trading and competition.

The Privacy Commissioner

19. In February 1998, the Federal Privacy Commissioner issued the National Principles for the Fair Handling of Personal Information. The principles are voluntary national standards dealing with how business collects stores, uses and discloses personal information. The principles address consumer concern about how personal information will be protected in view of the explosion of information technology. The Privacy Commissioner's work in developing principles on privacy is reflected in Consumer Protection in Electronic Commerce: Principles and Key Issues.

20. Joint Committee of Public Accounts and Audit Inquiry into Internet Commerce In December 1997, the Joint Parliamentary Committee of Public Accounts and Audit (JCPAA) held public hearings for a broad ranging inquiry to examine the implications of the expected growth in Internet commerce. Amongst many areas of interest under consideration by the Committee are current frameworks for consumer protection and the protection of intellectual property. The JCPAA is due to report to Parliament in May 1998.

The National Office for Information Economy (NOIE)

21. NOIE was created in September 1997. NOIE functions as an umbrella body to develop, coordinate and overview broad policy relating to the regulatory and legal environment for online activities. On the 16th and 17th April 1998, NOIE co-hosted a national summit on electronic commerce, the 'E-Commerce Enabling Australia Summit' in Canberra. The Summit's objective was to bring together leaders of government, business, consumer groups and regulators to ensure that representative bodies create a national agenda to seize the opportunities presented by electronic commerce.

Attorney General's Department

22. The Electronic Commerce Expert Group established by the Federal Attorney General (in July 1997) presented its report *Electronic Commerce: Building the Legal Framework* to the Attorney General on 31 March 1998. The report examined issues raised by the UNCITRAL (United Nations Commission on International Trade Law) Model Law on Electronic Commerce, and examined legal barriers to the implementation of the Model Law.

23. The group examined a number of other consumer protection issues arising from the provision of goods and services across borders over the Internet, including information on suppliers such as their location, safety standards, industry-based regulation, consumer complaints and dispute resolution mechanisms, and consumer access to redress.

24. The Expert Group made several recommendations including that legislation, although the best option for removing the legal uncertainties surrounding electronic commerce, should take a minimalist approach.

The report recommended that some consumer transactions [such as...] be exempted from any such legislation.

Private sector

25. The Internet Industry Association (IIA) has released a third draft of a proposed Industry Code of Practice for its members. The IIA has a wide range of members, mostly representing Internet service providers. The code imposes obligations on content providers, vendors, Internet service providers, programmers and web page developers.

26. The Australian Retailers' Association (ARA) is also developing a code of conduct for its members. The code appears to be directed more towards retailers dealing with their suppliers, rather than their dealings with customers.

Developments in other APEC economies

27. On 1 December 1997, Japan's Fair Trade Commission held a Symposium in Tokyo to celebrate its 50th Anniversary. The Symposium included a Panel discussion on Technological Innovation, International Trade and Competition Policy.

28. The Republic of Korea held a Consumer Festival on 2 December 1997 in Seoul.

29. In August 1997, the New Zealand Ministry for Consumer Affairs released a Discussion Paper, Electronic Commerce and the New Zealand Consumer.

30. The Discussion Paper identifies the key consumer protection issues as being misleading and deceptive practices and false representations, redress, location and identification of businesses, contractual issues and safety standards, as well as security of electronic payment systems, privacy, and access issues. The paper examines a range of strategies to support consumer protection in the electronic marketplace, such as consumer education, international networking, business self-regulatory activities, and monitoring of the market.

31. The United States of America announced "A Framework for Global Electronic Commerce" in July 1997. The Framework is based on work conducted by a Task Force for Electronic Commerce, which released a major discussion paper setting out a number of principles for the development of the electronic marketplace. The Framework outlines the U.S. Government's strategy for fostering increased business and consumer use of electronic networks for commerce. Its recommendations include the development of a uniform commercial code to facilitate electronic commerce. A number of the principles contained within the Framework relate to consumer protection principles dealing with transactions, for example that the marketplace

should be based on a contractual model where the buyer and seller are free to come together, with the Government providing the predictable legal environment; and decentralised contract law would protect from fraudulent behaviour. The Task Force has recommended that in relation to privacy there should be a set of principles but no regulations.

32. In April 1998, the United States Department of Commerce released The Emerging Digital Economy, which documents the importance of information technologies and electronic commerce to the United States economy, its businesses and its consumers. The paper examines the various consumer uses of the Internet.

Other international developments

33. Within the international arena, consumer confidence is becoming better recognised as a key issue for increasing commercial activity on electronic networks such as the Internet. Various national fair-trading, law enforcement and consumer policy agencies and other forums such as the OECD Committee on Consumer Policy are devoting an increasing level of resources to this area.

United Nations Commission on International Trade Law

34. In 1996 the United Nations Commission on International Trade Law (UNCITRAL) finished developing a Model Law on Electronic Commerce and the accompanying Guide to Enactment which supports the use of international contracts in electronic commerce. The model law establishes rules for the validation of contracts entered into by parties through electronic means, including the use of electronic signatures. The purpose of the Model Law is to offer domestic legislators a set of rules to surmount the legal obstacles to the development of electronic commerce, and to create a more stable legal environment for electronic commerce.

The OECD Committee on Consumer Policy

35. The OECD's Committee on Consumer Policy prepared Draft Guidelines for Consumer Protection in Electronic Commerce. The Committee issued the Draft Guidelines on 27 March 1998, following the meeting of the OECD Committee on Consumer Policy on 19 March 1998. The OECD intends to finalise the Guidelines to present to the OECD ministerial level conference on Electronic Commerce in Ottawa in October 1998. The conference theme is A Borderless World: Realising the Potential of Global Electronic Commerce.

The International Marketing Supervision Network

36. The International Marketing Supervision Network (IMSN) is a worldwide voluntary network of national consumer regulatory organisations comprising interested OECD members and observers. One of the

principal objectives of IMSN is to prevent and, where necessary, seek to remedy the effects, through the practical co-operation of its constitutent organisations, of crossborder marketing malpractices.

37. The development of electronic commerce is likely to focus greater attention on the activities of the OECD and IMSN.

Policy issues

38. Legal remedies may be most effective when combined with industry self-regulatory measures and consumer education and participation.

39. Inadequacy of legal remedies based approach to consumer redress in electronic commerce

40. By its nature, the transborder marketplace challenges the effectiveness of traditional consumer protection mechanisms, which have usually been developed, to function within national boundaries. The pursuit of legal remedies alone to resolve cross-border disputes may therefore not be, in itself, an effective or efficient way of resolving, or indeed preventing, consumer disputes involving global market mechanisms.

41. Domestic consumers who wish to seek redress against overseas suppliers' face a number of obstacles such as establishing the laws, which apply to their dealings, establishing the relevant jurisdiction and forum, and enforcing any judgement in their favour. Although there may be ways to improve the availability of legal remedies, in this context it is desirable that various alternatives for resolving cross-border disputes are examined.

42. Other mechanisms for consumer protection may be required to ensure that consumers operate safely and effectively within the global marketplace. It is necessary to consider the type of enforcement framework and regulatory structures which can more effectively address market failures in the global market, and develop develop cost-effective, market sensitive and industry based ways of dealing with these problems.

<u>Industry self-regulation and consumer education</u>

43. The United States Government has taken a market driven approach to electronic commerce in its Framework for Global Electronic Commerce. The Framework states that governments should avoid undue restrictions on electronic commerce, allowing private sector leadership where possible. This approach encourages industry self-regulation, and provides that where government involvement is necessary, it should be in the form of a minimalist, simple legal environment.

44. The Australian approach to consumer protection in electronic commerce has been an integrated approach. Consumer protection is provided by the law and enforced by enforcement agencies; industries are encouraged to implement effective self-regulation, and consumers are educated regarding their rights and responsibilities and encouraged to participate.

45. The Australian Government's view is that consumer protection law may be most effective when complemented by market-oriented means of dispute resolution, such as alternative dispute resolution mechanisms, codes of conduct and consumer charters. The Codes of Conduct Policy Framework released by the Commonwealth Minister for Customs and Consumer Affairs in March 1998 indicates that the Government will consider intervention in a market only where there is a market failure or a demonstrated need to achieve a particular social objective. The Australian Government has encouraged industry to adopt self-regulatory measures including consumer dispute resolution schemes. This will assist them to gain competitive advantages over economies, which do not offer these elements. The Australian approach also involves consumer education measures such as those outlined earlier.

46. It should be noted that these approaches are directed at addressing domestic issues primarily. While there is potential for education and industry self-regulation to cross borders, this may not happen in the near future.

47. The development of an international approach to consumer protection in electronic commerce could be facilitated by the consideration at an international level of certain principles relevant to electronic commerce.

Adequacy of domestic consumer protection

48. Given that electronic commerce is a means of facilitating trade, rather than a discrete industry, a useful starting point is to recognise that electronic commerce is fundamentally the same as other forms of transactions for goods or services and that consumers have equivalent expectations and entitlements in the electronic marketplace.

49. Activities relating to electronic commerce between sellers and consumers should be consistent with existing legislation and distance selling rules. Because all online transactions are a form of distance selling, transparency and disclosure are particularly important to building consumer confidence. In Australia, the Direct Marketing Model Code of Practice provides a model for participants in electronic commerce.

50. Consumers who purchase goods and services from sellers within their national boundaries should receive the full protection of existing domestic consumer protection legislation. Effective consumer protection legislation would regulate various unfair practices, including misleading and deceptive conduct, as well as implying certain

conditions and warranties into contracts for the supply of goods or services to consumers. It should provide a consumer with legal remedies where they have been mislead or deceived or where the implied conditions in the contract for the sale or supply of goods or services have been breached.

51. Consumer protection legislation should also establish a system of safety standards for goods and ban the sale of goods, which do not meet prescribed safety standards.

52. Within Australia, the Trade Practices Act 1974 (Cwlth) and equivalent State and Territory legislation apply to electronic commerce transactions, just as they apply to transactions involving other media. The Act prohibits misleading and deceptive conduct, false representations, certain selling practices and provides conditions including that consumer goods and services be generally fit for the purpose.

53. Enforcement of the provisions of the Trade Practices Act relating to representations and selling practices is the responsibility of the Australian Competition and Consumer Commisssion. The Act provides a range of penalties and remedies for contraventions of its provisions. The protections relating to the fitness of goods and services and similar are provided as rights to be privately enforced. State and Territory governments operate Offices of Fair-Trading which can assist consumers to resolve individual complaints with suppliers, as well as enforce equivalent provisions to those in the Trade Practices Act.

Adequacy of international consumer protection

54. Sellers and consumers should recognise that resolving disputes arising from transborder transactions may involve greater difficulty than resolving those conducted within the consumers' national boundaries. The difficulties of identifying the applicable law governing a transaction inherent in a federalised system such as Australia's are magnified in transnational transactions.

Policy Responses

55. A useful approach would be for governments to develop an approach, or framework of what it considers appropriate for consumer protection in Electronic Commerce. The United States and Australia have both followed this path and the OECD Guidelines will, once finalised, provide further assistance to those governments wishing to articulate the aims they might have in consumer protection in electronic commerce.

56. Once developed, a framework can check the adequacy of domestic legislative and self-regulatory consumer policy and provide a basis for

discussion between jurisdictions, which seek some common approach to problems.

57. The Australian Principles provides a prompt of particular elements which might be addressed in a framework:

- The need for consumers to have at least the same levels of protection as are provided by other means of commerce.
- Consumers need to be able to establish the identity and location of businesses they deal with.
- Consumers need to be provided with sufficient information prior to the formation of a contract to enable them to make a well-informed decision whether or not to purchase goods or services.
- Information including terms and conditions of purchase should be available in clear and simple language.
- Consumers should be provided with a confirmation process so that they recognise that they are entering into a contract.
- Consumers should be provided with clear information about the types of payment methods, which they can use.
- Consumers should have access to quick, fair complaints handling service.
- Consumers should be provided with information about affordable and effective dispute resolution arrangements.
- Sellers should respect customer privacy.
- Industry code administration bodies should monitor the application and effectiveness of their codes and encourage consumer confidence.
- Governments should take their consumer protection responsibilities seriously.

Enforcement Responses

58. As there are various jurisdictional problems, which arise from electronic commerce, it is desirable for national enforcement agencies to liaise and engage in information sharing. Cooperation between enforcement agencies may overcome some of the jurisdictional problems inherent in electronic commerce. Cooperation may provide a framework for agreement on international rules to protect consumers engaging in electronic commerce, including mechanisms for resolving cross-border disputes.

Implications for APEC member economies

59. The consumer protection concerns in relation to electronic commerce, which are confronting APEC members are the same as those confronting every other nation in the world. Electronic commerce is growing rapidly, and will continue to grow.

60. Consumer protection issues need to be addressed to ensure that consumers participate confidently and effectively in electronic commerce.

61. APEC is a suitable forum for discussion and agreement on approaches to facilitate electronic commerce. Regional agreement on key issues in electronic commerce will facilitate an eventual globalised approach.

62. APEC members should consider whether their individual domestic legislation is adequate to protect consumers engaging in electronic commerce.

63. This prompts the question of adequacy of consumer protection legislation generally, if equivalent protection is considered appropriate. Jurisdictions may adopt different approaches to this issue and the existence or otherwise of a federal structure may provide further variations to approaches.

64. Members should consider developing frameworks for electronic commerce to inform policy considerations for domestic protection and to assist policy discussion with other jurisdictions in relation to transborder trade.

65. The United States Framework and the Australian Principles form two approaches, which are in many ways complementary, but which may also reflect differences in approach, emphasis and expression.

66. Member countries which wish to develop their own framework for consumer protection in relation to electronic commerce may find the issues canvassed in this paper a useful starting point for any such framework. Members could draw on the experience in developing codes of practice and other standards setting documents in areas of commerce or industry relevant to electronic commerce such as draft distance selling codes. Recognition of similar sets of principles would be a way of progressing towards international self-regulation of the Internet business community.

67. Where appropriate, industry members could develop and adhere to national or international self-regulatory regimes that promote the enforcement of consumer protection goals.

68. Self-regulatory regimes could be constructed along similar lines in each jurisdiction. Independent, industry-sponsored complaints systems could be established to handle difficult consumer complainst that are not

resolved at an earlier stage. Providing an effective national system of redress, which meets standards of accessibility, independence, fairness, accountability, efficiency and effectiveness would provide domestic industries with a competitive advantage.

69. Joint and co-operative law enforcement actions could also help to address unfair trading practices more effectively and members could discuss means of advancing this aim.

70. Forms of international cooperation between government agencies could include sharing enforcement techniques; sharing information, possibly by developing memoranda of understanding and establishing global cooperative networks; improving mechanisms for international government cooperation, and adopting a united approach to the development of consumer protection strategies in understanding and addressing issues as they emerge, and in the determination of the type of regulatory structures which will best regulate global market transactions.

71. It may be desirable to supplement the efforts of regulatory and enforcement agencies with improved consumer education, greater industry initiatives, and, in some circumstances, the development of common standards.

72. International peak industry bodies could act as fora through which global traders can cooperate internationally and industry based consumer protection mechanisms, such as codes of conduct, and standards for complaints handling, could be developed and implemented. Jurisdictions could share single online complaints entry points.

73. Various options and models are available to members developing a framework for consumer protection in electronic commerce. Whether the framework is based on market driven or an interventionist model, or a combination of these approaches and consumer education, it is desirable that members agree on the need for certain issues to be addressed. The issues discussed in this paper may form a basis for discussion amongst APEC members, and in turn between APEC and other regional or international organisations.

74. It is only through examining ways in which to surmount the problems associated with the global marketplace that APEC members will be able to assist in making the global marketplace a safe environment for consumers so the many benefits associated with global commerce can be maximised.

CHAPTER 3

Promotion And Facilitation

3.1 Overview (Co-Chairs)

1. Papers contributed by the APEC Transportation Working Group (TPT WG), Australian Customs and industry suggest that government agencies and government-supported companies and industry groups can and do provide leadership in the use of integrated paperless systems.

2. There are **policy** issues and **technical** issues which arise in descriptions of experiences with paperless systems across sectors. The former includes recognition of standards, acceptance of electronic forms and signatures, the development of acceptable risk management strategies, the adoption of international standards, and the harmonisation of approaches in domestic law. The latter includes the development and implementation of public key infrastructure (PKI) and the interoperability of systems and software. With the increasing recognition of UN-devised messaging standards, the papers presented to the Task Force assert that use of the UN Electronic Data Interchange for Administration, Commerce and Transport (EDIFACT) system may no longer be a technical consideration, but a strategic one. (TPT WG has agreed to use EDIFACT in its electronic data interchange (EDI) projects and to use harmonised implementation guidelines provided by Tradegate ECA in its EDI Commercial Messages Project.)

3. Many of the emerging issues are those already associated with existing non-electronic systems. The continued uptake and success of paperless systems may depend most heavily on attitudinal changes, rather than the invention and codification of elaborate new rules or processes.

4. Shipping and air cargo sectors appear to be spearheading the use of paperless systems. Policy issues arising include acceptance of electronic documents, including faxes, for clearance of ship and aircraft cargoes. Technical issues include development of international agreement on authentication and the development of PKI, ensuring the adequacy of infrastructure and at acceptable costs, and linking EDI with other forms of electronic commerce such as e-mail and e-forms. TPT WG advocate the use of UNCITRAL Model Law on ECommerce to guide economies' approach to adopting standards, and argue that harmonisation of approaches would provide a fillip to the success of paperless trading. TPT WG cite Bill of Lading handling as central to legal and commercial issues, but assert that otherwise there are few issues that cannot be dealt with under trading partner agreements.

5. Australian Customs locates itself a user at the centre of the paradigm for electronic commerce. Customs agencies become the hub of a range of activities with both forward and backward linkages, using the Internet, electronic forms, e-mail, electronic fax, EDI, secure electronic transaction (SET) payment protocols for credit card transactions,

development of an integrated regional joint electronic payment initiative (JEPI), bulletin boards, messaging, multimedia and mobile communications, and video conferencing. Customs engage in linkages backward to importers and forward to clients, including, largely, SMEs. These linkages will be enhanced by the establishment of customs' homepages, use of e-mail, and reporting by clients over or on the internet.

6. From a customs' perspective, key issues to be resolved are security, establishment of PKI, reliability, adoption of procedures to ensure legal and audit requirements are met. Rapidly emerging considerations for customs are domestic policies on tariffs and taxation of goods and services such as artistic products, software, books, compact disks and videos which can be downloaded from the internet.

Issues for APEC

7. Paperless systems promise a more efficient, accurate trading future and one which is location-independent, particularly in the provision of government, financial, legal, educational and other advisory services. Paperless systems are already developing rapidly in the international trading arena, customs and transport sectors. To realise the potential promised by global electronic commerce, developed and developing economies alike must become capable of providing and managing paperless systems.

- What can APEC economies do now to prepare for fully-fledged paperless trading?

- TPT WG proposes that APEC economies aim to implement paperless trading in the transport sector by 2005. To do so, economies would strive to remove institutional and legal barriers where possible, give priority to the development of business-to-business electronic commerce and trading, and cooperate to resolve technical difficulties (projects are to be identified in TPT WG workprogram).

- TPT WG also proposes that APEC member economies consider adoption of UNCITRAL Model Law and support for the EDIFACT system which already has an extensive regional network of Boards, and will have the primary responsibility for developing messaging standards critical to the functioning of future paperless systems.

- Australian Customs recommends that APEC customs agencies create homepages based on the World Customs Organisation (WCO) standard formatting recommendations, and link them with the WCO homepage and the APEC Tariff Database. Customs agencies are urged to develop intranets which are consistent with other intranets, regularly updated, and integrated with other feedback mechanisms within the organisation. They are urged to link with existing initiatives such as the UN Trade Points network and/or EDIFACT, to provide

importers/exporters with "one stop shop" environment to complete their customs transactions.

- The Australian industry paper provided by Tradegate ECA on EDIFACT proposes that APEC economies adopt policies to promote use of the UN EDIFACT within electronic commerce and EDI systems.

- In what other areas can cooperation in APEC promote and facilitate electronic commerce?

3.2 Summaries of Discussion from Kuching and Kuala Lumpur Roundtables (Co-Chairs)

Kuching

- It was accepted that electronic commerce, if it proves to be faster, more efficient and more cost effective, will have its own appeal

    - to the extent that electronic commerce facilitates business, it will be self-promoting

    - but the demonstration of benefits to SMEs and others is also important.

- The meeting discussed the traditional role that financial institutions have had in "trust" aspects and facilitation of commercial transactions and noted that they are now moving into the same role in terms of electronic commerce

    - in this context, integrating electronic payment systems with other transaction systems is a key issue and may involve different issues in developing and developed economic environments

    - involving stakeholders in developing and integrating systems will be important.

- Using electronic commerce systems to facilitate business and trade is seen as particularly relevant for SMEs in terms of the potential to deliver easier access to information and to markets and to aggregate their potential to operate internationally.

- Participants acknowledged that credit cards, risk issues and payment systems are forcing change in banking systems, and therefore

    - this extended to fundamental questions regarding what constitutes a bank

    - which had wider relevance in terms of the need for an understanding of major changes being contemplated in financial institutions in the region

    - innovations in the use of electronic means to facilitate commerce is also acting as a catalyst to change in other areas and may have implications for areas such as trade and customs negotiable bills of lading and payment clearing systems.

- The importance of pilots was recognised, including by governments as leading users in promoting use of electronic commerce to facilitate activity

- with much support for publicising existing cases of government usage of electronic systems to interact with business.

- The importance of consistency in content standards to facilitate international transactions was recognised.

Kuala Lumpur

- The Task Force noted a number of pilots and projects under way to promote and facilitate use of e-commerce including

  - business to business

  - business to consumer

  - government tendering

- The Task Force examined and discussed a number of initiatives for human resource development, training, information and multimedia resources and outreach programs, including “virtual centres”

  - agreed to conduct an urgent stocktake of activities already underway in member economies and internationally

  - agreed to propose that Leaders note the importance of information and human resource development in promoting and facilitating electronic commerce

  - and that Ministers task officials and experts with developing the proposal to establish an integrated, networked, electronic resources center to be operational in 1999

- The Task Force noted the important contribution that could be made by PECC and ABAC to development of this proposal, and

  - noted the potential to capture information/resources from some existing stocktake work in this area.

  - importantly including the SME case studies collected by the Task Force as a key resource for demonstrating e-commerce to business

  - and possible future work in APEC to examine flows of electronic commerce in the region

  - including a stocktake of the various economies' e-commerce polices and development strategies, together with a stocktake of how governments conduct business electronically

- The Task Force noted that SME case studies might be harvested in a number of ways in future APEC work.

- The Task Force noted a proposal on paperless trading

  - recognizing the efficiency gains to be made for trading and transportation activity

  - noting substantial progress in many APEC economies in moving towards paperless trading systems

  - taking into consideration current legal frameworks for customs administrations and other cross-border trade agencies of member economies.

3.3 Training Program for Electronic Commerce Promotion (Chinese Taipei)

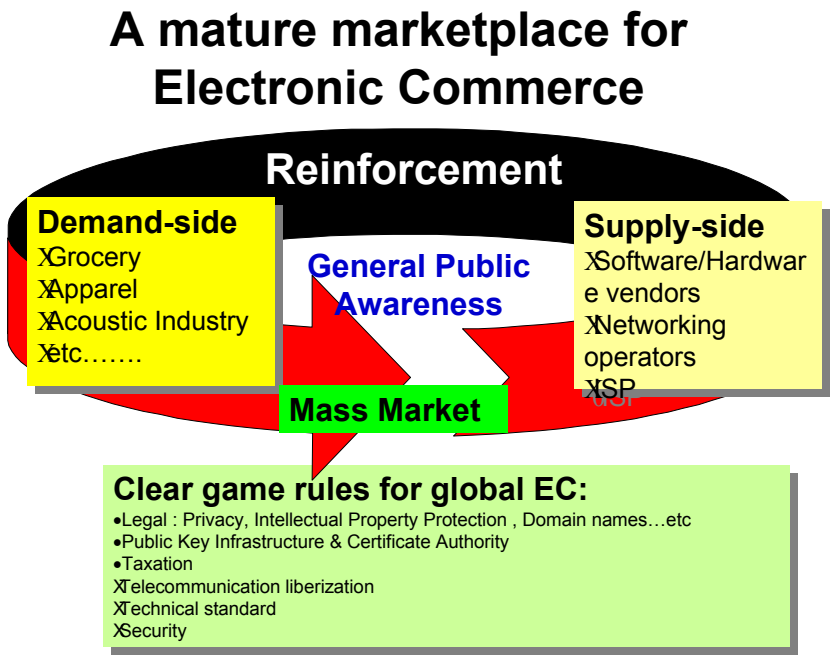
Foreword

1. The development of Electronic Commerce on Internet has been impacting the way of doing business and the way of living. It is no doubt that better utilization of EC will bring business more competitiveness and well being of general public. However, there are some critical issues, such as taxation, legal, intellectual property rights, and technical development and telecommunication infrastructure, to be resolved by APEC economies. Among these issues, human resource is the most critical and most urgent issue. This papers first analysis the framework of EC to define what are needed in human resource. Then it proposes the architecture of training program for EC professionals. Rather than taking the academic or school educational approach, this paper takes a practical approach to define a set of EC courses. The last part is a case study showing two coordinated projects which Chinese Taipei implements for EC promotion. The paper as a whole is to present the major concerns of EC promotion and to build up a program framework for EC promotion.

Framework of EC

2. A good and healthy marketplace is driven by a balanced demand and supply relationship. From this point of view, we can see that a mature marketplace for Electronic Commerce as [figure 1].

[figure 1].:



Problems toward the EC mature market place

3. Demand side is the company of a particular industry who wants to utilize EC as part their business, no matter it is business to business (B-B) or business to consumer (B-C). Demand side is also the consumer who browses, buys and pays on Internet. On the other hand, supply side is the one who provides the products or services to demand side. These suppliers may include Internet service provider (ISP), Internet content provider (ICP), hardware, software and network provider, advertisement provider, banking institution who handles the payment, distributors, etc. As long as the demand side gets stronger, the supply side also gets higher business volume. Hence the so-called "EC mass market" will come someday. So the driving force is the generation of demand. In order to hit the target of mature EC marketplace, a list of obstacles which may hindle the fast grow of EC are listed below.

Obstacles of demand side

4. There are following problems of awareness on the demand side of EC on Internet:

- Do not know the benefits of Internet
- Know Internet, but has no idea of how to use Internet
- Hesitate to invest
- Worry about security issues
- Use only part or primitive of Internet applications
- Used within respective enterprise, but not whole industries
- Has no confidence to use
- Has no confidence to share information with its upstream and downstream enterprises
- Lack of technical team to execute system implementation

Obstacles of supply side

5. There are following problems of awareness on the supply side of EC on Internet:

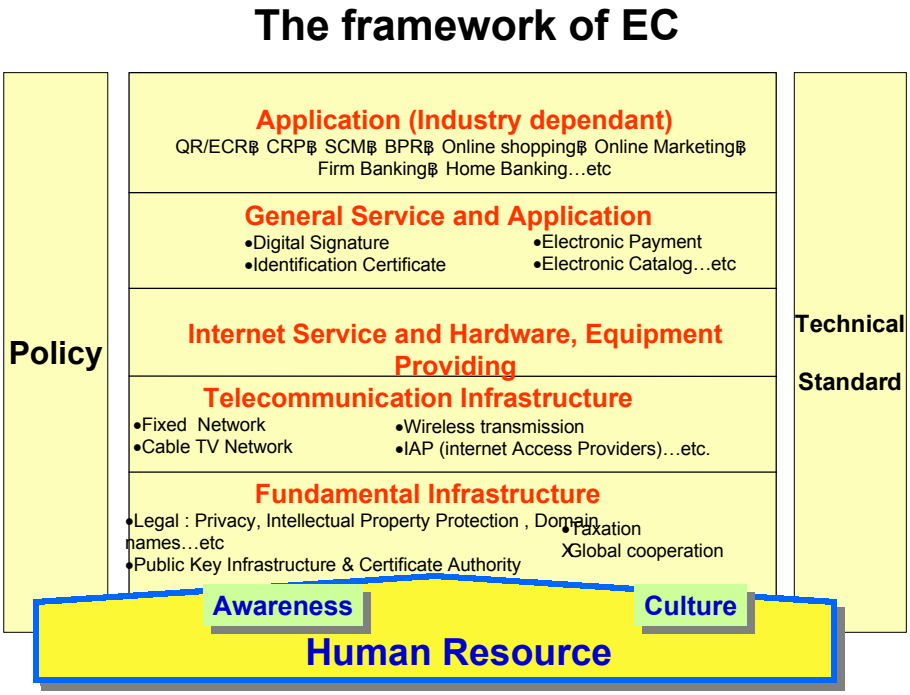
- Mass Market has not come yet
- Costs are still high, especially the initial marketing and training cost

- Difficult to establish effective business strategy among diversified investment possibilities
- Must deal with legacy system in hand or in customer's hand
- Hard to find disciplined human resource
- Large scale Business to Business customer services still in the air
- "Who should I follow? " question raises when choosing a platform or a standard

The Framework of EC

The following [figure 2]is to clarify what is EC.

[figure 2]



6. The fundamental level of the framework, the lowest layer, of EC is the culture and social infrastructure. Awareness, human resource, legal setting, habits of people… are all included in the level. The second lowest layer is the telecommunication infrastructure. Fixed network and wireless network construction contribute to this layer and play important role in the EC environment. Above of the network layer it comes the ISP and hardware equipment layer. It provides equipment and general value added services, such as FTP, E-mail and WWW, above the backbone layer. Then it comes the general service and application. This service provides the common needs of all types of applications and is independent with various vertical industries. The general service and application includes digital signature, CA, payments gateway, etc.

The top layer of the framework is the application layer. It may be different for different vertical industry. These applications are Electronic Data Interchange (EDI), Quick Response (QR), Efficient Consumer Response (ECR), Electronic Catalogue, etc.

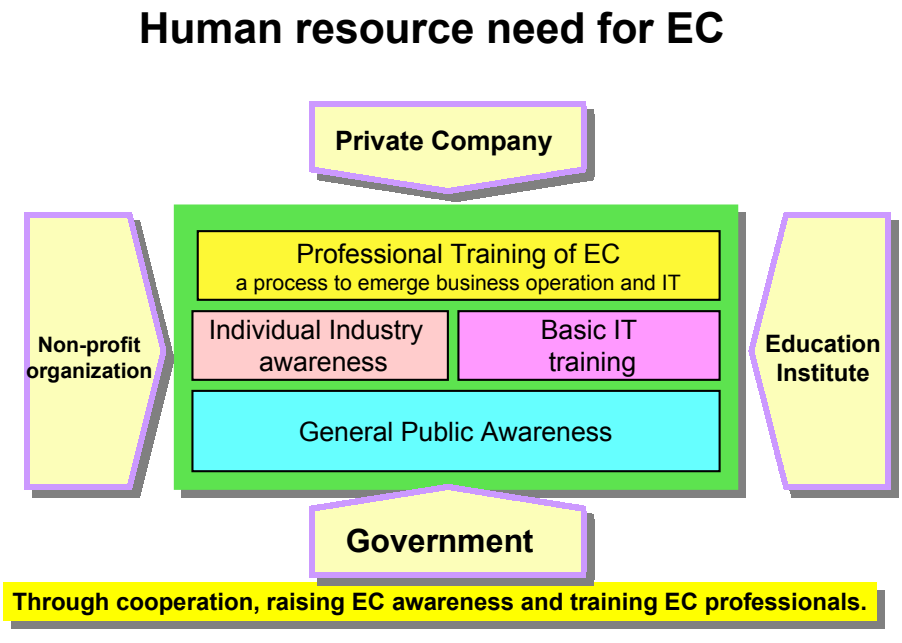
7. The “policy” sector of the framework actually can be combined into the lowest layer, as it is a part of the culture and social infrastructure. The “technical standard” sector will be needed for the layers from telecommunication layer and all above layers. The technical layers may be pure technical or mixed with application data formats, such as the format of an electronic catalogue or a purchase order data format of EDI over Internet form.

8. It is not hard to find that human resource is one of the fundamental successful keys to the EC framework.

Human resource need for EC

9. From the analysis of the obstacles of demand and supply side, we can find that there are three layers of EC human resource. Namely general public awareness, industry awareness and IT basic skills, as well as professional training as depicted in [figure 3]

[figure 3]:



10. For all, school curriculum is basic to build up basic IT and EC skills. The responsibility of government is to do what an individual enterprise can not or has difficulty to do. The role the government must play is to build up a suitable and barrier free environment for the prosperity of EC. Awareness, no-confusion legal environment, clear taxation rules and all immerging infrastructure tissues are all belonged to the

responsibility of the government. Non-profit organization, such as industry association and non-profit research institute can play the role of “glue” to coherent the job of government and private sectors. Non-profit organization can do those things that require either extensive technical capability or bust manpower that neither the government or private sector comparably hard to provide. For private sector it is essential to build its own EC human resource with required professional skills.

The architecture of EC human resource professional training

11. Because the traditional school education system or computer education institutes have provided IT basic skills and it is relatively more common to most application. Here will focus on the professional training of EC that enterprises need the most and put them into six different categories. We then will take the approach of a company, the different stages of promotion, the topics of training to explore the training of EC professionals.

Category of EC implementation topics

12. In order to express a clear picture of what should be included in the EC training program, the following is a list of EC topic category with several examples.

- **Know why topic**
  - The trend and impact of Internet
  - Benefits of EC
  - Successful case studies: Who is doing EC on what application and what is their benefits
- **Know what topic**
  - Definition of EC
  - What is B-C Internet
  - What is Intranet
  - What is Extranet
  - Business to Business application
  - Business to Consumer application

- The framework of EC
- Issues involved: legal, taxation, consumer protection, fair trading…etc
- Issues involved in global EC

- **Know how topic**
  - IT part of EC: H/W, S/W,ISP, HTML, TCP/IP, Java, CGI or DB transform tools, Security and CA…
  - Business strategy, Business model and Business process integration:
  - EDI
  - QR
  - ECR
  - CALS
  - CRP
  - VMS
  - Category management
  - EFT
  - SET
  - How to initiate an EC project
  - EC project planning

- **Know How much topic**
  - Cost in money(initial and future)
  - Cost in manpower and time(initial and future)

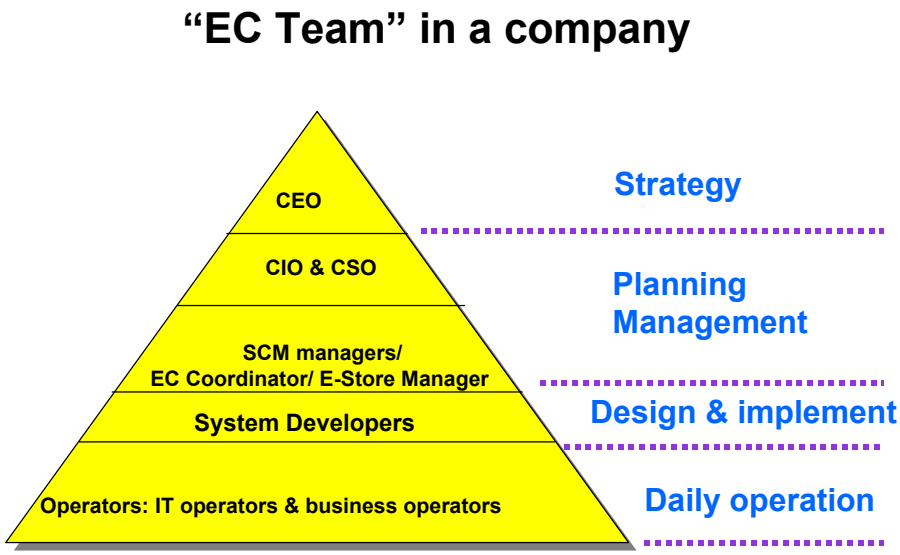
- **Know when topic**
  - Priority of implementation items
  - Steps of implementation

- **Know who topic**
  - ➢ organization structure set up
  - ➢ EC team capability build up

Training needs from a company's approach

13. The [figure 4] presents an ideal human resource structure for a typical company or a typical organization.

[figure 4]:



The Responsibility for each job function is as following [table 1]

[table 1]:

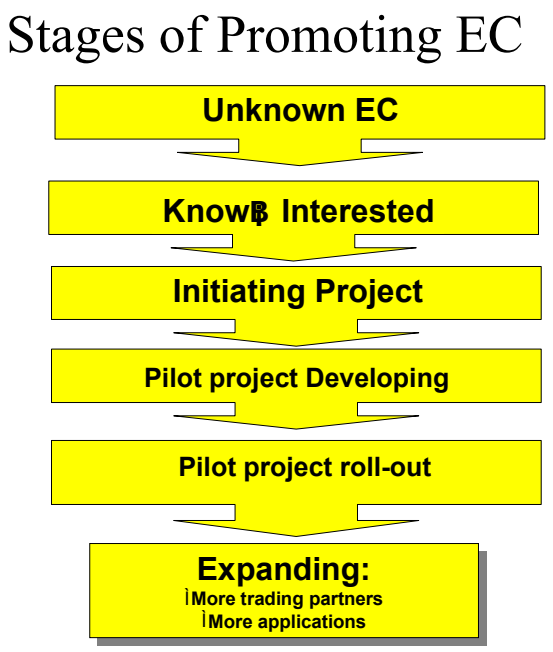
Function	Focus	Responsibility
CEO	Know why Know who	Business strategy/Business model planning
CSO	Know why Know what	Business model design
CIO	Know why Know what Know how much	Capture the latest IT trend and abstract it into business Introduce technology trend to CEO Ensure EC projects success
EC Coordinator	Know what Know how	Binding Business flow□control flow and best practices Coordination with trading partners
Supply Chain	Know how of	Concept and implementation ECR/SCM

Manager	business	skills
System Developers ● S.A. ● S.D. ● DBA ● Web master ● Network specialist	Know how IT can support business	Software Engineering Internet based application development ● Protocol ● Tools ● Languages ● Network
Operators	Know how of IT operation	System daily operation, trouble shooting, reporting…etc.

Stages of Promoting EC

14. From the step by step point of view, each step of promotion requires different focus and need different method to train. A rough stage is defined in [figure 5]

[figure 5]



Focus for each stage is on the following [table 2]

[table 2]:

Focus at Each Stage

Stage of EC implementation	Focus
Unknown EC	Why EC?
Know & Interested	What is EC? Why shall I invest on EC? How much?
Initiating EC project	Who are responsible? Where? When? How?
Project developing	How to do? What is the best practice?
Pilot project rollout	How to evaluate the outcome? What is the benefit?
Expanding to more partners or more APs	What to do next to whom?

Example: The training programs for EC promotion of Chinese Taipei

15. Chinese Taipei has been executing its NII projects including Electronic Commerce related projects and distance learning, tele-medicine, e-mail to schools, broadband pilot…etc. could be taken as examples of the EC promotion.

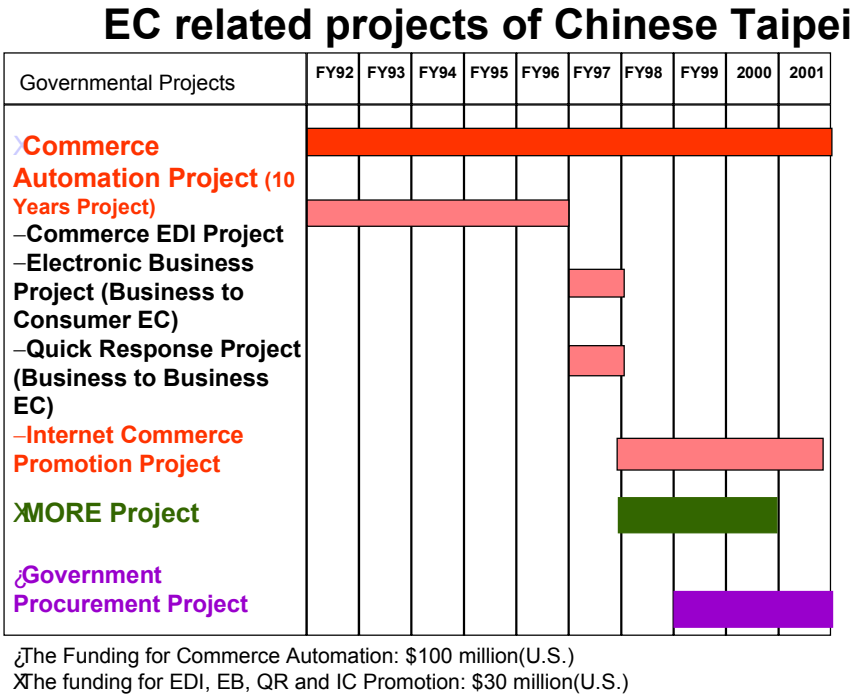
Summary of EC related projects of Chinese Taipei

16. Chinese Taipei has been executing two EC related projects. One is MORE (Million Online Residences and Enterprises) Project. The other one is Internet Commerce Project. Both projects are funded and supervised by the Ministry of Economic Affairs (MOEA). More projects is host by the Department of Technology, MOEA. Internet Commerce Project is host by the Department of Commerce. Both projects are organized by Institute for Information Industry (III) and executed in cooperation with private sectors, non-profit associations and institutes.

17. Internet Commerce project is one of the 10 year based Commerce Automation project. It includes the promotion of Commerce EDI, Business to Consumer EC, and Business to Business EC.

18. Figure 6 show the major work items and timeline for these two projects.

[Figure 6]:



19. In general, MORE Projects emphasizes general public awareness and IT basic training. Internet Commerce Project emphasizes individual industry awareness, Professional B-B & B-C EC training

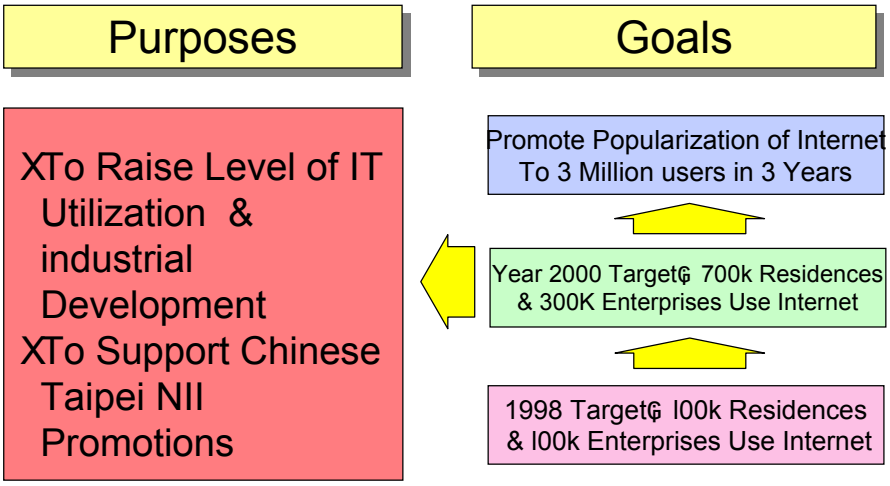
MORE Project

A. Goal and Strategy of MORE

20. To increase the general public awareness is the key to MORE projects. Figure 7 shows the goal and strategy of the project.

[Figure 7]:

MORE(Million Online Residences and Enterprises)
Project (July 1997- June 1999)



B. The training program of MORE Project

21. There are three types of training program MORE adopts. First is the promotion Champaign activity for selected theme once a month. The typical themes are:

- E-mail for “Family communication book” used by elementary and junior high schools
- Student reunion on Internet
- “3C Mall” opening on Internet

22. In addition, “Seminar for BOSS” features the MORE training program. A seminar for half day is carefully designed to provide bosses of a company brief but concise idea of Internet. The content of the course includes Introduction of Internet as well as benefit of Internet. The target is CEO of big companies and SME bosses.

23. MORE also hosts a series of basic computer and Internet skill training for general public. The training is cooperated with computer education institutes.

Internet Commerce Project

A. The goal of Internet Commerce project

24. The goal of Internet Commerce project is to help 40 industries and 50.000 enterprises to apply information and network technologies to the following:

- Business inside (Intranet)
- Business-to-Business (Extranet)
- Business-to-Consumer (Internet)

25. By doing this, the objective of the project is to integrate the upstream and downstream partners of industries to make it running as a virtual company.

B. The training program for Internet Commerce Project

26. The following list is the program or activity, which is hosted by the project from July 01, 1997 to May 31, 1998. The list may show a flavor of training program.

- 10 industry awareness seminars
- 13 QR/ECR professional seminars
  - including APEC TEL BSFG EC seminar in Taipei on Nov.17 1998
- 5 “EC Seed professional” training
- 40 B to C Electronic Commerce Consortium working group experience sharing seminars
- 10 Basic B-B Internet workshops
- One international exhibition and conference: Internet Commerce Expo’98: 2000 attendees
- 5 legal roundtable meetings for domain name, intellectual property, CA, …etc. Here is an example QR/ECR training topics of major program for each stage.
- How to use QR/ECR to leverage the competitiveness of an enterprise
- How to use QR/ECR
  - Category management
  - Continuous replenishment
  - Vendor managed inventory

  - EDI over Internet
  - Electronic Fund transfer

- QR/ECR application
- Value chain analysis
- QR/ECR successful stories: international and domestics

Conclusion

27. Human resource development is one of the key successful factors to facilitate the Electronic Commerce in Chinese Taipei, as well as in APEC region. The paper here is only an initiation to induce more widespread discussion on the issue of human resource development. Chinese Taipei, a member of APEC with limited natural resources, will gain our unique competitive advantage through the wide spread utilization of Electronic Commerce on Internet. We are willing to cooperate with all APEC economies to develop EC human resource and welcome any form of cooperation.

3.4 APEC "Paperless Trading" Goal (TPT WG)

Introduction

1. The TPT-WG is pleased to submit the following draft issues paper for consideration by the SOM Electronic Commerce Task Force.

2. The purpose of the paper is to identify issues relevant to achieving the goal of paperless trading within APEC.

3. The TPT-WG agreed at its 8th meeting, in September 1995, to work towards achieving paperless trading in transportation and related trading sectors in the APEC region by 2005. The major barriers to the achievement of paperless trading are the various legal and institutional requirements for paper documents.

4. The TPT-WG has recognised that a number of these barriers exist in the related financial and commercials sectors and are therefore outside the responsibilities of the TPT-WG. The TPT-WG has sought assistance from the CTI in addressing this issue.

5. The TPT-WG submits that achievement of this goal would make a major contribution to the facilitation of trade in the region. Inclusion in the Leaders electronic commerce work program of activities directed to achieving this goal is worthy of consideration.

Policy Issues

6. As some of the identified legal and institutional barriers to paperless trading in the transportation and related trading sectors are part of the related financial and commercial systems in member economies, achieving the goal of paperless trading in this sector by 2005 will require commitment from Leaders to take action to address these barriers.

7. The priority area which needs to be addressed is in gaining acceptance for electronic documents, including facsimile documents, for the clearance of ships and aircraft and cargoes and the development of acceptable risk management strategies to facilitate this outcome.

Technical issues

8. Transport related documents, as with many other forms of documents, if transmitted electronically will require some reasonable guarantees as to authenticity. Robust encryption services to safeguard the integrity and confidentiality of electronic documents are now available and the

APEC Telecommunications Working Group is presently working on the development of a public key authentication framework.

9. Other technical issues that may need to be addressed by appropriate bodies to achieve the goal of paperless trading in the transport sector include:

- The adequacy and availability of infrastructure for the cost effective use of electronic commerce (for example, telephone lines and appropriate regulatory arrangements);
- Adoption of agreed international standards relating to the transmission and content of electronic messages;
- The adequacy and interoperability of software for electronic commerce messages;
- The adequacy and competency of support from software suppliers;
- The availability of cost-effective ways of transmitting electronic commerce messages to meet individual requirements (for example, the availability of reliable internet and value added network suppliers);
- The introduction of effective facilities for linking EDI with other forms of electronic commerce (for example, some APEC economies are already developing Bureau facilities which can link between EDI, e-mail and e-form systems).

Legal/Commercial Issues

10. There do not appear to be any major legal problems associated with the use and acceptance of transportation and trade related documents in electronic form (with the exception of the Bill of Lading, which has been the subject of extensive work in other fora). Many of the legal consequences of using electronic documents, including the issue of where responsibility falls in the event of a failure of an electronic transmission, can be dealt with in trading partner agreements.

11. Leaders may wish to consider the establishment of consultative groups within individual economies to examine the legal and commercial issues associated with the use of electronic documents in the transportation and related trading sectors to develop responses, which are appropriate to the local requirements of each economy.

Frameworks, principles and other work on this issue

12. There is a Model Law on Electronic Commerce, which provides guidance on the type of legislative provisions that could be used to give

legal recognition to electronic documents. The Model Law can be obtained from the internet at

http://www.un.or.at/uncitral/texts/electcom.ml-ec.htm.

13. The UN/EDIFACT system, which has an extensive regional and economy network of Boards, has had primary responsibility for the development of message standards and related implementation guidelines which should be adopted by member economies as the standard for EDI messages.

Other issues

14. Achieving the goal of paperless trading, and addressing, effectively, some of the issues raised above, may be facilitated by the establishment, in each economy, of local organisations for effective coordination of electronic commerce implementation in the transport and related trading sectors of each economy.

15. Examples of existing organisations which undertake this role include Tradenet in Singapore, Tradegate/ECA in Australia, TradeVan in Chinese Taipei, and Tradelink in Hong Kong, China.

Questions that APEC should be asking about this issue

- The TPT-WG believes the goal of achieving paperless trading in the transport and related trading sectors by the year 2005 is both worth achieving and able to be achieved. Is APEC willing to make the necessary commitment to make the goal a reality?

- The massive predicted growth in the use of electronic commerce is expected to be, overwhelmingly, in the area of business to business communication. There are issues specific to that form of communication, which can be resolved by government and business partnerships and investment. Is APEC willing to give priority to the development of business to business electronic commerce?

Conclusions - implications for APEC and what APEC may be able to contribute

16. APEC was established as a forum for economic cooperation between member economies. Economic cooperation has many dimensions, but the primary focus is on improving the ability of member economies to trade competitively in the region and in the world.

17. Enabling effective business to business electronic commerce by removing the legislative and institutional barriers to that form of commerce, will make a significant contribution to improving trading

relationships and to the competitiveness of businesses in APEC member economies.

18. APEC can contribute to this by :

- A commitment, at individual economy level, to put the necessary resources into removing the institutional and legal barriers to the use of electronic commerce in the transportation and related trade sectors. Cooperation in solving the technical problems identified above, including through seeking and funding projects, under the auspices of existing APEC Working Groups which address these problems.

- A commitment by Governments of member economies, which are usually the largest `business' in each economy, to move to the use of electronic commerce in conducting its own activities in the transport and related trade sectors.

3.5 Human Resources Development in Electronic Commerce (Thailand)

Introduction

1. Electronic commerce is all forms of business transactions undertaken through electronic means.

2. Business transactions include such as electronic trading of goods and services, online delivery of digital content, design, advertisement, electronic fund transfer.

3. Electronic means include a variety of communication networks such as computer networks both private and public networks (Internet), as well as telephone and television networks.

4. For many years, electronic commerce is concerned only with business-to-business transactions, but with the expansion of the use of internet, there are now four different forms of electronic commerce which are business-to-consumers, business-to-business, business-to-public administration and user-to-user. Business-to-business transactions are the form of electronic commerce, which has the highest volume and value. It covers electronic data interchange (EDI) through private or public networks of subsidiaries of the same company. Business-to-consumer transactions are comparatively small in volume and value, however this form of electronic commerce has a very high growth potential.

The importance of HRD in electronic commerce

5. Electronic commerce has developed very rapidly and it is estimated that electronic commerce will reach 300 billion US$ by the year 2000. This will, according to the experts of UNCTAD, revolutionize the very nature of international trade and could have the greatest impact on the economic development process in developing countries and on their integration into a globalized economy. In this respect, there is an urgent need to train providers to the use of the tools of electronic commerce and consumers to get familiar with the information technology for communicating and ordering goods and services electronically. More importantly as many developed countries have put pressure on setting up a general framework of rules and disciplines for global electronic commerce, developing countries have therefore to train their negotiators to acquire an enhanced knowledge and experience in the area of electronic commerce in order to be able to participate actively and to protect their national interests on international negotiating forums.

UNCTAD's activities on human resources development in electronic commerce

6. The Commission on Enterprise, Business Facilitation and Development under the Trade and Development Board of UNCTAD had convened the experts meeting on the topic of "Capacity-building in the area of electronic commerce: human resources development" from 29 June to 1 July 1998 in Geneva, Switzerland. The meeting came up with the following concepts:

The targeted trainees

According to UNCTAD experts, there are three groups of people who should be trained in priority as they can train more people after they are themselves being trained:

1. Policy makers and negotiators
2. SME Managers and trade practitioners
3. Technicians

Types of training

There are at least three types of training:

- Training in the general techniques of international trade
- Training in the basic techniques (network access, use of the Internet) and in the specific tools of electronic commerce (such as secure message, contract environment, invoicing and payments)
- Training in international negotiations in the field of electronic commerce.

The training techniques

To train human resources in the field of electronic commerce, the training techniques available today with information technologies are such as:

- Interactive videoconference which is an on-line training through a computer system in which the instructor communicates with the trainee through a screen and they can interact spontaneously.
- Distance learning involves an electronic link between the instructor and the trainee by telephone, fax, e-mail or internet.

- Self-training with CD-ROMs.

The trainers

The instructors who will provide the training courses are:

1. Experts from major international institutions and organizations that have acquired experience in the specific tools of electronic commerce, particularly UNCTAD, WTO, UNCITRAL, UNDP, ILO, ITU and WIPO.

2. Local instructors who could provide training in the general techniques of international trade and in the basic techniques mentioned earlier. These instructors include those practitioners from private sector such as banks in particular, as they are very active in electronic commerce.

Assistance from UNCTAD to developing countries

The lack of telecommunication infrastructure in developing countries and the high cost of training the personnel are the main obstacles to human resources development in the field of electronic commerce in developing countries. Consequently, developing countries should apply for the training programmes in the field of electronic commerce contributed by various international institutions and organizations.

UNCTAD has actually two main programmes to assist developing countries in the area of human resources development for electronic commerce. These are TRAINFORTRADE programme and the Trade Points Programme.

TRAINFORTRADE programme

"Under the TRAINFORTRADE RAB/96/ool project, UNCTAD offers a series of training courses in the field of electronic commerce through the training of trainers to the Arab countries. The courses take the form of teaching kits for international trade practitioners and students. They are made available to training institutions in the region."

Trade Points Programme

UNCTAD provides also the training courses to business executives through the Trade Points network.

As UNCTAD's ability to provide the training courses is limited, there is therefore the need to call on public donors to obtain enough funding. In this connection, UNCTAD will organize the meeting of "Partners for Development" on November 1998 in Lyon, France.

Interested people can obtain more information on the activities of UNCTAD from its website at www.unicc.org/unctad/en/enhome.htm

The possible role of APEC:

7. APEC may cooperate with UNCTAD in the various training programmes of UNCTAD by providing UNCTAD with experts in electronic commerce.

Assistance from within APEC countries

8. Developed countries of APEC can also provide the expertise and the training assistance to developing countries in APEC through APEC Education Forum, which is under APEC Working Group on Human Resources Development. In the longer term, the project of establishing APEC HRD University, which is currently being studied by Korea, may be another channel through which the human resources development in APEC can be achieved.

The role of government

9. An important role of Government is to enhance skill formation, education and training in order to create a pool of workforce possessing skills in the field of information technology.

Raise awareness

The first task of the government is to raise the awareness among business people especially small business of the benefits of electronic commerce to their businesses in order to encourage them to adopt the online technologies. This can be achieved through the organization of seminars about the possibilities and challenges of electronic commerce and the establishment of pilot project. Ministry of Commerce of Thailand is actually establishing a pilot project on encouraging the use of electronic commerce in exports. The project will start from October 1998 and will last one year. More information about the project can be found at www.thaiecommerce.net

Training initiatives

- The establishment of training and demonstration centers to provide access for firms to the latest online technologies.

- The establishment of national computing centers to promote the rapid adoption of the e-commerce technologies.

Education

- Electronic commerce requires new skills for network literacy. The basis for such skills should be laid in primary and secondary

schools for consumers and future providers to be familiar with information technology.

- Introduction of information technology to education such as tale-education through virtual classroom using enhanced videoconference to connect students to teachers. The digital classroom involves an instructor controlling multiple local and remote video cameras. The signals include data, voice, and video. The students could have individual video ready PCs as well as a large projection screen in the classroom that shows multiple images of the professor or other classrooms or images the instructor may want to show such as a transparency-like presentation, television broadcast and instructional videodisk. The International Telecommunication Union (ITU) has a virtual training center available in the World Wide Web of internet.

Regional Trade Division
Department of Business Economics
Ministry of Commerce of Thailand
September 1 998

Sources

1. Outcome of the Expert Meeting on Capacity-building in the Area of Electronic Commerce: Human Resource Development, Geneva, 29 June-1 July 1998

2. Human Resource Development Page (www.nwlink.com/~donclark/hrd.html)

3. APEC Working Groups and Experts Groups on Human Resources Development (www.apecsec.org.sg/workgroup/hr&ome.html)

3.6 Pacific Alliance for Communication Technologies In Education - Edupact (PECC)

Reference: APEC Blueprint for Action on Electronic Commerce

1. Given the fast developing and changing nature of electronic commerce, APEC Ministers endorsed the development of a **"Virtual" Multimedia Resource Network** to provide a reference base to continue raising awareness and exchanging information, including on economies' electronic commerce development strategies, government use of electronic commerce as a means to conduct business, and human resource development, education and training, and tasked officials to implement it taking into account the proposed PECC EduPACT stocktake of electronic commerce resources in member economies, and elsewhere"[1].

2. The EduPACT initiative also directly contributes to APEC's efforts to assist SMEs in their attempt to utilize electronic commerce practices as it will expand the IT literacy and skills levels of potential entrepreneurs and SME managers in the region.

EduPACT Overview

3. As communications networks in the Asia-Pacific expand in number and capacity, the member economies of APEC face the challenge of an emerging, regional information society and the need to advance their use of Electronic Commerce in order to remain competitive in the global marketplace

4. The growing affordability of, and ease of access to, broadband communication networks increasingly affects how people do business, interact socially, and educate their children and themselves. Similarly, the emergence of "smart systems" in virtually every sector of commerce and social services requires citizens to achieve higher levels of IT literacy in order to survive in the workplace and gain access to social and educational benefits.

5. APEC Leaders have called not only for the promotion of electronic commerce, but also for steps to meet growing demands by the region's citizens for better information and experience in the use of information technology. Toward this end, the Pacific Alliance for Communications Technologies in Education (EduPACT) will harness the expertise and energy of industry, academic and government partners involved in the

[1]Para 7 of ***APEC BLUEPRINT FOR ACTION ON ELECTRONIC COMMERCE*** - *Draft of October 1998*

development of communication networks, information technologies, and educational curricula. The initiative will catalogue initiatives that already are helping to prepare the region for the opportunities of electronic commerce and the digital society. It will work with its partners in business, government and academe to uncover new opportunities for educational innovation, skills training, and electronic commerce development.

EduPACT Objectives

- To promote electronic commerce by equipping APEC communities with state of the art education and training in the full range of skills needed in the information age.

- To draw attention to, leverage, and facilitate the ongoing efforts by companies, academic institutions, and government agencies to develop IT literacy in the Asia-Pacific region.

- To build upon the APEC leader's call for establishment of an Asia-Pacific Information Society by the year 2001 by creating an international network of companies and institutions to share data, experience, information and advice in the use of information technologies in learning institutions.

- To support the growth of an accessible, affordable regional communications and information network for the benefit of all the major learning institutions of APEC.

- To encourage and facilitate projects that promotes the development of useful, innovative information infrastructures within and among APEC educational institutions.

EduPACT Work Program

- Stage I: Stock-taking of existing public, private, regional, and global initiatives in Computer Aided Learning (CAL) and skills training taking place in the Asia-Pacific region. Development of a Board of Directors for EduPACT. Establishment of a database on activities that support electronic commerce initiatives in APEC (for more details see EduPACT Background Document).

- Stage II: Mapping of Initiatives and Review, through APEC, PECC, ITU joint consultation process, of gaps in regional provision of appropriate training and education systems that need to be addressed. (Please see background paper for more information on ITU involvement)

- Stage III: Support for the development of initiatives, both public and private, to address these gaps – through test-bed projects, government-industry joint ventures, or purely private sector lead initiatives.

EduPACT Outcomes

- Broad, regionwide collaboration among firms, academic institutions, and government agencies in sharing information and pooling resources to expand IT literacy and E-Commerce readiness in the region.

- New public-private sector initiatives to expand CAL, develop curricula appropriate to the demands of the information society, and support innovative training programs.

- A casebook of successful initiatives in the region and a report on progress made to date on the Electronic Commerce and APIS[2] initiatives, as they relate to skills training and education, for review by the APEC education ministers and economic leaders in 2000.

[2] Objectives to be achieved under the *Asia-Pacific Information Society* (APIS) call to action can be found in the proceeding of the Vancouver APEC Ministerial and Leaders Meeting.

3.7 Concept Paper – APEC Electronic Commerce Resources Center (Thailand)

Background

1. Electronic Commerce may be simply defined as the production, advertising, sales and distribution of products via telecommunications networks (WTO, 1998). Although electronic commerce via traditional means such as telephone, facsimile, and television have been around for quite some time, the proliferation of the Internet in recent years provides greater versatility as a medium for conveying information. It is estimated that by the turn of the century, there will be as many as 300 million Internet users (ActivMedia Inc., 1997) creating commercial opportunities of over US$ 300 billion (Forrester Research Inc., 1997).

2. Driven by advances in three areas of technology namely computer, telecommunications and software and information technology, modern day electronic commerce is conducted in a wide spectrum of applications ranging from sales of entertainment to educational products. The means of information and product deliveries in electronic commerce can reduce costs while increase efficiency whether electronic commerce occurs in the information, ordering, and payment or delivery stages.

3. To provide a competitive environment for electronic commerce, wide ranges of issues have to be addressed. Building “trust” to the electronic commerce communities entailing the business partners and the consumers in particular is vital to the growth of electronic commerce. Trust mechanisms can be realized through a consistent and assuring legal, economic, and technical framework. Many legal infrastructure in electronic commerce such as commercial codes, data protection, intellectual property, electronic payment have been and are being scrutinized in economies throughout the world. In association with the legal framework, technical standards such as encryption, telecommunications and information technology infrastructure, taxation, content and others have also been identified. In most instances, these issues have to be addressed in a global context.

4. The growth of electronic commerce will have a significant impact on the creation of opportunities in a society and consequently the growth of an economy. However, a number of adverse effects have to be addressed and managed properly including issues and opportunities on equal access, the under-privileged, the technology dependency. Information and training programs in electronic commerce-related issues are crucial to the development of electronic commerce in most economies especially for small and medium enterprises (SMEs) which, in many economies, form a large part of the trading communities.

5. While information and training may be fundamental to electronic commerce activities in developing countries, developed economies will enjoy a freer flow of global electronic trade providing that trading partners are well informed and adjust their trading patterns accordingly. Hence, a global framework on electronic commerce will be enhanced in a community has to be informed, many businesses to be reinvented, and knowledge workers to be produced and retrained in parallel to addressing other issues as mentioned above. In fact, information dissemination and human resources development are crucial requirements for a healthy global electronic commerce environment.

Activity Proposed

6. Given the dynamism of electronic commerce and the forthcoming challenges of enormous scale and potential, Thailand is of the opinion that a concrete plan of actions on the development of electronic commerce resources including information and human resources at the APEC-wide level is essential to the growth and competitiveness of electronic commerce in the region. In order to consolidate APEC electronic commerce activities, in particular, the area of awareness, information dissemination, training and education-related programs, Thailand wishes to propose the establishment of an “APEC Electronic Commerce Resources Centre” (APEC-ECRC) based in Bangkok to coordinate work programs in this area.

Objectives

7. The objectives of the APEC-ECRC will focus on the coordination of EC activities and programs on three areas namely

- Awareness Creation
- Information Resources
- Training and Education

8. The awareness creation scheme refers to coordination efforts and initiatives set to provide understanding to electronic commerce stakeholders including policy makers, practitioners, and the public in general.

9. The information resource scheme refers to the coordination for the sharing of existing information bases in various groups within APEC that have electronic commerce activities such as providing an information clearing house.

10. The training and education-related scheme refers to the provision of an effective coordination efforts for existing and planned training programs in electronic commerce by various APEC groups into account the

complexity and diversity of electronic commerce-related issues and the activities of the same nature by other non-APEC groups such as WTO, UNCTAD, ITU, OECD, ASEAN, to name a few. The Center may also initiate some training and education program on electronic commerce that do not duplicate works by other groups but complement on-going activities in order to fulfill the objectives.

11. Hence, the goal of the APEC-ECRC Center is to work with existing APEC working groups and committees who are working on electronic commerce-related issues. These issues are diverse in nature including legal, managerial, economic, regulatory, access, content, and technical aspects. In certain circumstances, new activities initiated from the Center, the required budget and manpower will be kept at an appropriate and minimum level.

Linkages

12. The APEC-ECRC will coordinate with relevant APEC working groups such as HRD, SME, TEL and others in order to avoid duplications among the working groups' work. At the same time, the work of the Center will increase APEC's effectiveness on electronic commerce in information and manpower development through the Center's linkages with non-APEC organizations.

Output

- A well-coordinated information and manpower development on electronic commerce-related activities within APEC

- Awareness creation program including coordination of workshops among APEC economies and awareness handbooks for dissemination.

- A virtual information resources center providing internet-links to relevant information websites as well as the Center's information resources outputs.

- A coherent workplan on existing electronic commerce training and education-related programs and activities and complementary training and education programs.

3.8 APEC Virtual Multimedia Resource Center (Chinese Taipei)

Objective of the Virtual Multimedia Resource Center

- Through the exchange of the information and related e-Commerce resource, accelerate the development of e-Commerce in APEC region.
- To decrease the time and budget needed for running a physical resource center while increasing the efficiency

Output of the project

- A rich, up to date, comprehensive, live, 7 days a week, 24 hours a day web site for connecting EC resource in APEC region.

Contents (draft, the real content will be decided after analysis)

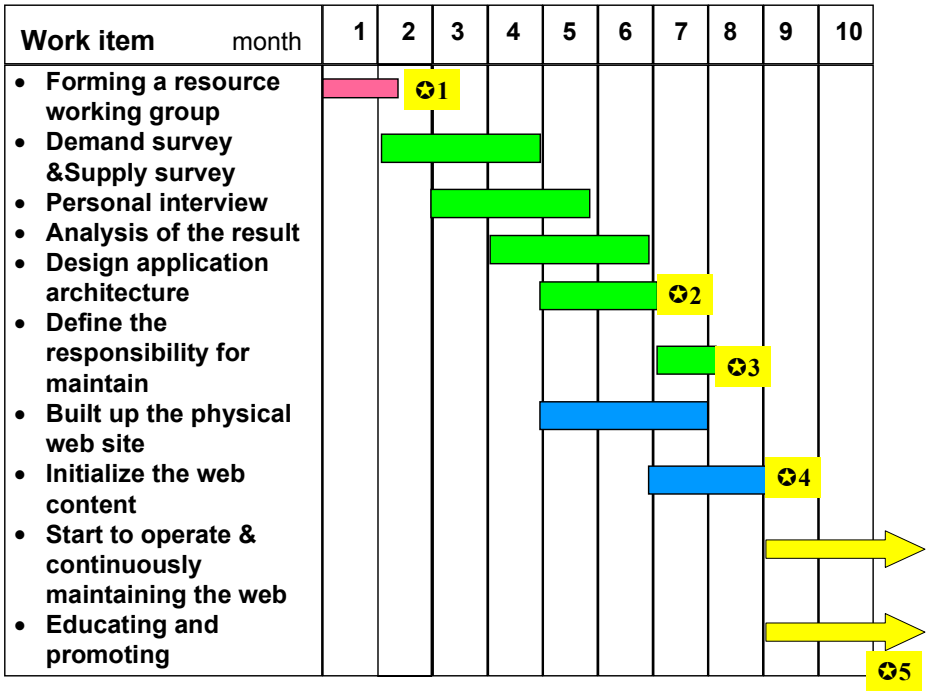
- Projects of APEC economies
- human resource of APEC economies
- SME EC case studies
- activities or events in each economy
- training programs: speakers, courses and availability, expertise
- Comprehensive papers and discussion forums for EC issues
- EC organizations (Associations, institutes, governments agencies…) and contact windows
- EC vendors and solutions
  - ISPs
  - Hardware and software vendors
  - Solution providers

Work items

- Forming a resource working group composed of interested economies
- Demand survey:
  - The survey will be conducted on a questionnaires basis
  - Survey to understand EC resource requirements of all economies
- Supply survey:
  - The survey will be conducted on a questionnaires basis
  - Which economy can provide
  - What resource
  - From which organization and from who
  - At when(time, frequency)
  - By which mean (hyperlink, e-mail, ftp, paper…)
  - With what evaluation criteria
- Personal interview with key resource in the region
  - Interview with around 20 resource centers in the region to learn how to successfully run such a center virtually
- Analysis of the result of surveys and interviews
- Design application architecture
- Define the responsibility of operational and maintaining the web
- Built up the physical web site
  - Hardware and software procurement or leasing
  - Set up the web site
  - Set up necessary software and search engine

- Initialize the web content
  - Gathering information
  - Design pages
  - Put information on the page
  - Hyperlink various web sites
- Start to operate, continuously maintaining the web sites and enrich the content
- Educating & promoting
  - Promote the web site
  - Attract more content providers
  - Attract more browsers
  - Publishing DMs to introduce the resource center

Time table and milestones



Milestones:

1: The name list of the Virtual Multimedia Resource Center

2: Content architecture

3: List of responsible party for maintenance

4: The web site for virtual multimedia resource center

5: Education and promotion feedback for the improvement of the center

Critical successful factors

- Cooperation of all EC task force members to make the resource center a “live” and “fresh” web site
  - Must be well known
  - Must be fit the needs of users
  - Must be easy to use and easy to search
  - Must be fast enough
  - Must link to business opportunity
- Funding to support a professional work while project initiates
- Closed networking between EC stakeholders

Conclusion

- A live and fresh web site requires tremendous resource to run it. Chinese Taipei is willing to contribute to APEC EC Task Force a 2 years effort to establish such a resource center.

3.9 Proposal for a Virtual Multimedia Resource Centre In the APEC Region (Canada and Singapore)

1. Canada and Singapore would like to thank Thailand for the concept paper on APEC Electronic Commerce Resource Centre, which was circulated at the Senior Officials Meeting (SOM) in Kuala Lumpur in September 1998.

2. We recognise that the challenges associated with the shift to electronic commerce are enormous for individual economies across the region and particularly for developing economies. A wide range of issues have to be addressed that will ultimately contribute to the development of a competitive domestic and regional environment and lead to the creation of new economic and social opportunities. The initiatives to do so are embodied in the work of the Electronic Commerce Task Force and ultimately in the work of the working groups. In this regard, and as an aspect of the development of electronic commerce, there is a need for information resources across the region to help ensure the growth potential and competitiveness of electronic commerce in the region.

3. The idea of a multimedia resource centre to collect and share information on electronic commerce in APEC was mentioned as one of the possibility for continued sharing of information and for education on electronic commerce during the APEC Electronic Commerce Task Force meeting held in Singapore on 4 Sep 98. During the same Task Force meeting, PECC circulated information on EDUPACT, which has similar ideas with respect to education.

4. A paper circulated by Thailand at the SOM in Kuala Lumpur in September addressed the domestic and regional issues created by the shift to electronic commerce and noted the need for an electronic commerce resource centre, possibly based in Bangkok, that would co-ordinate the information requirements of the region.

5. Canada and Singapore are of the view that there is a need for some kind of co-ordination of a reference base for information on electronic commerce technologies, applications, human resources and projects and which would have links to APEC member economies. Given the fact that the subject matter is concerned with conducting activities over electronic networks, we are suggesting the establishment of a "virtual" centre that will provide access from across the APEC region rather than creating a new physical centre. Thailand's proposed centre would be part of this network, as could similar physical or virtual centres that embody the activities of individual economies. The virtual centre could use the facilities of the powerful networks available through the new Canada House in Singapore.

6. A virtual centre would work with existing APEC committees and working groups engaged in electronic commerce activities. As much as possible, it would make accessible information on related developments and activities in other fora such as UNCTAD, ITU, ASEAN, and OECD.

7. Canada and Singapore propose that the Task Force recognises the importance of information sharing across the region to the creation of a viable and competitive electronic commerce environment and include a recommendation on the establishment of a virtual resource centre in the report of the Task Force to the APEC Leaders.

3.10 Electronic Commerce – An Australian Perspective (Australia)

Definition and Initial Comment

1. E-commerce is a mechanism that can be used to achieve trade facilitation and more efficient operations because it has a whole of business approach; integrating communications technology with business procedures.

   From a Customs perspective Electronic Commerce should be seen as broadly as possible - the process of electronically exchanging information to facilitate the conduct all Customs business activities. An essential component is the integration of business procedures with appropriate communication technologies.

   Such technologies include:- The Internet; electronic forms; E-Mail; Electronic Fax; Electronic Data Interchange; Bulletin Boards and Mobile Technology.

2. Electronic Commerce Australia has defined e-commerce as the process of conducting all forms of business activity between entities using appropriate electronic methodologies and procedures in order to achieve the organisation's objectives.

3. E-Commerce technologies embrace such widespread areas as all forms of electronic trading, electronic data interchange (EDI), electronic banking, electronic mail, on line services, electronic catalogues, all forms of messaging, multimedia communications and video conferences between entities. These technologies can be person to person, person to computer, computer to person and computer to computer.

4. It is unclear what the eventual impact of the Internet will be on society as a whole. There are indications, for instance, that the actual take-up by the private sector in Australia of the Internet as a business tool is slower than one would expect. Nonetheless, we have argued that Customs needs to adapt and maximise its to fulfil our regulatory obligations, maximising our efficiency and ability to contribute to international trade facilitation.

Issues

5. Please note that these have been kept as general as possible and examples from Australian Customs experiences have been used. We

would very much like to extend this by feedback from other APEC Customs administrations. Comments are invited, please send them to

Garry Grant, Director Electronic Commerce
garry.grant@customs.gov.au
(fax 61 02 6275 5084).

5.1 Security

Security is clearly a major issue for the eventual conduct of electronic commerce over the Internet. There is a great deal of activity both internationally and in individual economies.

Main initiatives include:

- Creation of a whole of Government firewall in Australia to allow Government Departments to connect with the Internet and World Wide Web, making use of the latest security measures to protect internal computer systems from 'hackers' and other breaches of security.

- Development of the secure electronic transaction (SET) payment protocol for financial transactions on the Internet.

- Development of a Public Key Infrastructure (PKI), using public key encryption algorithm keys for encoding and decoding information. Public key encryption can be used for digital signatures and may be used to ensure confidentiality of a document.

Please see discussion paper on Security aspects at ATTACHMENT 1.

5.2 Legal/Audit Questions

There are a number of legal, privacy, regulatory and audit concerns in keeping with increased use of e-commerce and the Internet. These will affect Customs and other Government agencies in most case guidelines and regulations will be set across all Government agencies.

In Australia the Attorney General's Department and the Office of Government Information Technology have taken the lead in close consultation with the National Office for the Information Economy.

5.3 Evasion of Customs Controls/Duties

- There are a number of potential implications for Customs and other law enforcement agencies following the growth of e-commerce and, in particular, increased use of the Internet. These include I

- Interest from APEC members in the Internet as a sophisticated electronic commerce infrastructure.

- Involvement by both the WTO and OECD to examine and report on the implications of e-commerce practices, including specific proposals for international action

- use of the Internet for trading goods and services and the impact on Customs controls/duties. Of particular interest is the increased ability to download goods like videos, computer games & electronic media. This is a concern for the World Intellectual Property Organisation (WIPO) and also the World Customs Organisation (WCO)

- exchange of money electronically across borders and revenue leakages. Use of 'smartcards' over the Internet. What role should Customs take?

- In Australia, Customs is working with law enforcement agencies and the Australian Taxation Office considering the impact of electronic commerce on the Government revenue.

- community protection implications including pornography and intellectual property/copyright issues - again issues of concern for WIPO and the WCO.

- The Australian Broadcasting Commission has recommended that codes of practice be developed for service providers to provide appropriate community safeguards and include complaints handling procedures

- law enforcement implications in general.

5.4 Use of the Internet for Reporting to Customs

- increased use of the Internet and its potential as a business tool. Internet shortcomings - common concerns include audit, reliability, security, payment, legal and regulation. Individual economies have established bodies to consider issues, software developers are also looking at solutions.

- suitability of the Internet as a ‘cheap alternative’ for Customs communication with small to medium enterprises. Customs could also examine the possibility of linking with existing initiatives - in economies and internationally, for instance the United Nations Trade Points network, to provide importers/exporters with a one-stop 'shop' environment to complete their Customs transactions.

- Customs will need to examine service level issues. The Internet may not provide the same service now provided through current Value Added Networks. If this is the case then Customs will need to make sure that any changes meet client and Customs needs - legal and security issues will also have to be considered.

5.5 Use of the Internet for Research & Dissemination of Customs Information

The Internet and WWW are excellent tools to facilitate information exchange and research. Browser technology will allow development of Intranets to streamline internal communications within Customs administrations.

Australian Customs
Electronic Commerce Section
April 1998

Attachment 1

Security Aspects

Purpose

To examine the security concerns of conducting business with clients using online networks like the Internet.

Current Activities

Transactions conducted over the Internet are theoretically available to anyone and a number of incidents of abuse have occurred and are widely known. This has lead to security are being seen as a major issue and obstacle to the conduct of electronic commence over the Internet.

Most of the solutions to security problems with the Internet revolve around encryption and public key cryptography. The idea behind public key cryptography is that data can be encrypted with a public key, which is made available publicly. However, decrypting data requires use of a private key, which only the person/company knows.

Security standards and the software implementing these standards has recently become available. While there may be some competing standards in this area, a substantial volume of electronic commerce transactions using these security measures is occurring. This volume is growing steadily.

Current Activity

This includes:

- development of a Secure Electronic Transaction (SET) payment protocol for credit card financial transactions on the Internet. Being undertaken jointly by Visa, Mastercard, IBM, Microsoft & Netscape. Several leading banks are taking part in a pilot to test SET using Visa credit cards.

- development of a Joint Electronic Payment Initiative (JEPI) aimed at providing an integrated framework for a variety of electronic payment mechanisms including digital cash.

- development of a Public Key Infrastructure (PKI). PKI recognises the need for compatible economy and international frameworks to include 'digital signature', authentication and other issues essential to the further development of secure electronic commerce. Within APEC the Telecommunications Working Group is considering this matter.

Specific Customs Considerations

Customs will need to identify what level of security is required for each type of electronic transaction with its clients before using the Internet for any of these communications. Communications without security can be intercepted and the contents changed. If the contents of communications with clients can be changed the risks can be enormous. Customs needs to feel confident that the message received is the message sent (data integrity) and that the sender is who he/she claim to be (authentication of sender) and are authorised to conduct business with us. To achieve this level of confidence, Customs should also ensure that existing systems, in particular EDI systems, provide required levels of security.

Additional security places additional costs on users. It is therefore necessary to evaluate the risk and design systems accordingly. Attachment 2 provides some of the aspects to security, which need to be addressed and possible Customs priorities. Attachment 3 provides a brief overview of Public Key Infrastructure.

The interconnection between the very public Internet and Customs private networks and/or systems that reside on it is an issue. Whereas the technical issues of connectivity are relatively straightforward, the complications arise with the need to ensure security and integrity of the Customs corporate data networking environment (i.e. both the network itself and the data stored on it).

Customs needs to consider the benefits of having a direct connection versus the risk of exposing our corporate data to criminal espionage and of exposing our infrastructure to malicious vandalism. First and foremost Customs needs to classify the data stored on the various hosts connected to our corporate data network.

Firewalls can be used to provide a level of protection to in-house systems when accessing the Internet direct and not using an Internet Service Provider. Firewalls block certain traffic flows and controls in bound access.

Summary

Some solutions for Internet security are already available and others are rapidly being developed. Before using the Internet for the conduct of business activities, Customs will need to assess its security requirements and the risks involved. Such Customs action needs to be in keeping with both business/private sector and government.

Attachment 2

Essential Criteria for Security

There are several aspects to security which need to be addressed before organisations will embrace the Internet as a serious alternative to the VANs.

Confidentiality. Ensuring that data is not disclosed to unauthorised persons.

Countermeasure: Encrypt the message using (symmetric or asymmetric keys).

Issues: Overheads on encrypting & decrypting the message and key management.

Australian Customs requirement: A small percentage of transactions (movement of defence equipment and illicit drugs, etc) will require confidentiality. Australia supports the use of asymmetric (private & public) keys.

Integrity. Ensuring that information in the message (Including the identity of sender and receiver) is not accidentally or deliberately modified.

Countermeasure: Digital signature (including a hash of the total character count)

Issues: Processing overheads from calculating and checking digital signature & PKI.

Australian Customs requirement: The integrity of data is critical for Customs as incorrect data may result in incorrect declarations and duty collections, which may result in legal proceedings against the sender.

Authentication. Both parties quoted in the message are the actual parties to the transaction.

Countermeasure: Digital signature & acknowledgement message.

Issues: Processing overheads from calculating and checking digital signature, the increased cost for response messages and PKI.

Australian Customs requirement: The identity of the sender is critical for Customs as incorrect data may result in legal proceedings being undertaken against the sender.

Repudiation of Origin. The sender denies sending the message.

Countermeasure: Digital signature.

Issues: Processing overheads from calculating and checking digital signature and PKI.

Australian Customs requirement: Establishing the identity of the sender is critical for Customs as incorrect data may result in legal proceedings being undertaken against the sender.

Repudiation of Receipt. Recipient disclaiming receipt of a message.

Countermeasure: Acknowledgement message.

Issues: Increased transmission charges for acknowledgement & overhead of creating digital signature and PKI.

Australian Customs requirement: Ensuring a client receives a message would be of greatest concern to Customs where a change of status is involved (eg Customs to client). Non receipt of a clearance advice would be a risk taken by the client in selecting the Internet service. Since clients may be prosecuted for not making a declaration, repudiation of receipt may be a requirement from their viewpoint.

The critical aspects as identified by Customs brokers are *integrity, authentication & non-repudiation*. Confidentiality is not presently considered a major issue for Customs messages, however, there may be a greater need for *confidentiality* for messages related to the movement of defence goods or illegal substances under permit if those messages are routed through a public network. Transmission of data to the Australian Bureau of Statistics by public networks may require encryption.

Attachment 3

Public Key Infrastructure (PKI)

PKI will use public and private key encryption algorithm keys for encoding and decoding information.

These keys are created together and form a key pair. One is kept secret by the owner and known as the private key, the other known as the public key, can be published widely. Public key encryption is used for creating digital signatures and also to ensure integrity of a document.

These electronically 'hashed' signatures link a particular person to a document and cannot be fraudulently applied to another document or assigned to another 'author'. It will reassure those involved that the document in question has not been altered in any way.

The transaction however can only be trusted if the total framework for supporting issue and maintenance of the keys is also trusted. A widespread system of cryptographic keys will therefore inevitably lead to a need for a complex support system. Accredited certification authorities will need to be created with the power to validate user identities and issue keys. They will be responsible for keeping registers, determining validity periods and monitoring the keys and their use.

It is anticipated that there will eventually be a linked series of international authorities to allow keys to be globally certified.

Digital signatures created in the SET framework are expected to be recognised in the PKI framework as they conform to the same set of principles.

3.11 Y2K Summary of Results (Australia)

APEC PROJECT ON THE YEAR 2000 PROBLEM

QUESTIONNAIRE ON YEAR 2000 PREPARATIONS IN APEC ECONOMIES

The Year 2000 problem - otherwise known as 'Y2K' or the 'millenium bug' problem - presents a rapidly approaching deadline for all the world's economies[1]. In addition to 1 January 2000, when the greatest concentration of Year 2000 problems will occur, systems are being affected in the lead-up to 2000 and will also be affected after 1 January 2000. The Year 2000 problem is likely to affect every sector of every country in the world and has the potential to cause widespread economic and social disruption.

There have already been many system failures as a result of the Year 2000 problem, although the majority of these have been minor. Some industries - airlines, real estate agents, credit card companies, food manufacturers, just to name a few - have been experiencing Year 2000 problems for some time now. Incidents have been reported in some economies, for example, where company computers have provided the wrong manufacturing date resulting in tonnes of food being destroyed.

What APEC is doing

At the 22-23 June 1998, meeting of APEC Trade Ministers in Kuching, Malaysia, Ministers '*endorsed the programme of information exchange and technical cooperation to address the millenium bug/Year 2000 problem'* as proposed in the discussion paper circulated by Australia. The project has begun with a questionnaire circulated to all APEC economies. The information collected in the questionnaire will form the basis of the rest of the project. The project consists of three-phases in total, the other two phases being identification of specific technical cooperation avenues, and implementation of direct technical cooperation through a bilateral mentoring approach.

This program of cooperation, together with several other sector-specific projects in APEC, should assist APEC economies in dealing with this looming global deadline, and therefore directly contribute to the economic well-being of the APEC region.

[1] The Year 2000 problem stems from the use in computer programmes of two digits, rather than four, to record the year (for example, '98' instead of '1998'). As a result of this, on 1 January 2000, affected systems will interpret the date as 1 January 1900. The logical failure from this will result in the malfunction of such systems

Following, is a draft summary matrix of the responses to the first part of the questionaire, which focussed on economy-wide aspects of preparations for the Year 2000 problem. It is proposed that the final version of the background report will contain a summary matrix of responses to the entire questionnaire.

Economies who have not yet submitted responses to the questionnaire, or who wish to supply supplementary information, are encouraged to do so. Information can be faxed to Ms Pamela Fayle in Australia on 61-2-6261-3009, or emailed to apec.ecom@dfat.gov.au

First draft – 4 November, 1998
APEC QUESTIONNAIRE ON YEAR 2000 PREPARATIONS

SUMMARY MATRIX OF RESPONSES

Part I – Economy wide

Questions 1-4

	1. Strategic plan (for G=govt only; I=industry only; GI=govt and industry)	**2. Project office/special agency for coordination** (covers G=govt only; I=industry only; GI=govt and industry)	**3. Official directive to government and/or industry** (to G=govt only; I=industry only; GI=govt and industry)	**4. Consideration of world-wide effects**
Australia	✔ (GI) (1). Year 2000 Project Office has plan for commonwealth govt dept and agencies; monitoring framework established, quarterly reporting. (2). Year 2000 National Strategy coordinates Fed, State and industry initiatives. (3). Separate State govt programmes.	✔ (GI) See q.1. Year 2000 Project Office, in the OGIT established 1997, aim for govt compliance by 6/1999. Year 2000 National Strategy, established 9/1997, focuses on business community, especially SMEs. A number of industry-wide initiatives also exist	✔ (GI) Since 9/1997 Fed govt funded dept and agencies required to report quarterly. Ministers required reporting on banking and financial services, communications, airports and air traffic control. RBA surveyed all banks in 5/1997 and 3/1998; now banks report regularly. Responsibility for banks, insurance, superannuation transferred to APRA 7/1998.	✔ Supportive of initiatives in World Bank, OECD and APEC to raise awareness and encourage remedial action
Brunei	✔ (GI) National coordinating body is BPMY2K; sub bodies are the BPMY2K Secretariat and MY2KTF for each govt min. Mins required to work with private sector. Awareness raising, impact analysis and risk analysis with contingency plan by 9/1998; project implementation by 9/1999. Testing.	✔ (G) See q.1	✔ (GI) Memorandum to all govt agencies on key and strategic decisions, including guidelines, agreed by BPMY2K. Also to public utilising multi media.	☐ Assumed to be done through relevant agencies and international cooperation such as in APEC

Canada	✔ (GI) Overall coordination to 4 fed depts: (1). TB Secretariat responsible for overall fed leadership, coordination and monitoring of govt readiness. (2). IC responsible for assisting private sector. (3) DFAIT to monitor and communicate with international partners on readiness and best practice. (4) Dept of National Defence has lead national contingency planning and coordination.	✔ (GI) (1). TB Secretariat set up "Year 2000 Project Office" in 1996 to focus on readiness of internal govt systems; special emphasis on Govt-Wide Mission Critical systems; responsibilities expanded to give national mandate. (2). 9/1997 private sector Task Force 2000 est. under IC to raise business awareness and give guidance; produced 2 reports: 1st to assist business start preparations and recommendations to govt, 2nd updated and contained response from govt to recommendations of 1st. (3). Fed Govt powers limited by constitution: many sectors fall under jurisdiction of provincial govt	✔ (GI) (1). PM wrote to all Cabinet members noting priority to be given to addressing Y2K; told to allocate adequate resources so that service disruption kept to minimum. (2). Project Office (see q.2) issued official directive to fed govt depts requiring monthly progress reports and risk management plans for all mission critical areas…. (3) See q.1, relevant Ministers responsible for areas outlined; notwithstanding these roles all fed depts remain responsible for own readiness, and liaising with stakeholders. (4). Task Force 2000 issued strong and detailed recommendations to private sector	✔ DFAIT conducting risk assessment of effects of world-wide problem on Canada
Chile	✔ (GI) Coordinated by MIDEPLAN comprised of 5 work teams which work independently in respective sectors: public contingency (Min of Interior), Defense (Min of Defense), international relations (Min of Foreign Affairs), SMEs (Min of Economy), central govt and regulated services (MIDEPLAN)	✘? See q.1 – MIDEPLAN coordinating; no other office planned.	✔ (GI) Special directives delivered to public and private sectors with teams set up to work in each sector. Govt team works with central govt's services, state owned companies, and sector under regulators.	✔ Ministry of Foreign Affairs Work Team has considered this.
China	✔ (G?)	✔ (G?) Min of Information Industry responsible for the Y2K work program	✔ (G?) State Council issued guideline on Y2K problem.	✔
Hong Kong, China	✔ (GI) High level inter-departmental steering committee with 3-pronged approach: (1). Every govt dept to develop compliance plan and action timetable. (2). Recification work in NGO providers of essential services to the public monitored by relevant area of govt. (3). Awareness raising in wider community	✔ (GI) See q.1. Inter-departmental committee coordinates; chaired by Secretary for Information Technology and Broadcasting; members include govt agencies, and policy bureaus responsible for monitoring NGOs.	✔ (GI) For govt departments, the Steering Committee issued a directive that all Y2K rectifications to be completed by 30/6/1999; otherwise contingency plans to be made. For industry/business sectors, directives are given by respective policy bureaus/ govt dept/ regulatory bodies as necessary	✔ Study in 6/1998 on impacts on cross-border flows and what is being done internationally. Participated in Joint Year 2000 Council initiated by Bank for International Settlements with view to sharing information with others. Continue to participate in international fora
Indonesia	--	--	--	--

Japan	✔ (GI) "Y2K Action Plan" adopted 9/1998, coordinated by AITSP HQ. Includes: awareness raising; measures for all levels of govt, govt agencies and private sector according to various guidelines and checklists; education, guidance and support for SMEs; technical information exchange safeguarded from anti-monopoly act	✔ (GI) Decision making body AITSP HQ, est 8/1994, chaired by Prime Minister, vice-chair Chief Cabinet Secretary, Ministry for Posts and Telecommunications. Implementing body: Conference to Promote Y2K Measures, est 9/1998; Liaison with private sector: Y2K Advisors Conference, est 9/1998; Inter-Ministerial Conference on Y2K, est 12/1997	✔ (GI) Y2K Action Plan requires all Central Govt Mins and agencies to report quarterly, and release topublic. Ministry of Home Affairs will request local govt for reporting. Govt agencies work with relevant parts of private sector to check status and release information to public	✔ Recognises considerable cross-border impact and will promote international cooperation to tackle this problem, as mentioned in Y2K Action Plan. Supporting multilateral efforts by G8, UN, OECD, APEC, and others.
Korea	✔ (GI) OGPC established OS-I and OS-II in 3/1998 and 6/1998 respectively. OS-I and II holds each organisation responsible for solving its own Y2K problems. OGPC established nation-wide deadlines: assessment 8/1998, renovation 2/1999, validation 4/1999, implementation and test 8/1999; also evaluates progress; promotes policies to assist organisations deal with Y2K and to encourage independent action; promotes international cooperation	✔ (GI) (1). OGPC est. "Y2K Problem-Solving Committee; includes govt officials, private sector experts and academia; develops strategies. (2). MIC coordinates and supports activities, and monitors and manages progress. (3). MOGAHA monitors progress of central and state govts, reports 2-monthly to Admin Staff Council. (3). Mins manage progress in 10 major areas including industry, medical, SMEs, and finance. (4). Y2K Problem Solving Support Centre of NCA supports govt policy by provision of technical support, organises seminars/ workshops, distributes pamphlets etc. (5) All public orgs and local govt have own Y2K project offices	✔ (GI) (1). Y2K Problem Response Office, est 2/1997, provides problem-solving guidelines. See also q.1. Presidential Directive 8/1998 "Regulations on Y2K problem countermeasure". Mins to report monthly to Ministers Committee and OGPC. (2) MOCIE manages "response team" comprised of every industrial executive; also operates "responsible management system for each industrial area. (3) BoK recommends that banks use Y2K status in loan and credit information. (4) SMBA supports SMEs through "SME support council", est 8/1998	✔ Conscious that international credit assessment organisations such as Moody's and S&P consider Y2K status as one of assessment items. Believe that a bad assessment would have a severe negative impact on Korea's ability to regain economic competitiveness.
Malaysia	✔ (GI) Coordinated by Min of Energy, Tel and Posts. Involves: awareness raising, appointment of regulating agencies as the Responsible Y2K Authorities, registration of compliant companies (via self or independent review), monitoring and reporting to govt on progress; interactive website [**www.y2k.gov.my**]	✔ (GI) (1). National Y2K Steering Committee chaired by Minister of Energy, Tel and Posts; members are from public and private sector; ToR to guide and approve plans for action. (2). National Y2K Team; members also from public and private sector; ToR are survey, monitor and report Y2K status to govt	✔ (GI) Circular on how to manage Y2K to all govt depts. Private sector CEOs are members of the National Y2K Steering Committee	✔ Identified 8 critical sectors: transport, oil and gas, health, tel, energy, water, sewerage, govt. Progress will be reported on [**www.y2k.gov.my**]
Mexico	--	--	--	--

New Zealand	✔ (G) Y2KTF (Prime Minister level) has made recommendations which are being considered by govt	□ Y2KTF recommended establishment of Y2K Readiness Commission; if accepted then will be implemented quickly	✔ (G) Prime Minister holds Public Service CEOs accountable for Y2K compliance; required to provide assurance by 6/1999. CCMAU requires hospitals to have management plans, and other SOEs subject to review by CCMAU. Fed Goct no responsibility for for regional or local govt, although they are included in Task Force review (see q.1)	✔ (1). Treasury monitoring developments, analysing scenarios, impacts of which will be considered in future economic activity forecasts. (2). Guarantee of compliance will be sought when govt purchases foreign products (as for domestic products?)
PNG	--	--	--	--
Philippines	✔ (GI) EO14 directs establishment of comprehensive 2 year Compliance Plan to ensure entire nation's readiness	✔ (GI) (1).EO14 (see q.1) established Presidential Commission on Year 2000 Compliance, under office of the President; members from public and private sector. Functions are to: estimate costs from Y2K; establish compliance plan, recommend incentives for compliance activities, prevent dumping of non-compliant products in the Philippines, awareness raising, monitor status. (2). TLRC, agency under President's office; to provide total solutions to govt inst.	✔ (GI) (1). Various directives that all types of govt entities to make computer-based systems compliant. (2). BSP letter of 9/1997 directs banks to prepare compliant information processing systems; letter of 6/1998 requires financial inst survey to enable BSP to assess progress. (3). IC letter No. 8-97 directs insurance institutions to remedy problem; submit plans to IC. (4). SEC MC7-A requires investment /financial institutions with securities registered under RSA to submit compliance certificate. (5). NITC request BSP, IC and SEC to issue necessary directives to constituents to ensure compliance	✔ HR1266 of 6/1997 urged House of Reps to investigate such, with view to recommending measures to minimise impact on Philippine society
Singapore	✔ (GI) Focus on 3 areas: conversion of govt systems; critical infrastructure; and national awareness	✔ (GI) NCB, a govt agency, coordinates efforts; major role to drive govt conversion and promote national awareness	✔ (GI) Govt agencies directed to complete conversion by end 1998; use 1999 for testing; ensure key national infrastructure systems ready. Letters to all business establishments requesting action.	✔ Advised companies to examine their supply chains in and out of Singapore

Thailand	✔ (GI) (1). National Y2K Coordinating Committee (chaired by Deputy Prime Minister) to coordinate, raise awareness, set guidelines and contingency plans, and report to cabinet every 2 months. (2). Ministerial Y2K Committee to follow-up and track progress of National Committee. (3). Y2K Centre (National Electronics and Computer Technology Centre) to work with govt agencies and private sector	✔ (GI) See q.1 (3 committees). (1). National Y2K Coordinating Committee has pulic and private sector members. (2). Ministerial Y2K Committee also provides consultancy services. (3). The Y2K Centre is to raise awareness, disseminate information, conduct research; has 5 working groups: awareness, assessment, renovation, validation, implementation.	✔ (GI) See q.1-2.	✔ Communicate with other govts and monitor websites
Chinese Taipei	✔ (GI) Y2K Emergency Plan urges Mins to prevent a Y2K crisis. Y2K Emergency Contingency Program reinforced by establishment of inter-governmental task force. Program progress to be assessed 3-monthly; penalties imposed on organisations not effectively implementing the Program.	✔ (GI?) Special task force, the IDP, established 9/1997 under highest executive organisation (Executive Yuan); responsible for planning strategy and implementing programs. DGBAS, Executive Yuan, is its governing agency; responsible for liaison and coordination among Mins to carry out IDP's tasks	✔ (GI) DGBAS Executive Yuan issued notices to each Min and agency. Each level of govt held public hearings with industry and convened seminars to raise awareness and provide services	✔ Appealed to each level of govt and industry to set up response teams to make plans for adapting worldwide problem
United States	✘ (?) Not planning to do so.	✔ (GI) President's Council on Year 2000 Conversion, established 4/1998, coordinates Fed Govt efforts. Comprises high-level reps from major Fed agencies, chaired by Assistant to the President. Ensures agencies have resources to make critical systems compliant; Council members share common problems and solutions; agencies are 'sector coordinators': raise awareness, support private and public sector (domestic/international), including through industry associations	✔ (GI) Complete directive list on [www.cio.gov]. (1). Conversion Council work see q.2. (2). CIO Council working on embedded chips or reliance on computer systems areas: tel, buildings, bio-medical devices, lab equip, data exchange. Interagency working groups raise awareness, work with manufacturers; contacting vendors, performing tests, sharing information. (3). EPA ensuring compliance with environmental laws and regulations (eg. Water). Compliance failure could be regarded as enforcement violation in regulated sector.	✔ Key sectors considering: tel, power, finance

First draft – 4 November, 1998
APEC QUESTIONNAIRE ON YEAR 2000 PREPARATIONS

SUMMARY MATRIX OF RESPONSES

Part I – Economy wide
Questions 5-8

	5. Public awareness campaign aimed at entire population (includes G=govt only; I=industry only; C=Community only; or any mixture of the three)	**6. Economy-wide survey regarding awareness and preparedness** (covers G=govt only; I=industry only; GI=both govt and industry)	**7. Regular reporting or review process for gauging progress** (for G=govt only; I=industry only; GI=both govt and industry)	**8. Regular agenda item at govt official's meetings, or officials-business meetings** (at G=govt meetings only; I=industry only; GI=both govt and industry)
Australia	✔ (GIC) Fed Govt heavily involved in promoting awareness, particularly through the Year 2000 National Strategy. Aims to give issue higher profile in media, business and community. Approach is phased and multi-faceted, including national media campaign in 7/1998 and telephone hotline; also videos, brochures, seminars, and internet	✘ Some industry associations have conducted surveys, including results that can be found at: [www.au.coopers.com; www.aiia.com.au; www.icaa.org.au; www.bankers.asn.au]	□ (G) Fed level agencies required to report on quarterly basis. State govts have own arrangements. A number of industry associations have own programmes	✔ (G) The Online Council of Ministers (information technology and information economy ministers from Fed and State govt) discuss Y2K issues at half yearly meetings. A regular issue at quarterly Online Council Officials' meetings (as above, but senior officials). Also regularly discussed at cross jurisdictional meetings.
Brunei	□ (G) Awareness raising has focussed on govt bodies. Some private organisations have taken initiatives to complement BPMY2K Secretariat. Media coverage of issues will also help.	□ (G) Govt entities surveyed 6/1998 to assess awareness levels in govt sector. Only got 40% response rate to survey, and of that 40% only 15% have or are planning for action on Y2K; ie. revealed low commitment to and awareness of seriousness of Y2K problem	□ (G) Progress discussed and reviewed in BPMY2K meetings; and BPMY2K Secretariat provides fortnightly progress report to BPMY2K Chair	□ (GI) See q.7. Relevant govt agencies required to take necessary action to ensure sectors and their business chains are sufficiently prepared for Y2K.

Canada	✔ (GI) See q.2. IC general awareness raising campaign, with focus on SMEs; to be continued. Supplementary campaigns planned, including by DFAIT to target exporters and those intending to travel abroad at end 1999	✔ (GI) Two economy-wide surveys by Statistics Canada (10/1997 and 5/1998); over this period proportion taking steps to deal with Y2K rose from 45% to 70%. Results on [**www.statcan.ca/english/freepub/61F0057MIE/free.htm**]. 3rd survey planned for early 1999.	✔ (GI) Mandatory monthly tracking system in place for fed govt mission critical systems. Similar systems exist in some provinces and territories. Private sector reporting on statistical level as per q.6 (accurately reflects progress, but also protects privacy). Security authorities are requiring increasingly detailed disclosures by publicly traded firms.	
Chile	□ Being developed by Ministry of Economy	✔? Polls have been carried out of public and private sector	□ (G)? The Govt's Work Team has a process progress reporting and public sector situation plan	□ (GI)? It is an issue which is a part of the public and private agenda
China	✔ (GIC)? In 2 ways: established central and local agencies responsible for Y2K; and media channels used to educate about impacts and implications	✔ (?)	✔ (?)	✔ (?)
Hong Kong, China	✔ (GIC) See q.1. Includes distribution of posters and leaflets; use of mass-media; appeals to chambers of commerce and professional groups; dedicated website [**www.year2000.gov.hk**]	✔ (GI?) Survey conducted early 1997 to assess awareness and readiness, particularly of SMEs. Showed that over 70% knew of problem, 60% knew their systems would be affected and 50% had plans to act. Conducting another survey; expect awareness to have raised following activities early 1998(q.1)	✔ (GI) The inter-departmental steering committee is monitoring the progress in critical sectors through respective policy bureaus which submit to the steering committee regular progress reports in respect of sectors under their purview	✔ (GI) A regular item of meetings of the ITBP (comprises elected members from different sectors of the community). Discussed by Heads of Depts at meetings attended by senior officials and at Y2K departmental working groups. Discussed at meetings between regulators and service providers. Business discussed with govt at various seminars.
Indonesia	--	--	--	--

Japan	✔ (GIC) Through Y2K Action Plan, inform population on appropriate actions using mass-media, seminars, pamphlet and internet [**www.kantei.go.jp**]. Includes info on: lines of authority and responsibility; testing and contingency planning; checking computer systems, embedded chips, and supply chains; checking suppliers' compliance; providing info on compliance	□ (GI) Inter-Ministerial Conference on Year 2000 Problem did survey in 1-3/1998 of work on govt admin systems, efforts by local public entities, and major industries and special corporations under the supervision of govt mins and agencies.	✔ (GI) Based on Y2K Action Plan. (1). Central govt report to MCA quarterly, who then releases to public. (2). MHA survey quarterly progress of local govt, releasing results to public. (3). Relevant govt entities will call upon critical sector corporations and other industries under their jurisdiction to report quarterly, and then release results to public	✔ (GI)? Based on Y2K Action Plan, reports submitted quarterly to Y2K Advisers Conference and Conference to Promote Y2K Measures.
Korea	✔ Using mass-media, public seminars/ workshops. Each Min has info on internet homepage and provides information services through national computer network.	✔ (GI) Public orgs (5/1997, 10/1997, 4/1998) and selected economic activities (period 4-5/1998) surveys have been undertaken (see detail in questionnaire response); more to be undertaken. Conclusion: most orgs in stage of assessment. (1) Public sector: 21% of h/w and 27% of s/w need renovation; only 15% of surveyed orgs had solved problems; local govt far behind national average; approx US$200 million needed to solve problem in public sector. (2) Private sector survey covered networks for tax, finance, aviation, medical, power, traffic management, postal(?)	✔ (GI) Mins must submit monthly progress reports to OGPC Y2K Problem Council; each Min also submit bi-monthly report to MOGAHA, who then report to the Council and Ministers committee (see q.3). Surveys completed of 11 govt orgs of 9 areas of govt activity, and 10 major economic areas (see q.6).	✔ (GI)? (1). OGPC monthly meetings use particular reports as basis for discussion; each Min reports status to associate Ministers; MOGAHA reports bi-monthly to Ministers meeting. (2). Tel industry executives held meeting 8/1998. MOCIE held 'Y2K Problem Solving Seminar on Gas Utility Industry'.

Malaysia	✔ (GIC) Nationally: seminars, exhibitions and use of mass and electronic media. Min of Domestic Trade and Consumer Affairs, and Min of Science, Technology and Environment developed programs for general consumer awareness	✔ (?) Still collecting and collating the information.	✔ (GI?) Conducted on quarterly basis. First full report expected October 1998, followed by January, April and October 1999. Reports will be made known to Cabinet and then to public via Y2K website	✔
Mexico	--	--	--	--
New Zealand	□ (GIC) Limited publicity through work of the Y2KTF, surveys by the Min of Commerce, and info provided by the inland Revenue Dept.	□ (GI?) (1). Min of Commerce conducted survey late 1997 indicating that 93% of SMEs were aware of Y2K issues. (2). 7-8/1998 two surveys by Y2KTF (mail to public sector entities; phone to private sector). Revealed that 85% of mail and 65% of phone respondents of view that would be no serious consequences; Y2KTF concluded that most organisation do not have clear understanding of nature of the problem, nor its implications for them and their supply chain.	□ (G) State Services Commission monitors public sector progress on quarterly basis. The Stock Exchange has instituted a reporting process for its members.	✔ (GI) (1). An official's group meets regularly (membership from Min of Commerce, Dept of Prime Minister and Cabinet, Treasury, State Services Commission, Inland Revenue Dept, and others as required). (2). GOVIS has a Y2K Committee. (3). ITAG (consists of public and private sector and tasked with advising Minister of Information Technology) regularly discusses the issue
PNG	--	--	--	--

Philippines	✔ (GIC) Wide range of seminars promoting awareness, held by various govt agencies and regulatory bodies (NITC, NEDA, PIA, Presidential Commission on Year 2000 Compliance, NCC, BSP, IC, SEC), including participation by govt and private sector reps	✘ Some surveys by regulatory agencies. Example of survey of 25 commercial banks, showing: 22% were 61-95% complete in Y2K efforts; all had created methodology to test mission critical systems; 92% had developed written institution-wide testing strategy; 52% had contingency plans	✔ (GI) MC3 instructs all govt agencies (including academic institutions) to submit status report to Office of the President. EO14 mandated Presidential Commission on Year 2000 Compliance to monitor status of compliance in public and private sectors. Regulatory bodies also requested entities for compliance reports.	✔ (GI) NITC (highest advisory body to the President regarding IT developments) includes Y2K as regular item on agenda for purposes of monitoring compliance status and directives issued.
Singapore	✔ (GIC) NCB launched National Awareness campaign 11/1996; it includes: seminars, hotline service, website [**www.ncb.gov.sg/ncb/yr2000**], brochures and booklets, letter to all business establishments	(GI) SFCI conducted survey in late 1996; found financial sector to be most affected. SFCI conducted another survey early 1998, 347 organisations responded: 64% indicated they were affected by Y2K, 25% that they were not affected.	✔ (GI)? Govt agencies are reporting to Cabinet. Most regulatory bodies – eg. Monetary Authority and Tel Authority - are getting regular status reports from organisations within their sectors	✔
Thailand	✔ (GIC) Activities including seminars, meetings, publications and the mass-media been happening since 1997. However there is a need to evaluate effectiveness and coverage of the population from these activities	(G) NECTEC surveyed govt agencies computer systems; revealed that need 4 000 million baht for Y2K renovation in public sector. Other sectors conducted own surveys.	✔ (GI) see q.1-2. Y2K Coordinating Committee receives Y2K implementation report from every govt dept; these are then submitted to cabinet every 2 months	✔ In process of forming “Super Critical” working group; comprising agencies involved in critical systems such as public utilities, finance, insurance etc. The group will share information and report on critical issues to the Y2K Coordinating Committee, then to Cabinet
Chinese Taipei	✔ (GIC) Govt agencies using mass-media; various govt websites [**www.dgbasey.gov.tw**];booths on the subject at information technology exhibitions. Industrial summit with reps from each sector to be convened; response strategies to be studied and discussed.	✔ (GI) IDP undertaken 4 surveys in 1997-1998 (1 of govt, 3 of sectors). Most recent reveals that most SMEs have not paid much attention to Y2K; however the level of preparedness in financial sector is best of all sectors	✔ (GI) (1). Based on Y2K Emergency Contingency Plan, responsible agencies required to present monthly report to DGBAS. (2) Relevant govt agencies must monitor subordinate agencies and business sectors as to whether the Plan (above) is being implemented; if not a penalty is imposed. (3). IDP holds monthly meeting to oversee progress; every 3 months reports to Cabinet	✔ (GI) Often discussed at meetings between govt and private sector. Activities for exchanging experience and information on Y2K also take place.

United States	✗	✗	✗	✓

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APEC QUESTIONNAIRE ON YEAR 2000 PREPARATIONS

SUMMARY MATRIX OF RESPONSES

Part I – Economy wide
Questions 9-12

	9. Action to ensure no disruption to cross-border flows (for G=govt only; I=industry only; GI=both govt and industry)	**10. Y2K Guideline Kits for govt and private sector containing practical advice** (for G=govt only; I=industry only; GI=both govt and industry)	**11. Certification procedures or standard in place**	**12. Action taken to facilitate sharing of information without fear of future litigation**
Australia	✗	✓	✓ The Australia/ New Zealand Standard SAA/SNZ MP77:1998: A Definition of Year 2000 Conformity Requirements, is being promoted for use within fed govt depts and agencies [**www.y2kregister.com.au**]	□ Considering ways of achieving this.
Brunei	□ (G) Some agencies with responsibility in this area have implemented action plans: eg. customs and immigration	✓ (G) Through Y2KSEC by Impact Analysis Workshops for MY2KTF members. Some big corporations (oil, gas, banking) pursued their own guidelines and strategy	✗ Unsure if should do so	✗ Assume that the Ministry of Law will deal with this
Canada	✓ (GI) See q.4. Appropriate preventative measures and contingency plans will be developed in response to risks identified.	✓ (GI) See q.5. Awareness campaign includes kits. Project Office in q.2. produces guidelines and promotes best practice for fed govt agencies. Major fed govt depts also developed kits.	✗ Recommend best practices, but final decisions on certification are responsibility of govt depts and agencies, and crown corporations. Division of powers between fed, provincial and territorial jurisdiction prevents use of enforceable national standard	✗ Concept of Good Samaritan law has been explored but constitutional division of powers renders it impractical at national level. Conducted awareness campaigns re possible litigation, but nothing done to limit it.
Chile	✓ (GI) Pursuing at regional and bilateral level: special work team in MERCOSUR; on agenda for Grupo de Rio Summit 9/1998 and Ibero-American Summit 10/1998; bilaterally special relationship with Argentina started.	✓ (GI) Information provided through website [**www.2000.cl**]; also site for special assistance to SMEs through the INTEC (CORFO)?	□ Under consideration	□ An arbitration system to prevent affected orgs resorting to the legal system is under consideration. Looking at UK model.

China	✔	✔	✔ Several certification centres for product standards relating to Y2K problem: for h/w, the State Computer Product Examination Centre; for s/w, the China Software Assessment and Examination Centre; for integrated circuit products, the Institute of Standardisation under the Ministry of Information Technology	na
Hong Kong, China	✔ (GI) See q.4. Study results forwarded to respective govt depts for reference and follow-up action.	✔ (GI) Information pack given to all govt depts and regulatory bodies; guidelines for formulating compliance plans for embedded systems in govt depts also issued. HKPC produced Y2K guidebook for public, giving practical advice and guidelines.	✔ The British Standard Institution DISC PD2000-1:1:1998 is adopted as the Y2K compliance standard for govt computer and embedded systems. Guidelines are at [**www.year2000.gov.hk**]	□ Dedicated website (q.1 and 11) set up to facilitate sharing of information. Will be further enhanced by encouraging non-govt providers of essential services to publish their compliance situation on the internet.
Indonesia	--	--	--	--
Japan	□ (GI) Action Plan asks manufacturers and vendors of computers, s/w and microcomputers-embedded equipment to provide information on Y2K issues to domestic and international public as required. Relevant Ministries will promote awareness on the issue.	✔ (GI) Y2K Conversion Guidelines available to govt agencies, and Private Industry Y2K Checklist available to private corporations (both appendices of Action Plan)	□ Japan Industry Standard (JIS) established standard for COBOL language compatible to Y2K in 1992	□ The Y2K Action Plan contains provision that mere exchange of technical information between orgs, in general, will not cause problems in terms of anti-monopoly act.
Korea	□ (GI) (1) ? (2). From end 1998 all govt agencies and public orgs required to buy only Y2K compatible products	✔ (GI) Various guidelines and information kits distributed, available at **[http://Y2000.nca.or.kr]**. Verification and test guidelines to be published shortly.	✕ Standard for compliance checking system will be established for each area under the supervision of each Min.	□ Legislation Research Institute is conducting research into this issue. Final report due 12/1998. Similar activities underway in most agencies in context of contingency planning.
Malaysia	✕ Would appreciate assistance in this area	✔ (GI) The govt website (q.1) contains 2 kits available to everyone.	✕ On basis that certification for compliance should lie with owner of product or service, and with head of that organisation which offers the service/product	□ Info sharing facilitated through the website and seminars. Critical sectors identified are briefed on litigation possibilities. Public and private sectors have been made aware of litigation possibilities – it should now be left to due processes of the law.

Mexico	--	--	--	--
New Zealand	□ (GI) Public sector cross-border agencies are required to conform with wider requirements for reporting and compliance. Major finance and tel orgs are confident that are fully compliant	□ (GI) IRD provided information on taxation issues associated with s/w upgrades and development. Y2KTF surveys included checklist of steps to be taken to achieve compliance; also recommended information-sharing mechanisms through the Y2K Readiness Commission. Likely that these and other measures to be implemented.	□ No general certification procedure. Public sector agencies are being monitored by the State Services Commission, who are using the British Standards Institution's Definition DISC PD 2000-1 as a basis.	□ Under consideration.
PNG	--	--	--	--
Philippines	□ (GI) Govt directives to ensure that impact analysis carried out by govt and private sector. A priority of IT21is to monitor and organise response to the problem.	□ (GI) No kits as such. But the NCC is the designated Y2K Action Centre, and thus: develops technical guidelines and advice, provides facilities for testing equipment, and provides public information and technical help desks.	□ NITC requires all public entities to audit their computer systems to ensure Y2K readiness; once compliance proven NITC issues a Certificate of Internal Readiness to the Year 2000. Regulatory agencies issue own certificates to regulated orgs after clearance from an accredited solution provider. NITC requires certificates to be published in at least 3 papers of general circulation.	✗ ? Although are promoting sharing of information and resources as evidenced in IT21
Singapore	□ (GI) Organisations have been advised to ensure readiness of business partners within and outside of Singapore	✔ (GI) Available in brochures, on website (q.5), and telephone hotline.	✗	✔ Stock Exchange requires all listed Singapore companies to disclose Y2K information in their company interim and annual reports. Information and experience can be shared through Discussion Forum on Y2K website (q.5). Organisations encouraged to declare Y2K status in annual reports.
Thailand	✗ Specific action not yet declared.	□ (G) Available mainly to govt agencies: contains info on Y2K, guidelines for implementation plan, and s/w for PC BIOS check	□ Developing standards procedures and testing guidelines for public and private sector. Due for release in next few months.	✔

Chinese Taipei	✔ (GI) Each agency required to submit contingency plan by 6/1999. Financial insts already have a plan in place. Govt prepared to exchange inf with other orgs (eg. APEC) so can take appropriate measures.	✔ (GI) The Information Management Centre of DGBAS issues a manual containing detailed information, including on how to find more information.	✘ No plan to do so	□ Under consideration; but govt leaning towards arbitration as method for resolving Y2K disputes. Min of Justice held meetings to discuss issue of possibility of Y2K litigation.
United States	See Sector Specific section of questionnaire	?	✘	✔ Introduced "Good Samaritan" legislation

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SUMMARY MATRIX OF RESPONSES

Part I – Economy wide
Questions 13-16

	13. Extent to which insurance industry prepared to cover Y2K risks	14. Incentives to encourage public and private sector to address Y2K problem	15. Begun developing contingency plans for areas unable to become compliant in time?	16. Using the World Bank's Information for Development Program?
Australia	□ Insurance Council of Australia considering its position. At the moment it is a decision for individual insurance companies; business and consumers are being warned not to assume they are automatically covered by existing policies.	✔ For tax purposes, Fed Govt allow write-offs for expenses incurred in fixing the Y2K problem. This allows expenses to be deducted immediately rather than drawn out over several years; also allows cost of upgrading software to be treated as an expense.	□ Based on info collected, the fed govt will encourage all sectors to develop contingency plans at the appropriate time.	na
Brunei	✕ No information available.	✕	✔ For govt agencies contingency provisions are required to be identified and proposed for each system confirmed to be non-compliant during the Impact Analysis (q.1); contingency plans to be operable by 9/1999	✕ Would appreciate information on how to access this.
Canada	✕ Insurance Bureau of Canada warning businesses to fix Y2K problems now as commercial insurance policies generally wont cover losses associated with such; many insurance renewal statements will contain clarification to this effect; insurance is intended for accidental losses - Y2K problems have been known for at least a decade.	✔	✔ Fed agencies with regulatory responsibilities involved in contingency planning with respective sectors. TB Secretariat developed risk assessment framework; being implemented across fed depts and agencies. Once completed, depts with mission critical functions will develop business resumption plans to ensure minimal disruption of service delivery into 2000	na
Chile	□ At the request of the Association of Chilean Insurers, the Superintendency of Securities and Insurance is preparing a specific regulation	✕	✔ The Public Contingency Work Team has focussed its activity on electricity, water, gas, and telephone supplies in cooperation with incumbent Mins and regulatory entities	✕

China	na	✔	✔ State Council has requested govt agencies and business bodies considered not able to solve the problem by 9/1999 to start developing contingency plans (under scrutiny of relevant govt body)	na
Hong Kong, China	✔ Insurance industry is generally prepared to cover Y2K risks if they are satisfied that their clients are taking or have taken appropriate rectification to address the issue.	✔ (1). For govt depts, funding priority is being given to rectification projects for mission critical systems. (2) Govt working closely with the HKPC in providing Y2K solution services on non-profit basis to SMEs (3) Allow immediate depreciation for all capital investment on IT equipment for the purpose of calculating profits tax	✔ Within govt aim to rectify all mission-critical systems by 6/1999; all who cant meet this deadline are requested to draw up contingency plans. Based on the impact of the problem for the particular supplier, non-govt essential-service providers will also be required to draw up contingency plans.	✕
Indonesia	--	--	--	--
Japan		✔ Govt encouraging private sector by: low interest loan for introduction of Y2K compliant information system; loan guarantee for Y2K expenditure; low cost lease of information equipment	✔ Action Plan requires all govt Mins and agencies in high priority sectors related to daily life to develop contingency plans for possibility of computer system shutdowns, malfunctions, and other possibilities. Private companies are encouraged to do same.	na
Korea	✕ The Korean Insurance Watchdog Commission approved "Year2000 Non-coverage Clause"; it effectively states that insurance does not cover Y2K-related accidents. Recognising the need for Y2K-related insurance, some of the Y2K Solution companies are discussing ways to cooperate on this issue.	✔ SMBA set aside W6.8 billion to assist SMEs by providing free inspection and technical support. SMEs also got W20 billion from IPF in 1998. In issuing Korean Standard (KS) Good Design (GD), the SMBA giving preference to Y2K compliant SMEs	✔ Govt guidelines distributed to depts and agencies. Required all to prepare contingency plan by 8/1998. Financial and banking sector reportedly almost completed contingency plan as required by BoK. Govt guidelines on website (in Korean) [**http://y2000.nca.or.kr**]	✕

Malaysia	✕ Not yet identified	✔ Initial allocation of RM30 million provided to govt agencies to address prblem. Govt also has financial incentives to assist private and public companies, especially SMEs.	✔ Most major sectors are developing contingency plans	✕ Not aware of but would appreciate information about this.
Mexico	--	--	--	--
New Zealand	✕ Some insurance companies have specifically advised clients that risks will not be covered.	✕	✔ All public sector agencies are expected to have plans in place. Emergency services are currently coordinating responses to Y2K problems.	na
PNG	--	--	--	--
Philippines	**?**	✔ (1). Incentives to be developed by Presidential Commission on Y2K Compliance for public and private entities. (2) Other inst have incentives in form of loans, eg. Social Security System loans for Y2K computer training. (3) Dept of Science and Technology provided more than P7 million to projects aimed at developing pool of Y2K professionals.	□ No nation-wide plan at this stage. At the sectoral level some have own plans in place, eg. banking sector. Some plans involve forging agreement with other organisations for back-up in case equipment fails. Others involve operation plans in case 3rd party affected by Y2K problem.	✕
Singapore	✕ Insurance industry is generally not prepared to cover such risks.	✔ The Govt has provided a financial grant scheme for SMEs to help defray up to 70% of Y2K implementation consultancy costs	□ All govt agencies should be able to complete conversion by 12/1999; all also advised to work on contingency plans.	na
Thailand	?	□ Tax incentives under consideration.	✕ Super critical agencies will be fully Y2K compliant by 12/1999 (see q.8)	□ Not yet. Have proposed an OECP loan for Y2K renovation; but is still being considered by Thai govt.

Chinese Taipei	□ No decision as yet.	✔ Tax concessions provided in same way as to R&D. Loans also provided to help companies manage the crisis.	✔ Each govt agency has researched and developed response plans; and will be conducting drills soon.	na
United States		✕		na

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SUMMARY MATRIX OF RESPONSES

Part I – Economy wide
Questions 17-18

	17. Experiences your economy might be able to share with other APEC economies	**18. Best estimates of (a) magnitude, (b) portion of economy already compliant, (c) portion compliant by 12/1999**	**18. *cont.* (d) of non-compliant portion of economy by 12/1999, what portion will be covered by contingency plans, (e) cost of fixing the problem**	**18. *cont.* (f) where your economy's most pressing needs are**
Australia	(1) Establish a Govt Y2K Project Office. (2) Establish a National Strategy for business, especially SMEs	a. Significant b. Regular reports are issued to the public on work being done in public sector c. Current indications are that govt will be well prepared to deliver key services seamlessly over 1/2000 (mission critical services include: health and national safety, payments and social welfare and employment, revenue collection, national security, defence)	d. Too early to tell e. Estimates vary between A$5-10 billion	f. In the area of SMEs
Brunei		a. Even for govt sector still lack of reliable info; yet to receive sufficient level of data from Impact Analysis; even then the data still needs to be verified and analysed b. Too early to determine c. Difficult to determine; target is for all govt agencies to be compliant by 9/1999 (q.1)	d. Too early to determine; but provision is that any Y2K projects proposed for govt funding must have contingency plan, including contingency effective date e. Too early to determine	f. All systems that have been determined as mission critical to function of min/depts which have impact on public: public utilities, communications, health and safety, financial services.

Canada	(1) Canadian telecommunications and and financial services are world leaders in terms of Y2K preparations so their experience could be useful to others (2) Detailed results of survey (q.6) provide good baseline on progress that can be expected over 7 month period from targeted awareness campaign and increased media attention.	a. Could be significant – [**www2.conferenceboard.ca/press/y2kview.htm]** b. Difficult to answer due to complexity and global nature of problem c. Expected readiness available at [**http://strategis.ic.gc.ca/SSG/yk04529e.html#sectorial**]	d. e. TB Secretariat estimates that for the Fed govt compliance will cost $1-1.4 billion. Estimates for the total cost for Canada range from $30-50 billion.	f. The power industry (supply, distribution, interdependencies) as all systems need electricity.
Chile		a. Too early to determine b. It is believed that continuity of operations of the Chilean economy will be maintained. There are few mainframes in Chile, and the data processing platform has largely been upgraded over the last 3 years c. It is believed that a great proportion of the economy will comply.	d. Plans have been designed so that they can be applied to sectors or services, whether or not they are Y2K compliant, given systemic interdependencies. Effectiveness of these plans will only be known in 1/2000 e. Estimated to be US$600-1000 million	f. International connectivity aspect of the Y2K problem, particularly in respect to telecommunications, transportation, finance, energy.
China	(1) Govt promotion, focusing on key sectors and key issues (2) personnel training (3) cooperation at domestic and international level	a. No estimate. Application of computers in China is relatively late; large national-level computer application networks and databases are relatively few; public dependence on computers is less than in developed economies. Therefore Y2K problem not as serious as in developed economies. .na b. na c. na	d. na e. na	f. (1) Problems faced by financial, telecommunications, and civil aviation sectors. (2) Special features of computer systems used by China: hardware diversity; complexity in software development; no backup copies in many important departments making it difficult to shut down and adjust systems; scarcity of skilled technical personnel

Hong Kong, China	(1) To counter misconceptions arising from alarmist reports about the Y2K problem, enhance transparency of rectification work and compliance position. Govt compliance info on website; private sector encouraged to publish compliance position. Also specific publicity to counter misconceptions. (2) Promotional activities and special solution and advisory services for SME's.	a. Scope is too wide to give a reasonable answer b. As for (a) c. As for (a)	d. As for (a) e. As for (a)	f. Concerned about the situation of SMEs
Indonesia	--	--	--	--
Japan	Establish an organisation responsible for coordinating national level Y2K activities, to promote public awareness and provide information on ways to address the problem.	a. Significant b. see survey c. --	d. See q.15 e. In 2/1998 the Japan Information Service Industry Association estimated that 2.3-3 million months of labour to fix the problem.	f. Critical areas of the private sector (finance, energy, transport, telecommunications, health), including SMEs
Korea	International cooperation on: (a) scope of suppliers/manufacturers in Y2K problems, (b) certification structure and process for Y2K compliance, (c) information on non-IT products and possible Y2K related problems.	a. See part (e) b. By 6/1998 reported that 15% of govt sector completed work. 90% of internal systems in banking sector are ready, and 80% for non-banking institutions. Most of the financial sector is expected to complete work by target date; a good proportion of large companies are ready. c. Most key systems in public and private sector are expected to meet deadline (end 1999). SMEs and non-IT are problem areas.	d. Non-IT is the problem spot. Contingency planning underway to minimise the impact of Y2K problem. e. As of 7/1998, the Computer and Communications Promotion Association of Korea estimated that the cost of a nation-wide solution would be US$37.3 billion	f. Key areas due to potential economic and social impact: finance and banking, nuclear power plants, electric power and energy, telecommunications, transport, health, SMEs, automated industrial facilities, govt admin; all of which are closely monitored and managed.
Malaysia	--	a. Difficult to assess – estimates may give inaccurate information b. As for (a) c. As for (a)	d. As for (a) e. As for (a)	f. Obtaining information regarding compliancy. Information sharing is thus blurred. Particularly the case with SMEs where feedback and responses are slow.
Mexico	--	--	--	--

New Zealand	--	a. The issues and problems can be handled with provisions being put in place. b. Certainly lower than self-reported information from surveys. Estimated to be between 20-40% c. Unknown	d. Unknown e. Unknown	f. Local govt and some private sector infrastructure agencies.
PNG	--	--	--	--
Philippines	(1) Establishment of Presidential Commission on Y2K Compliance and the Y2K Action Centre definitely fast-tracked the implementation of programs to ensure nation's readiness. (2) Public awareness programs being run by several govt entities	a. Economy not as automated as others so problem not as widespread. Finance and banking, insurance, and govt systems are areas where problem is greatest and they are taking necessary measures. Robust manufacturing firms also, but they are few in number. b. If all Directives etc are followed, then majority of computer systems will be compliant. Embedded systems will depend heavily on private sector initiatives. c. Almost all sectors have begun the process; banking sector is most advanced as they started in 1984	d. -- e. No cost estimate available. But President of Softech Advantage Inc. estimated that would take 10 000 programmers to solve the problem within one year. This is considered to give a low-end indication of the costs of fixing the problem.	f. Solving the problem where embedded systems are concerned. Limited number of experts able to do this. Are used mainly in manufacturing, communications, construction and transport industries. Also in services such as health, banking etc.
Singapore	--	a. No comments or estimates b. As for (a) c. As for (a)	d. As for (a) e. As for (a)	f. As for (a)
Thailand	na	a. Magnitude difficult to assess b. At 10/1998 no declared Y2K compliance could be found. c. See q.13 and 15. Also, the agriculture sector, which is important for economy, is likely to be compliant.	d. Contingency plans are being prepared where compliance unlikely. e. Cost of fixing the problem in the public sector only is 4000-5000 baht.	f. --

Chinese Taipei	Govt agencies, business and foreign organisations all have own communication channels; therefore suggest more meetings be held among APEC economies to share information on how to handle Y2K	a. Significant; impossible to estimate b. 18% compliant by 6/1998. Estimated that 54% will be compliant by 12/1998. c. Forecast that 91% will be compliant by 12/1999 and remaining 9% will do so in that month	d. All govt agencies have plans; but difficult to estimate level of preparedness in private sector e. Current estimate is NT$30 billion. But likely to be revised upward as strong possibility that has been underestimated.	f. SMEs where insufficient attention given to the problem due to insufficient labour, budget, time and technical capacity. Furthermore some questions related to Y2K remain impossible to address.
United States		a. Unknown b. Unknown c. Unknown	d. Unknown e. Unknown	f. Unknown

APEC COOPERATION ON Y2K - PHASE ONE

GUIDELINES FOR COMPLETING THE QUESTIONNAIRE

The aims of this questionnaire are several:

- To gain a better understanding of the level of Y2K preparedness in our respective APEC economies
- To gain a better understanding of different approaches to Y2K in APEC economies with the view to sharing experiences and adapting them to other economies where this is judged useful
- From the information collected, determine how APEC can most effectively cooperate to assist those economies least advanced in becoming Y2K prepared
- Ultimately, to ensure that the APEC region is as well prepared as possible for Y2K, and therefore ensure that the potentially negative economic and social consequences for our individual economies and the APEC region are avoided, or at least minimised.

In order to meet the above objectives it is important that as well as answering "yes" or "no" to the following questions, where possible, additional details be provided on what your economy is doing in response to the question. Answers do not need to be long - we would encourage economies to restrict their answer to each question to one page or less.

The other important point to note when answering this questionnaire is that there are two equally important - and often interrelated - aspects of the Y2K problem:

1. Computer systems (hardware, software and applications) which need to be tested for Year 2000 compliance
2. Identification and certification of date related embedded systems (for example, Programmable Logic Controller (PLC), sensors or processor chips) for which a risk analysis needs to be undertaken.

For example, if computer systems are made Y2K compliant, but no risk assessment is made on air conditioning systems (which often contain date-sensitive micro-chips), then there is a chance that air conditioning systems will fail, which in turn could cause computer systems to malfunction due to over-heating.

To meet the objectives of the questionnaire we will need to share most of the information gathered with other APEC economies. However, we realise that some of the information requested may be sensitive at this stage. In cases where information is sensitive, please, clearly indicate this so that we can discuss with your economy (please provide contact details) how you wish the information to be treated.

Please complete the questionnaire and return to Pamela Fayle, APEC

Electronic Commerce Task Force co-Chair, as soon as possible, but preferably no later than **Friday 28 August** (fax: 61-2-6261-3009 or email apec.ecom@dfat.gov.au). Please contact Leith Felton-Taylor (same contact details) for an electronic version of the questionnaire or any queries regarding the questionnaire.

We regret the tight timeframe but would like to be in a position to make a preliminary report to the next meeting of the Electronic Commerce Task Force in Singapore on 4 September.

QUESTIONNAIRE ON Y2K PREPAREDNESS IN APEC ECONOMIES

I. ECONOMY-WIDE

Management Structures

1. Does your economy have a strategic plan in place to meet the challenges of the Y2K problem? Please elaborate.

   a). If no, is your economy planning to do so?

2. Has a Project Office or special agency been established within your economy to coordinate activities and work programs on Y2K? Please elaborate.

   a). If no, is your economy planning to establish such an office/agency (and when), or do you have alternative arrangements for dealing with Y2K issues? Please give details.

3. Has your government issued through official channels, a directive on the Y2K problem to other government agencies and/or industry and business? Please give details.

4. Has any consideration been given to the effect of a world-wide Y2K problem on your economy?

Awareness Raising

5. Does your economy have a general public awareness campaign aimed at the entire population on Y2K and its implications? Please elaborate.

   a). If no, is your economy planning to do so, and when?

6. Has any economy-wide survey been undertaken regarding awareness of and preparedness for Y2K problems? If so, what did this survey reveal?

Review and Reporting Mechanisms

7. Has your economy implemented a regular reporting or review process for gauging progress towards meeting Y2K compliance on an economy wide basis? Please give details.

   a). If no, is your economy planning to do so, and when?

8. Is the Year 2000 issue a regular agenda item at relevant government official meetings, or at government-industry/business meetings?

Practical Initiatives

9. Has any action been taken to ensure that there is no disruption to the cross-border flows of goods, services and capital as a result of Y2K problems? Please elaborate?

10. Does your economy have Y2K Guideline Kits available to government agencies and the business/private sector which give practical advice helping them address Y2K associated problems?

11. Does your economy have a certification procedure or standard in place to establish Y2K compliance? Please elaborate.

    a). If no, is your economy planning to do so, and when?

12. Has any action been taken to facilitate sharing of information in your economy without fear of possible future litigation?

    a). Has anything been done to address possible future litigation resulting from Y2K problems?

13. To what extent is your economy's insurance industry prepared to cover Y2K risks?

14. Has your economy introduced any incentives (for example, tax concessions) to encourage government agencies and the business/private sector to address Y2K issues?

15. Has your economy begun developing contingency plans for areas which are judged as unable to become Y2K compliant by 1 December 1999? Please elaborate.

    a). If no, is your economy planning to do so, and when?

16. (*For economies of 'developing country' status*) Is your economy taking advantage of the World Bank's Information for Development Program (Infodev) Y2K initiative?

    a). Please give details of any other assistance/cooperation your economy is receiving from any other bilateral, regional or international initiatives on Y2K.

17. Please give details on any experiences your economy might have had in approaching the Y2K issue which might be useful to share with other APEC economies?

Overall Assessment

18. Finally, please give your best estimation of:

    a). the magnitude of the Y2K problem for your economy?

    b). what portion of the economy is already Y2K compliant?

    c). what portion of the economy will be Y2K compliant by December 1999?

    d). of the portion of the economy not Y2K compliant by December 1999, how much of the remainder will be covered by contingency plans?

    e). the cost of fixing the Y2K problem in your economy?

f). where your economy's most pressing needs are for Y2K preparedness?

II. SECTOR SPECIFIC

Please provide a brief description of your economy's preparations for the Y2K problem in the following six major economic sectors:

1. Government agencies and systems

2. Transportation (aviation, maritime, road/rail)

   a). *Aviation*: Only include information that is additional to that asked for in the APEC Transportation Working Group Survey on air traffic control and airport management systems.

3. Finance (banks and related institutions, payment systems, stock exchange, etc.)

4. Telecommunications

5. Utilities (electricity, gas, petrol, other energy, water, etc.)

6. Health and Safety (hospitals, emergency services, etc.)

Where possible please provide information on each of these sectors' Y2K preparedness under the following broad issue areas:

1. Management structures established

   a. For cooperation within each segment of the sector

   b. For cooperation between each segment of the sector

   c. For linkages between this sector and others

2. Awareness raising activities

   a. Industry-wide surveys undertaken regarding awareness of and preparedness for Y2K problems and what they reveal

3. Review and reporting mechanisms in place

4. Practical initiatives for addressing the problem, including contingency plans in instances where the industry sector will not be Y2K prepared by December 1999

5. Overall assessment of the industry sector and the Y2K problem

For *Government agencies and systems*, please also provide the following additional information:

1. Has an inventory of computer systems in government agencies been undertaken?

2. Has your economy tested computer systems in government agencies for the Year 2000 problem?

   a). If yes, what were the main findings?

   b). If no, when is your economy planning to do so?

3. Has a risk assessment been carried out on embedded systems in government agencies?

III. CONTACT POINTS

Please give details of an overall contact point (person and/or agency) on Y2K for your economy. Where possible also give details of contact points for the sectors outlined above.

In addition, please include any other contact points/information sources, especially websites, which provide useful information about your economy and the Y2K problem. As a start, we would like to recommend the following useful websites:

- www.year2000.com - international website on the Y2K issue
- www.y2k.gov.au - Australian Y2K website
- www.ogit.gov.au - Australian Office of Government Information Technology website which gives information on government Y2K initiatives
- www.rba.gov.au - Reserve Bank of Australia website
- www.aiia.com.au - Australian Information Industry Association website

YEAR 2000 QUESTIONNAIRE SUMMARY MATRIX: SYMBOLS AND ABBREVIATIONS

SYMBOLS

✓ = answer to the question is yes and/or positive; ✗ = answer to the question is no and/or negative; □ = answer to the question neither yes nor no and/or neither positive nor negative; **?** = unclear from answer given, usually due to lack of information; na=economy has indicated that the question is not applicable; -- = no answer provided

ABBREVIATIONS

Common

Admin=administrative; Approx=approximately; CEO=Chief Executive Officer; Equip=equipment; Est=established; Fed=Federal; Govt=government; h/w=hardware; Info=information; Inst=institutions; Lab=Laboratory; Min=Ministry; Orgs=organisations; PM=Prime Minister; q.*=question number * of the questionnaire; R&D=Research and development; Reps=representatives; SOE=State-owned enterprise; SME=Small and medium sized enterprise; s/w=software; Tel=telecommunications; ToR=Terms of reference;

Dates and numbers

In the majority of cases, just the month and year (4-digit) are given. For example, 'June 1997' is written as '6/1997' and 'January to March 1998' is written '1-4/1998'.
Any percentages etc. have been rounded to the nearest whole number

Australia

AMSA=Australian Maritime Safety Authority; APRA-=Australian Prudential Regulation Authority; OGIT=Office of Government Information Technology; RBA=Reserve Bank of Australia; Note: State government normally includes Territory government as well.

Brunei

BPMY2K=Badan Penyelaras Bagi Menghadapi Masalah Tahun 2000; MY2KTF=Ministerial Y2K Task Force

Canada

DFAIT=Dept of Foreign Affairs and International Trade; TB=Treasury Board; IC=Industry Canada

Chile

MIDEPLAN=Ministry of Planning;

Hong Kong

NGO=Non governmental organisations; HKPC=Hong Kong Productivity Council; ITBP=Information Technology and Broadcasting Panel of the Hong Kong Self Administrative Region Legislative Council

Japan

AITSP= Advanced Information and Telecommunications Society Promotion; HQ=Headquaters; MCA=Management and Coordination Agency; MHA=Ministry of Home Affairs

Korea

BoK=Bank of Korea; IPF=Informatization Promotion Fund; OGPC=Office of Govt Policy Coordination; MIC=Min of Information and Communication; MOCIE=Min of Commerce, Industry and Energy; MOGAHA=Min of Govt Admin and Home Affairs; NCA=National Computerisation Agency; OS-I=Overall Safeguards I of Computer Y2K Problem; OS-II=Overall Safeguards II of Computer Y2K Problem; SMBA=Small and Medium Business Agency;

New Zealand

CCMAU=Crown Company Monitoring Advisory Unit; GOVIS=Govt Information Systems group; IRD=Inland revenue Dept; ITAG=Information Technology Advisory Committee; Y2KTF=Prime Minister's Task Force;

Philippines

BSP=Bangko Sentral ng Pilipinas; EO*=Government Executive Order No. *; HR*=House Resolution number * IC=Insurance Commission; IT21=National Information Technology Plan for the 21st Century; MC*=Government Memorandum Circular No. *; NEDA=National Economic and Development Authority; NITC=National Information Technology Council; PIA=Philippines Information Agency; RSA=Revised Securities Act; SEC=Securities and Exchange Commission; TLRC=Technology and Livelihood Resource Centre;

Singapore

NCB= National Computer Board; SFCI=Singapore Federation of Computer Industry

Thailand

NECTEC=???

Chinese Taipei

DGBAS=Directorate General of Budget, Accounting and Statistics; IDP=Information Development Panel; MOEA=Min of Economic Affairs

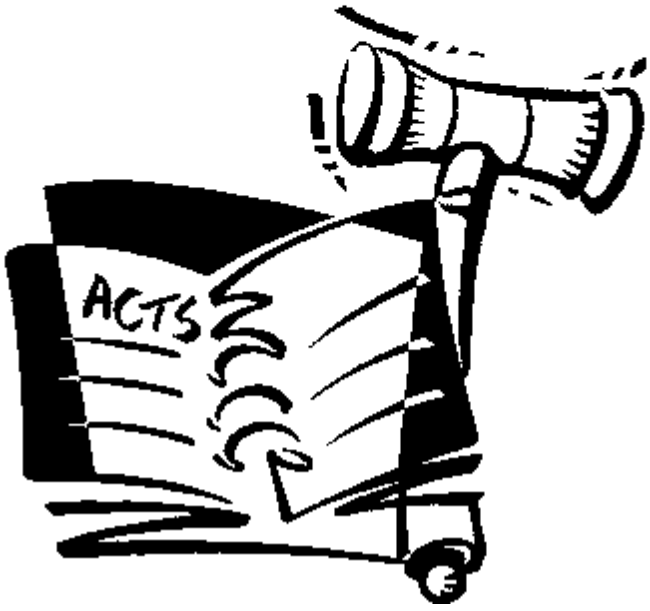
United States

CIO=Chief Information Officer; DOE=Dept of Energy; EPA=Environmental Protection Agency; FERC=Fed Energy Regulatory Commission; NEI=Nuclear Energy Institute; NERC=North American Electric Reliability Council;

NRC=Nuclear Regulatory Commission; NUSMG=Nuclear Utilities Software Management Group;

CHAPTER 4

International Regulatory Environment



4.1 Overview (Co-Chairs)

1. Ideas for this Topic have emerged through the variety of papers submitted under all 5 topics. When considering the key issues for global electronic commerce -- security and trust, systems harmonisation and connectivity, and the treatment of goods and services traded online with respect to taxation and tariffs -- the synergies between development of domestic policies and the evolution of international legal and trading regimes become clear.

2. Within the next three years, a range of international organisations aims to clarify principles and modalities surrounding electronic commerce. A pattern emerging is that trading relations, the identification of rights and responsibilities, and the resolution of conflict, either between states or between individuals, are likely to be defined according to an emerging set of "soft norms" and conventions based on practice, rather than through the rigid imposition of tightly defined rules. To ensure such conventions evolve in a way which benefits all economies, it will be important for governments to cooperate in harmonising or aligning domestic law and regulation with emerging international norms.

Developments in Other Fora

3. Existing agreements under the **World Trade Organisation** (WTO) will evolve with the advent of global online trading. The General Agreement on Trade in Services (GATS) will have increasing implications for electronic commerce, and vice versa. A key challenge will be to align commitments across sectors, and to ensure its "least trade restricting" dictum on domestic regulation. GATS articles, including on national treatment, will be reviewed in 2000. The GATS Annex on Telecommunications and the Agreement on Information Technology (ITA, I and II) may be broadened. The WTO basic telecommunications agreement will evolve as countries' commitments on internet services and value-added services such as e-mail, data retrieval and electronic data interchange (EDI), are re-evaluated. The Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement will be reviewed in 2000. In May, the Second WTO Ministerial Conference adopted a declaration on electronic commerce, stating, inter alia, that the General Council shall, by its next special session, establish a comprehensive work program to examine all trade-related issues relating to global economic commerce. The WTO Secretariat is to conduct a study of the economic implications, in particular for developing economies. The Declaration states that members will continue their current practice of not imposing customs duties on electronic transmissions.

4. The **World Intellectual Property Organisation** (WIPO) in December 1996 finalised the WIPO Copyright Treaty (WCT) and Performance and

Phonograms Treaty (WPPT). The Treaties have xx signatories, including xxx APEC economies, and xxx signatories have begun processes for ratification. WCT and WPPT coming into force can be expected to influence the review of TRIPS in 2000. With respect specifically to trademarks/well-known marks/patents /geographical indications, the WIPO 1998-99 work progam includes analysis of issues such as law based on assumption of territory and choice of jurisdiction for dispute settlement. The WIPO Dispute Resolution Centre may be used to resolve disputes concerning internet domain names, thereby assisting the governance process overcome the possibility that any one jurisdiction would emerge as dominant.

5. Specialist organisations within the United Nations (UN) have sought to develop international standards and provide models. The **UNCITRAL** Model Law on ECommerce could serve to guide economies' development of domestic legislation. The **International Telecommunications Union** (ITU) has proposed a MoU on the issue of international governance of internet domain names. The **World Customs Organisation** (WCO) is currently seeking revision of the International Convention on the Simplification and Harmonisation of Customs Procedures (the Kyoto Convention) to take account of the impact of electronic commerce.

6. The **OECD** Ministerial Conference "A Borderless World: Realising the Potential of Global Electronic Commerce" to be held in Ottawa, 7-9 October 1998, will attempt to construct a framework to realise the potential of electronic commerce, including through an mutual recognition agreement (MRA) on Digital Signatures and guidelines for consumer protection, taxation, and domain name registration procedures. The OECD has also developed Guidelines for the Security of Information Systems and Guidelines for Cryptography Policy, and provides leading-edge analysis and advice on a range of practical issues such as the Year 2000 "millennium bug". Canada, as part of this meeting, will brief the Task Force on preparations and expected outcomes.

7. The **Bank of International Settlement** established a Working Party on Electronic Money in 1997, which is analysing issues surrounding transparency, the integrity of electronic money, and technical security.

Issues for APEC

- How can APEC member economies be able to influence the work being undertaken in other fora to their long-term advantage?

- How can APEC member economies be pro-active in shaping the evolution of new international norms?

- How will the WTO workprogram on electronic commerce influence global practices? Is it appropriate or feasible for APEC to develop common views on issues such as customs duties?

- How can APEC member economies align or harmonise domestic regulation to enable more rapid uptake of electronic commerce in the region? Such alignment could begin with urging economies to accede to the 1996 WIPO treaties, developing consistent approaches to cryptography perhaps based on the OECD Guidelines, support for the UNCITRAL Model Law, and involvement in the revision of the Kyoto Convention.

- What value can APEC experiences add to the reconsideration of fundamental concepts, particularly territoriality and rules of origin, in other international fora, particularly the WTO and WIPO?

- What scope is there for cooperation in APEC to align approaches, while recognising these approaches are a matter of national economic sovereignty, for example, in regard to:

    - cryptography, and the OECD Guidelines for the Security of Information Systems and Guidelines for Cryptography Policy

    - domestic application of principles on authentication and related issues developed under the UNCITRAL Model Law on ECommerce

    - involvement in the forthcoming revision of the Kyoto Convention, involving TPT WG and SCCP

- How can APEC economies best recognise the role of the business sector in developing systems, standards and protocols, which should closely inform the evolution of regulatory processes (refer to the ABAC Electronic Commerce Task Force workprogram, PECC and APECNet)

- How can APEC economies recognise and promote the further development and amendment of international classifications systems (e.g. UN CPC), to enable existing trade law to remain relevant to emerging technologies and adopt "technology-neutral" nomenclature, so as not to inadvertently or otherwise lock in standards and technologies made redundant in increasingly short time spans

- Is there scope for broad APEC agreement on a definition of "electronic commerce" (see TEL WG Report "Expanding the Application and Benefits of Electronic Commerce in the Asia Pacific Region" pp 6,7)

4.2 Topic Outline (Japan)

Introduction

1. The significant potential of electronic commerce has become more evident with the increasing use of networks such as the Internet and the rapid progress being made in information and telecommunications technology. Despite its enormous potential, electronic commerce has given rise to certain issues that should be addressed with the spread of its use, such as consumer protection, privacy protection, illegal and harmful content, electronic authentication, intellectual property rights, and Internet governance.

2. Therefore, to ensure further development of electronic commerce in a sustainable manner in all APEC member economies, it is imperative to establish a favorable environment, which would make it possible to maximize the benefits of electronic commerce in each member economy, APEC region, and the whole world. Towards common recognition of the advantages of electronic commerce, we must engage ourselves in intensive discussions and examinations of the international regulatory environment conductive to the promotion of electronic commerce.

Basic principles for discussion

3. In light of the global nature of electronic commerce, we should bear following points in mind when discussing the regulatory environment for electronic commerce.

   (1) Leading role of business sector

   From the viewpoint that competition in the business sector will maximize the potential of electronic commerce and the development of electronic commerce is highly dependent on the progress of information and telecommunications technology, the business sector should take a leading role in promoting electronic commerce.

   (2) Role of governments

   The basic role of governments is to create a favorable environment that will induce vitality of the business sector, to avoid imposing unnecessary regulations and restrictions, and to support and encourage the business sector to establish self-regulations. Governments should recognize their role as a leading user of electronic commerce and at the same time try to raise public and business awareness.

Cooperation with other international fora

4. The global nature of electronic commerce commands global perspectives, rather than those confined to domestic parameters. Many international fora, such as OECD, WTO, UNCITRAL and WIPO, are making efforts to coordinate and develop a global framework for electronic commerce within their own mandates. For example, OECD ministers made declarations on privacy protection, consumer protection and electronic authentication at the Ottawa conference in October 1998 and a report on taxation issues was submitted to Ministers. With regard to the WTO, tariffs and trade related issues will be discussed in accordance with the work program that was adopted recently. UNCITRAL developed the Model Law on Electronic Commerce in 1996 and is now discussing a uniform rule for electronic signatures and authentication. APEC should work together with these international fora in the establishment of international frameworks.

5. We should also take note of the following points in international discussions. First, it is necessary to mutually understand the existing rules and systems of each economy based on its culture, history and practice. Second, it is also necessary to give due attention to avoiding unnecessary duplication of work, through different fora, and to effectively utilize the limited resources of international fora.

4.3 Summaries of Discussion from Kuching and Kuala Lumpur roundtables (Co-Chairs)

Kuching

- Participants recognised a role for regulatory considerations in promoting trust and confidence
    - acknowledging the diversity of economic and regulatory systems and approaches in APEC
    - noting the importance of "practices" as much as traditional rule-making.
- Work under way in other forums was discussed and the need in APEC to take account of that work recognised.
- The existing regulatory frameworks for commerce were seen as remaining relevant, and therefore should not be duplicated, but recognise the possibility that new policy issues or changes in focus could arise with regard to electronic commerce and its impact on globalisation.
- The most important aspect of the international environment is the issue of access
    - there are uncertainties in the applicability of current legal and regulatory systems and these need to be considered
    - but legal and regulatory issues are not posing major impediments to electronic commerce in the same way that access and confidence are, nevertheless there are important regulatory requirements.
- The meeting supported the important need for APEC governments to put on the table factual information about telecommunications systems, regulatory regimes and traffic data
    - there is much scope also for sharing technical information to assist in developing regulation.
- Consistency and transparency of regulatory frameworks, domestic and international, will be important in preventing development of non-tariff barriers and in avoiding impediments, particularly for SMEs.
- There was a general view that some mixture of voluntary codes of practice and formal legal backing is required

- the mixture may be different in different economic and legal systems, and in line with different societal needs

- but cross-border flows require some degree of cooperation – or at least a degree of understanding and confidence between these different systems, which cannot be developed in isolation

- feasibility and enforceability are important principles of any system.

Kuala Lumpur

- The Task Force agreed that APEC could seek opportunities for undertaking cooperative efforts with other international fore, and if possible avoid duplicating work already done by other fore

    - noted OECD Ministerial meeting outcomes and further work on key regulatory issues

    - agreed that APEC should monitor continuing OECD work on taxation, consumer protection and privacy issues with a view to selectively exploiting the synergies between APEC work and work undertaken in other fora

    - noting common ground in setting an enabling framework for e-commerce and the influence that the 43 members of "APEC plus OECD" could have in shaping the overall international framework.

- The Task Force noted WTO work and particularly agreement for work on customs duties

    - welcoming WTO plans to examine e-commerce impacts on developing economies

    - noting the importance for SMEs of WTO discussion of government procurement with regard to e-commerce

    - noting the significance of e-commerce for existing GATS and TRIPS commitments and for future services negotiations.

- The Task Force re-emphasised the importance of continuing to involve the private sector in discussions of regulatory frameworks.

- The Task Force noted relevant WIPO developments.

- The Task Force noted the APEC SME Ministerial declaration and its reference to e commerce and Y2K issues.

- The Task Force agreed there would be benefits to better utilisation of academic resources in advising discussion of broader economic and regulatory issues.

- The Task Force discussed the importance of administration of domain names in ensuring easy access for internet users and in providing an environment that allows for future expansion of the internet.

4.4 Electronic Commerce in International Organisations outside APEC (APEC Secretariat)

Aim of this Paper

1. The purpose of this paper is to stocktake works on electronic commerce being undertaken by the various international organizations so as to avoid unnecessary duplication and to make the most use of contributions to the discussions and development of electronic commerce.

Background

2. The rapid diffusion of the Internet throughout the world has accelerated the introduction of Electronic-Commerce (E-Commerce). It has become an increasingly accepted way of doing business. It is gaining impetus worldwide and the impact is beginning to be felt in all sectors especially in the financial and services sector of the economy. The WTO has estimated that global revenue from Internet trade could be USS$300 billion a year by turn of the century.

3. The development of electronic commerce is not completely new to APEC members. The APEC Leaders agreed that electronic commerce is one of the most important technological breakthroughs of this decade and directed Ministers to undertake a work program on electronic commerce in the region, taking into account relevant activities for other international fora, and to report them at the Kuala Lumpur Leaders meeting in 1998. The APEC Ministers in their statements at the 1997 Vancouver meeting also agreed that electronic commerce is an important technological breakthrough (and) … called for a workplan to study a wide range of issues on electronic commerce. The Ministers recognized that the private sector should take the lead role as innovators and developers of this important medium.

Electronic Commerce: What it Means

4. Electronic commerce relate to commercial transaction of goods and services conducted between parties electronically mainly through open Internet based systems i.e. the parties interact electronically rather than by physical exchange or contact. A wide range of communication technologies including e-mail, EDI, Internet, Intranet and Extranet can be used to support electronic commerce.

5. Electronic commerce includes commercial transactions such as electronic trading of goods and services, on line delivery of digital content, electronic fund transfers, electronic share trading, electronic bills of lading, collaborative design and engineering, on line sourcing, public procurement, direct and consumer market. The potential for the application of electronic commerce will continue to expand.

Categories of Electronic Commerce

Business to Business

6. A company that uses a network for ordering from its suppliers, receiving invoices and making payment. In APEC several large supermarket retail chains have embarked on an EDI based retail community system which links them individually to a chain of suppliers. Payments are made via Electronic Fund Transfer (EFT).

Business to Consumer

7. Mostly related to electronic retailing. There are now shopping malls Internet offering all types of consumer goods from cakes and shirts to computer and motor cars. Virtual malls have already been existing for some time.

Business to Government

8. It covers all transactions between companies and government organizations.

Consumer to Government

9. This transaction has yet to be fully explored. However the time may come whereby the government will be making payments or grants to welfare homes and income tax returns to individuals.

Stocktake on Electronic Commerce Projects in International Organizations

10. Electronic commerce is by nature a global issue and is therefore beyond the province of individual countries. Work on electronic commerce is being pursued in several international organizations such as UNCITRAL, UNCTAD, OECD, WTO, WCO and WIPO. The APEC Secretariat has researched works on electronic commerce being undertaken by the said international organizations as follows:

United Nations Commission on International Trade Law (UNCITRAL)

11. The United Nations Commission on International Trade Law (UNCITRAL), the core legal body of the United Nations system in the

field of international trade law, has been active in the area of electronic commerce for more than 10 years.

12. In 1985, UNCITRAL issued a recommendation (later endorsed by the General Assembly) on the legal value of computer records. In 1987, UNCITRAL published a legal guide on electronic funds transfers. In 1992, it adopted the UNCITRAL Model Law on International Credit Transfers (endorsed by the General Assembly and used as a basis for the preparation of a European Union Directive, that instrument covers both computer and paper-based credit transfers but it was prepared mainly with electronic funds transfers in mind).

13. The United Nations Commissions on International Trade Law (UNCITRAL) has completed work on a model law that supports the commercial use of international contracts in electronic commerce.

14. This model law establishes rules and norms that validate and recognize contracts formed through electronic means, sets default rules for contract formation and governance of electronic contract commerce, defines the characteristics of a valid electronic writing and an original document, provides for the acceptability of electronic signatures for legal and commercial purposes, and supports the admission of computer evidence in courts and arbitration proceedings.

15. The UNCITRAL Model Law on Electronic Commerce was adopted and endorsed by the General Assembly in 1996 and, that instrument is in the process of being implemented as part of national legislation in many countries and is generally regarded as useful reference by legislators throughout the world.

16. UNCITRAL intends to continue monitoring the technical, legal and commercial developments that underline the Model Law. It might decide to add new model provisions to the Model law or modify the existing ones. In line with its training and assistance activities, the UNCITRAL secretariat provide technical consultations for Government preparing legislation based on the UNCTRAL Model Law on Electronic Commerce, as it may for Governments considering legislation based on other UNICTRAL Model laws, or considering adhesion to one of the international trade law conventions prepared by UNCITRAL.

17. UNCITRAL is currently working on the preparation of uniform rules of a statutory nature on electronic signatures (the next session of the Working Group dealing with that issue will be held in New York from 29 June to 10 July 1998.) The United Nations Commission on International Trade Law (UNCITRAL) is also working on a draft Model Law on Legal Aspects of Electronic Data Interchange and Related Means of Communication.

18. UNCITRAL can be visited in French and English on their Website at the following address: http:/www.un.or.at.uncitral

Contact: UNCITRAL
Mr Renaud Sorieul
Senior Legal Officer
Secretary of the UNICTRAL
Working Group on Electronic Commerce

UNCITRAL
Email: rsorieul@unvienna.au.or.at

United Nations Conference on Trade and Development (UNCTAD)

19. UNCTAD established a Global Trade Point Network with the aim of assisting developing countries in their efforts to benefit from developments in the field of electronic communications.

20. The Secretary-General of the United Nations at UNISTE (Columbus, Ohio) officially launched GTPNet in October in 1994. Since then, the number of Trade Points has doubled. There are currently 132 at different stages of development and major achievements have been made in the technological advancement of the network.

21. The Trade Point Development Centre (TPDC), hosted since July 1995 by the Royal Melbourne Institute of Technology (Australia), has been responsible for the development of innovative tools and interfaces used by GTPNet, including the Electronic Trading Opportunities (ETOs) System, the GTPNet World Wide Web site on the Internet, and its corresponding "Trade Point Internet Incubator." Recently UNCTAD-TPDC has been working towards moving Trade Points from the pre-transactional of the transactional stage.

22. GTPNet currently features two UNCTAD maintained World Wide Web servers in Geneva and Melbourne. To increase the ease and the speed of access to the network, mirror sites of the main GTPNet servers are being set up around the work, mainly at universities. To date, 39 mirror sites have been established in 24 countries and territories.

23. Besides these servers, many Trade points (approx. 40 of the total of 132) are connected to full Internet Services (WWW. Newsgroups, gopher, etc.) Using local Internet providers. A survey carried out in 1996 with the majority of operational Trade Points demonstrated that those Trade Points which use the Internet more actively to promote their services or their client's services also facilitate a higher number of trade transactions per month and offer a broader range of trade facilitation services than other Trade Points. In addition, it was found that these Trade Points (which use new information technologies more frequently) usually reach their financial break-even point faster than others.

24. Access to full Internet, however, is still far from global : another 35 Trade Points exchange information via e-mail and the rest, mainly in

LDCs, still communicate via fax. For those Trade Points which do not yet benefit from full Internet services,. UNCTAD-TPDC has set up an Internet Incubator which enables Internet services, UNCTAD-TPDC has set up an Internet Incubator which enables Trade Points (especially in developing countries) without access to the Internet to use the UNCTAD-TPDV servers as data repositories. It also helps Trade Points in both developed and developing countries to use the latest graphical design techniques to build their home pages and product catalogue.

25. Web traffic over GTPNet has grown exponentially since the Web site was launched in January 1995. The two main servers registered a total of 2.6 Million hits for the month of January 1996 and 32 Million hits in February 1997. This makes the UNCTAD-TPCD WWW site one of the most active trade sites on the Internet.

26. Thus, the strategic choices made by UNCTAD in designing,implementing and enriching the Global Trade Point Network reflect the current evolution of electronic commerce, namely:

- GTPNet is increasingly Internet-based;
- It is building upon its experience as a "pre-transactional network" to move to a fully transactional one (from contacts to contracts);
- It has been designed as a business-to-business tool, allowing SMEs worldwide to contact each other with minimal intermediation; and
- Its approach to electronic payment is based on a smart-card approach, involving strategic alliances with traditional players in the field of international payments (rather than using electronic money).

27. UNCTAD can be visited via the World Wide Web at http://ca-un.untpdc.org/webreg/default.asp. More information on UNTPDC is available at http://www.unicc.org/untpdc.

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Organization for Economic Cooperation and Development (OECD)

28. The OECD has examined the implications on electronic commerce in the areas of i) overall policy framework; ii) the information economy; iii) content; iv) security, privacy, cryptography; v) access, telecommunications policy; vi) small and medium enterprises; vii) consumer policy; viii) taxation and ix) tourism.

Overall Policy Framework

29. The OECD prepared a policy report on "Global Information Infrastructure Global Information Society" (GII-GIS) which was endorsed by the 1996 Ministerial Council meeting. A further substantial background report "GII-GIS: Policy Requirements" and "GII-GIS: Policy

30. Ministers endorsed Recommendations for Action" in May 1997. Private Sector Experts on Electronic Commerce presented their report "Electronic Commerce: Opportunities and Challenges for Government" which focus on business-to-business electronic commerce. The strategic recommendations are addressed to governments with a view to facilitate the development of electronic commerce and maximizing its contribution to the creation of new business and jobs. It was released in January 1997.

The Information Economy

31. The OECD prepared several reports on the Information Economy as follows:

    In 1994, OECD produced an analysis of the economic aspects of Electronic Data Interchange (EDI).

    The OECD also produced a report on "Measuring electronic commerce" on Indicators for the Information Society in June 1997.

A report on crosscutting overview of the issues arising when making business-to-consumer electronic transaction as well as of the current market situation and prospects for future markets was produced.

A report that summarize and analyze the ability of electronic commerce merchants to differentiate their products, maintain price differentials with competitors, and use value-added services to benefit the retailer and the manufacturer.

A study of the current and potential economic impacts of intelligent agent software, especially in regards to electronic commerce was prepared for the ICCPs Working Party on the information Economy's meeting in February 1998.

A report on Electronic Commerce:

Barriers and value chains which examine these changes in the prevailing recent electronic commerce policy statements by Member countries and the emergency of "new" value chains.

Content

32. The OECD are also making studies aimed at reviewing the existing legislation and practices in Member countries concerning the Internet and gathering the views of the different actors involved. A study of content as a new growth industry as part of the Ministerial projects on the Global Information Infrastructure - Global Information Society and the second phase of "Technology, Productivity and Job Creation" were also undertaken. This work focused on specific technological, commercial, and regulatory barriers to the development of multimedia services, corporate and policy initiatives for overcoming these barriers and realising new market opportunities.

Security, privacy, cryptography

33. The OECD has organised periodic Symposia to discuss current and upcoming policy issues in the areas of security, privacy and IPR protection in the context of the legal framework for "Global Information Infrastructure - Global Information Society". The three latest ones [1992, 1994 (Paris) and 1996 (Canberra)] included considerations of the implications of electronic commerce and introduced electronic money/digital cash issues in the context of the discussion of the evolution of the information society.

34. The OECD Council adopted in September 1980 a Recommendation concerning Guidelines Governing the Protection of Privacy and Transborder Flows Of Personal Data ("Privacy Guidelines"). The Guidelines -- which apply to personal data, whether in the public or private sector -- are intended to help harmonize national privacy legislation and provide a framework for facilitating international flows of data, while at the same time upholding human rights. Given the

likelihood of strong growth of electronic commerce over the short and medium term, the ICCP will work with the Member countries to promote coherent policies and standard technical pragmatic solutions, which take into, account the protection of privacy and personal data of users and consumers. A business-government forum may be organized in early 1998 to discuss the range of approaches from legislation to industry self-regulation.

35. The Ministers of the OECD countries adopted the Declaration on Transborder Data Flows in April 1985. It addresses the policy issues arising from transborder data flows -- such as flows of data and information related to trading activities, intracorporate flows, computerized information services and scientific and technological exchanges. The Declaration seeks to protect the cross-border flow of information on individuals who engage in electronic commerce transactions.

36. In November 1992, the OECD Council adopted a Recommendation concerning Guidelines for the Security of Information Systems ("Security Guidelines"). Since the adoption of the Security Guidelines, there have been a number of initiatives in Member countries in the field of security of information systems. The Security Guidelines are relevant for the safety of cross-border electronic commerce, including electronic money transactions and Internet payments. In early 1997 the Secretariat conducted a survey of Member countries on the implementation and awareness of the Guidelines.

37. The OECD Council adopted the Recommendation "Guidelines for Cryptography Policy" on 27 March 1997. It is a non-binding agreement that identifies the basic issues that countries should consider in drawing up cryptography policies at the national and international level. The Guidelines set out principles to guide countries in formulating their own policies and legislation relating to the use of cryptography and provide internationally comparable criteria for encryption of computerised information.

Access, telecommunications policy

38. OECD work has analyzed the experience of the growing number of OECD countries with telecommunication infrastructure competition and the benefits achieved. The OECD is following developments on this issue and their relationship to electronic commerce.

Small and Medium Enterprises

39. The OECD is concerned with improving the efficiency of information exchange for SMEs by contributing to the development of policy recommendations in this area. Information providers, including governments, are encouraged to consider the needs of SMEs in terms of the organisational structure and user friendliness of the information they put on-line. Many policy issues in this area are or have become

international. This requires greater international discussion, co-ordination and transparency.

Consumer Policy

40. The emergence of global shopping via open networks, such as the Internet, has precipitated the initiative to guarantee that consumers have the ability to shop the world over for goods and services.

41. Activities of the OECD on this subject are as follows:

An OECD forum "Gateways to the Global Market: Consumers and Electronic Commerce," was held in March 1997. Following the conference, the Committee on Consumer Policy agreed to undertake a project to ensure consumer protection for commercial transactions over open-networks.

The OECD is developing, in consultation with representatives of the financial services industry, a set of basic principles, which should guide "chargeback" operations in both national and international transactions.

The OECD has compiled an inventory of the codes of conduct associated with distance selling in OECD countries and is now working to identify transnational elements necessary for cross-border commercial transactions. in order to develop a set of principles which might be applicable to the whole range of distance selling transactions.

Improving co-operation among consumer law enforcement agencies to control international fraud has become an increasingly important priority. The OECD has begun to examine the potential of an Internet based information network to support this work, facilitating the rapid exchange of law enforcement information.

Product liability rules exist in most OECD countries, permitting a consumer to obtain redress for injuries caused by faulty products from manufacturers and distributors. However, this assumption may not hold in the paradigm of electronic commerce.

In light of the proliferation of electronic commercial transactions over open networks such as the Internet, OECD is looking on ways that consumers have the ability to have goods shipped at affordable rates.

Taxation

42. The development of electronic commerce also has the potential to create a parallel banking and payment system outside of conventional banking channels. A key question for governments is how the development of electronic commerce relate to the current tax system, including substantive principles of direct and indirect taxation, as well as increased opportunities for tax avoidance and evasion, and issues of tax administration. It is clear that consistent approaches at

international level are urgently required to ensure the effectiveness of taxation laws in this new environment. In June 1996, the OECD began an examination of the following issues and has intensified work with the aim of reaching an international consensus on general principles:

- Issues relating to the OECD Model Treaty on Income and Capital
- Issues relating to transfer pricing
- Issues relating to consumption taxes
- Implications on tax administration and tax compliance

Tourism Policy

43. The OECD is also studying the implications for the tourism industries on electronic commerce. The work will address opportunities available and challenges faced. The work will look at how tourism administrations are preparing for the information highway network and provide examples of its successful application to various tourism policy areas.

44. More information on OECD is available at http://www.oecd.org

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World Trade Organization (WTO)

45. The World Trade Organization (WTO) made a new study on electronic commerce to help countries to shape policy responses to this growing medium of businesses. The main conclusion of the study was that Electronic Commerce through the Internet is poised to boom over the next three years with the value of transactions set to reach US$300 billion (S$482 billion) by the year 2001, from virtually zero at the start of the 1990s and less than US$10 billion today. In this process, many industries will be transformed, and new, diverse products created, resulting in huge benefits for consumers and companies alike. But Internet commerce could also pose a number of challenges for governments and international regulatory authorities. The study points out that:

- The number of Internet uses is projected to almost quadruple to about 280 million (or 5 per cent of the world's population) by the year 2000 from 78 million in 1997.

- The Internet is expected to expand its share of electronic sales (which also includes sales via telephone and fax) from barely 2 per cent today to about 50 per cent by 2008.

- Commercial transactions over the Internet are projected to grow from just one per cent of all commercial transactions in the US in 1996 to 2-3 per cent by 2001 and then to 14 per cent by 2007.

46. According to the study Electronic Commerce will have a big impact on a range of industries and activities, as follows:

- One immediate effect will be a growth in demand for access to telecommunications networks.

- The electronic commerce will also fuel a rapid growth of demand in computer hardware, software and related services.

- Companies selling products or services that can be delivered online will have a particularly bright future.

- Electronic commerce could lead to major changes in the way many industries function, including insurance, banking, broking services, travel, telecommunications (including telephony), advertising and industries providing medical and educational services.

- Electronic commerce could help transform the very structure of some industries.

- Electronic commerce could also impact government services and procedures.

47. The study also concluded that electronic commerce poses a number of policy challenges for governments and regulatory authorities. The main problem areas include:

- Congestion on the Internet.

- Distorted pricing policies. In many countries, including in Europe, electronic commerce is stymied by high telecommunications charges, which often do not reflect cost or scarcity.

- Inadequate legal and regulatory frameworks. Most countries lack clear rules on, for instance, jurisdiction issues, the validity of electronic contacts, and intellectual property rights.

- The security and privacy of transactions. Consumers still do not have sufficient confidence that transactions over the Internet are safe and private.

48. The study also mentioned on electronic commerce possible implications other areas on government policies as follows:

- Electronic commerce is untaxed, it would gain advantages over other means of commerce that are taxed. Tax codes may therefore have to be revised. A particular challenge arises in the case of corporate taxation.

- The use of electronic money through units or 'tokens' that take a digital form will also raise concerns, including consumer protection, law enforcement, the regulations of issuers of electronic money, and monetary product.

49. The study points out that the spread of electronic commerce will have major social implications. In particular, "there could be a growing divide between those with the necessary access and skills to profit from the new opportunities and those who lack these pre-requisites". The latter group would typically include the poor and the elderly.

50. The study suggests that these problems could partly be addressed by ensuring easier access to the Internet through reduced pricing and other policies, more user friendly technologies and greater emphasis on training.

51. The study also suggested that developing countries have much to gain from electronic commerce as follows:

- Many are already benefiting from export-related activities like data entry, software development, claims and forms processing and accounting.

- Developing countries are likely to benefit from wider and cheaper access to informational, educational and medical services.

52. Finally, the study considers how the WTO can help facilitate electronic commerce and integrate it into rules governing world trade. A key issue is whether electronic commerce will be considered to be equivalent to trade in goods, or trade in services, or a different type of trade. It notes that some information flows would seem at first sight to resemble trade in goods while a range of services provided electronically are already governed under the WTO's General Agreement on Trade in Services. But where there is ambiguity, new rules governing trade will have to be developed.

53. Other than the WTO studies in electronic commerce there are various ways in which the following World Trade Organization (WTO) related agreements might have bearings on electronic commerce.

54. The General Agreement on Trade in Services (GATS), negotiated in the Uruguay Round, is the first multilateral trade agreement on services which covers all services except services supplied in the exercise of governmental authority. The Members of the WTO are in the process of

considering how new services should be defined and treated under the GATS.

55. The WTO Basic Telecommunications negotiations will ensure global competition in the provision of basic telecommunications services and will address the many underlying issues affecting online service providers. As the WTO Agreement is implemented, it will have seek to ensure that new rules of competition in the global communications marketplace will be technology neutral and will not hinder the development of electronic commerce. In particular, rules for licensing new technologies and new services must be sufficiently flexible to accommodate the changing needs of consumers while allowing governments to protect important public interest objectives like universal service.

56. The products covered under the Information Technology Agreement (ITA) include semi-conductors, telecommunication products, scientific instruments, computer software and semiconductor manufacturing equipment. The ITA aimed to eliminate of custom duties was envisaged to take place in four stages, with the final stage being completed no later than 1 January 2000, unless otherwise agreed among participants. Some countries were granted extended staging beyond 2000, but in no case later than 2005.

57. The Agreement on Trade-Related Aspects of Intellectual Property Rights (the "TRIPS Agreement") aims to ensure the adequate protection and effective enforcement of intellectual property rights and the impartial resolution of disputes between WTO members about such matters, to the mutual advantage of both producers and users of intellectual property. The areas of intellectual property that the TRIPS Agreement covers are: copyright and related rights (i.e the rights of performers, producers of sound recordings and broadcasting organizations); trademarks including service marks; geographical indications; industrial designs; patents, including the protection of new varieties of plants the layout designs of integrated circuits; and undisclosed information, including trade secrets and test data.

58. The WTO can be accessed via the World Wide Web at http://www.wto.org More information on WTO is available at enquiries.contact@oecd.org

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World Customs Organizations (WCO)

59. The World Customs Organization (WCO) have mainly focussed on the implementation of EDI standards, particularly those related to the development of Customs UN/EDIFACT messages.

60. Other activities which the WCO are involved can generally be categorized as technical assistance, standards development and information dissemination.

61. The WCO conducts programme for individual Member Customs administrations or for groupings of Member administrations. These technical assistance programmes usually take the form of seminars and/or workshops. So far, the WCO focused primarily on the EDI implementation strategies and the use of international standards.

62. The primary responsibility of the WCO's Electronic Commerce Advisory Group (ECAG) is to deal with all technical matters on UN/EIDFACT messages. This is the forum where the development and maintenance of all Customs UN/EDIFACT messages takes place.

63. The WCO is currently looking at the possible use of electronic forms for Customs purposes on the World Wide Web. The ECAG is also examining security issues such as authentication, encryption, etc. relating to the electronic transmission of information.

64. The WCO has issued three publications related to electronic commerce matters, namely "An introduction to EDI", "WCO Data Mapping Guide for Customs UN/EDIFACT Messages" and "EDI Message Security for Customs".

65. The ECAG and its parent body, the Information Management Sub-Committee (IMSC) has kept members aware of the developments through presentations to the Customs administrations and private companies and the distribution of information and documents by its Secretariat.

66. WCO also deals with a number of other topics, which are not directly related to electronic commerce but could have an impact on its use by

Customs. The WCO is particularly interested in the use of unique consignment reference numbers and a global common set of Customs data requirements for the international movement of goods within the context of a paperless environment.

67. The WCO has recently established its own web site and it is WCO's intention to provide more information on electronic commerce available through this site. The WCO's information relating to EC is available on public web site (www.wcoomd.org)

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World Intellectual Property Organization (WIPO)

68. Two important new treaties on copyright matters were adopted under the auspices of the World Intellectual Property Organization (WIPO) in December 1996, namely the WIPO copyright Treaty and the WIPO Performances and Phonograms Treaty. The treaties enter into force three months after 30 instruments of ratification or accession by states have been deposited with the Director General of WIPO. These new intruments are self-standing treaties, which build on the Berne Convention and the TRIPS Agreement, but in some respects go further. The main improvements that relate to the use of works and phonograms on the Internet and other communication, circumvention of technological measures and integrity of rights management information. The implementation of these new treaties will greatly facilitate the creation of a secure and predictable legal environment that will foster the development of electronic commerce involving online distribution of protected materials.

69. Both the TRIPS Agreement and the WIPO Copyright Treaty recognize that copyright protection covers compilations of data or other material, which by reason of the selection or arrangement of their contents constitute intellectual creations. In the course of the preparation of the

Diplomatic Conference that adopted the aforementioned new WIPO treaties, it was discussed whether there is a need to supplement this by providing additional protection to economically valuable elements of databases that require the investment of considerable human, technical and financial resources but may not benefit from any copyright protection. While the Conference did not take any action on the draft treaty on this matter submitted for its consideration, the delegations are a vital element in the development of a global information infrastructure, and expressed their interest in examining further the possible implications and benefits of a sui generis of protection of databases at the international level. This examination is underway under the auspices of WIPO.

70. Protection of trademarks and other distinctive sign aims to stimulate and ensure fair competition between producers and to protect consumers by enabling them to make informed choices between various goods and services. In electronic commerce, brand recognition is essential for suppliers of goods and services. For consumers who buy products at a distance, it may be increasingly necessary to rely on the reputation attached to trademarks and other distinctive signs, as they do not have an opportunity to establish a personal contact with the seller of those products, or to inspect the products before buying them.

71. The use of trademarks on the Internet raises a number of questions. Under what circumstances and n which jurisdiction(s) does such use of a mark constitute infringement of a registered trademark. The use of such trademarks on the Internet by one of the right owners may lead to conflicts. Is the current territorially based system of registration of trademarks sufficient for the emerging borderless electronic marketplace?

72. Conflicts between trademarks and domain names have brought to the fore on a more general question, not limited to intellectual property, of how best to develop the governance of the domain name system. A Memorandum of Understanding on the Generic Top-Level Domain Name Space of the Internet Domain Name System (gTLD-MoU) was signed in Geneva on 1 May 1997. It embodies the conclusions for the Final Report of the International Ad Hoc Committee, which was convened by the Internet Society and the Internet Assigned Numbers Authority. The gTLD-MoU establishes a program for enhancing the existing gTLD system and creating a self-governing structure for the registration of SLDs a dispute resolution under the new gTLDs. The policy is intended to provide a dispute resolution mechanism concerning registrations under the new gTLDs. Substantive rules for resolving conflicts between domain names and existing intellectual property rights are envisaged as being part of the mechanism, responding to concerns about the adequacy and coherence of the present regionally based system of protecting intellectual property rights, in particular trademarks, for addressing conflicts in a global system of domain names.

73. The international Bureau of WIPO and the Secretariat of the International Telecommunications Union (ITU) have participated in the preparation of this policy, under which the WIPO Arbitration and Mediation Centre would administer dispute resolution procedures, and the Secretary-General of the ITU would act as the depository of the gTLD-MoU.

74. WIPO can be accessed via http://www.wipo.org. More information in WIPO is also available at copyright.mail@wipo.int.

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4.5 Intellectual Property Rights in Relation to the Internet (Chinese Taipei)

Introduction

1. With the progress of computer technology, telecommunications technology and software and information technology in the past 20 years, the development of Internet has radically changed the life of mankind. A new type of business trading, electronic commerce was formed with the maturity of Internet in commercial application accompanying such progress. As electronic commerce carries profound significance in terms of international trade and international competitiveness, besides the efforts made by each country, both international organizations and forums have put high emphasis in this regard. APEC made a Declaration at the Vancouver Leaders Conference held in 1997, indicating "Leaders [should direct] Ministers to undertake a work program on electronic commerce in the region, taking into account relevant activities of other international forums, and to report to us in Kuala Lumpur. This initiative should recognize the leading role of the business sector and promote a predictable and consistent legal and regulatory environment that enables all APEC economies to reap the benefits of electronic commerce." Currently, all member economies are actively working on relevant studies to realize the Declaration. Electronic commerce has a great impact on the trading environment which was initially based on the more traditional commerce, the physical commodity commerce in every aspect, such as commerce code, protection of intellectual property, privacy, security, custom and taxation, payments and market access (including telecommunication infrastructure, information technology, content and technical standards, etc.) Intellectual property rights play an important role in terms of the subject matter of trade of electronic commerce and electronic commerce hardware technology improvement. Chinese Taipei volunteers to undertake a preliminary study with the hope that all APEC member economies will provide their comments.

Policy Issues

2. The following policy issues in connection with intellectual property rights in the Internet environment of electronic commerce need to be addressed:

   (i) To ensure and recognize that the transactions of works protected under Copyright Law can be completed through cyber-orders and cyber-delivery. In other words, the subject matters under the Copyright Law, including publications, music, sound recording, photography, artistic work, audio-visual and computer

programs constitute a large part of the content of the commodity of electronic commerce.

(ii) To ensure that the basic values enshrined by the international intellectual property conventions, and the basic principles pursued by all countries to protect intellectual property rights, for instance, protecting the human rights of creators or promoting the progress of science or useful art of human civilization, remain unchanged under the environment of electronic commerce.

(iii) All parties will benefit from electronic commerce if the protection of intellectual property rights can be realized; if not, there will be no real content to the Internet application with merely the hardware technology. Internet environment makes distant transactions of IPR commodity/services possible. The geographic limits and delay in time are thus both eliminated. From the prospective of consumers, they are given ready access to a variety of IPR commodities thus inspired and enriched on a multi-dimensional basis. Consumers individually and mankind as a whole will both benefit from such exposure. For the suppliers of IPR goods, including the copyright industries, trademark owners, distributors and retailers, on the one hand, are able to reduce cost and on the other hand, increase trade opportunities, therefore, create more profit in the Internet environment. In short, if intellectual property rights protection can be adequately ensured, electronic commerce will function successfully and all parties will benefit. However, if intellectual property rights can not be well protected, for example, copy right owners have no control over the distribution and circulation of their copyrighted goods on the Internet, or a registered trademark is affected by a similar domain name and thus consumers are confused, ultimately Internet technology will be rejected.

(iv) A predictable intellectual property legal framework on a global basis should be in place to adapt to the electronic commerce environment. The border-less characteristic of Internet makes borderlines of countries meaningless. The probability of legal conflict, which incurred as a result of legal system difference among territories, is inevitably increased in the Internet. If such issues are not handled properly, the development of electronic commerce will be frustrated due to uncertainty of transaction. One way to resolve the intellectual property issue is to create a predictable intellectual property legal framework on the global basis. On the other hand, global harmonization and convergence should also be obtained to address matters other than legal issues.

Technical issues

3. Having addressed the above policy issues, technical adjustment in the following aspect must be made to adapt to electronic commerce.

Copyright and related rights

4. The efforts paid in the aspect mainly focuses on the amendments of the legal system, including:

   (i) The study of the possibility to afford a new right, the right of communication to public or right of making available in addition to the traditional exclusive rights of copyright or the neighboring rights, such as reproduction rights, right of public broadcast, right of public performances to adapt to the interactive on-demand acts of communication via Internet or storage of works, performance or sound recording in the large computer memory or server, so that individual users may freely access the contents at different times and locations.

   (ii) the study of how to provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures used by right holder in connection with the exercises of their rights.

   (iii) the study of how to provide adequate legal protections and effective legal remedies to right holders' electronic rights management information.

   (iv) the grant of appropriate protection of the database which is not protected under Copyright Law for lack of originality and to award the investment of the database makers' on the other hand, and take into account the adequate access to the database by the users, on the other hand.

   (v) the recognition of the application of fair use or exception to right to usage that inevitably exists under Internet environment and does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interest of the right holders.

Trademark

5. Protection of trademark ensures the fair competition between sellers and providers of goods and services, on the other hand, protects consumers from confusion of likelihood while purchasing goods or services on the other hand. Basically, under the territoriality criteria of trademark right, business should register in the country it operates and obtain the trademark right before it may enjoy the right to prohibit

others from using similar or identical trademarks which may create confusion within such territory in their business operation.

6. With the nature of territoriality, trademarks are prone to conflicts as a result of identical or similar trademarks owned by different persons in different territories. The current territoriality-based registration system is not sufficient for the border-less electronic commerce.

7. Furthermore, trademark issues are even complicated in connection with Internet domain names issues. Internet domain name is the source identifier on the Internet. However, domain names are obtained on a "first come, first served" basis and the following issues may arise:

   (i) If a domain name significantly affects the protected trademark of others, does it constitute infringement of trademark? What are the remedies for the trademark owner?

   (ii) What is the legal position of domain names? If the use of domain names has the valid value as trademarks, should protection of trademark be granted?

   (iii) Will it be allowed to register trademarks with the object similar or identical to other domain names?

   (iv) What is the appropriate governance of domain names? For instance, how to deal with confusion and conflict brought by similar domain names?

Patent

8. The development of electronic commerce depends on the progress and updates of computer software, hardware and communications technology. An efficient patent application system should be established to grant patents in connection with relevant technology in order to encourage and promote the development of electronic commerce. Similar to the issues concerning the said copyright and trademark right, an appropriate resolution to this aspect should be proposed with the joint effort from the international organizations, such as the Permanent Committee on Industrial Property Information of the World Intellectual Property Organization.

Frameworks, principles, other agreements or work on this issue

The Organization for Economic Cooperation and Development (OECD)

9. The Ministerial Conference of OECD held in Paris from May 26 to 27, 1997 decided that the development of international electronic commerce should be closely observed.

The World Trade Organization (WTO)

10. WTO expressed concern over electronic commerce. In the report prepared by its experts, entitled " The Electronic Commerce and the Role of the WTO-Special Studies 2", WTO recognizes that electronic commerce is within its area of competence. WTO should play the role to foster an environment conducive to international electronic transactions. This report emphasized that the protection and proper management of intellectual property right is crucial for future electronic commerce.

World Intellectual Property Organization (WIPO)

11. WIPO passed the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty in December 1996 at its diplomatic conference. (There are 51 signatories to the former Treaty and one country approved; 50 signatories of the latter and no country approved as of January 1998.) The Preambles of the said two Treaties expressively recognized the profound impact of the development and convergence of information and communication technologies on the creation/production and use of literary and artistic works/performances and phonograms. These two new treaties pursued to bring about new international norm to meet the development in this respect.

European Union

12. The European Ministerial Conference -Global Information Networks: Realizing the Potential was held from July 6 to 8, 1997 by the EU Commission and announced the Bonn Declaration with 69 consensus reached. Its view toward the intellectual property issues is to pass the two new WIPO treaties as soon as possible and to amend the existing laws to adapt to the cyber space developments. In addition, it will participate in the international negotiation, such as protection of audiovisual performance, sui generis protection of database requiring substantial investment and trademarks and domain names through global consensus.

The USA.

13. The Electronic Commerce Task Force, established under the leadership of the US Vice President, Al Gore, published on July 1, 1997 "A Framework for Global Electronic Commerce". In this report, the standpoint of the United States toward the global electronic marketplace was addressed and intellectual property rights were thoroughly discussed. Its basic position was to support the new treaties of WIPO, to effectively protect related patents, trademarks and domain names in relation to network. As Internet is border-less, this report demonstrated high hopes for the international community to set

up international norms in respect of IPR and will promote such position through the international forums.

Other issues and information

(To be supplemented)

Questions that APEC should be asking about this issue

14. A thorough study of the intellectual property right issues involved in electronic commerce should be carried out and to urge all APEC member economies to fully understand and recognize such issues through APEC forums.

15. To recognize that international corporation is the best method to deal with all issues of electronic commerce (including intellectual property right issues). Especially, a predictable intellectual property right legal framework should be established on a global basis.

16. To ensure that it should be taken into account the difference between members of developed economies and developing economies when dealing with all problems of electronic commerce, including intellectual property right issues and that all APEC members should all benefit from electronic commerce.

17. To ensure that relevant issue of electronic commerce calls for common effort from both the public sectors and private sectors in all over the world so that they may be properly dealt with. The private sectors should take the lead for issues other than legal aspect, in particular, issues involving the cooperation and integration of technology.

Conclusion: Implication for APEC and what APEC may be able to contribute

18. To emphasize among all member economies the importance of electronic commerce.

19. To reach a joint declaration to support the efforts, which are, made by the international IPR organizations on a global basis to cope with the challenges under electronic commerce.

4.6 Legal and Regulatory Issues (David Shannon, Baker & Mckenzie)

1. Baker & McKenzie was commissioned by the APEC secretariat in 1997 to conduct a survey on e-com legal issues in the member economies, with the objective of compiling a practical first level guide[1] for SMEs. Other law firms contributed to the survey. The project was sponsored by AOEMA. This paper draws on the results of the survey, and on ideas presented in a paper by the author delivered to the APEC-PECC e-com seminar in Brunei Darussalem in March 1998.

2. There is already vast scope for e-com within the present legal framework.

3. The survey confirmed that in most APEC economies there is already vast scope for electronic commerce to be conducted within the framework of current laws and regulations. There are many business functions that can and are being more efficiently and effectively accomplished by deployment of electronic communications and digital information processing technology, including marketing, sales, production, distribution, customer support, personnel, shareholder relations and training. Most legal systems recognize the validity of contracts created by electronic communications for a wide range of subject matter, and allow electronic records to be presented as evidence in court. Chile is a notable exception in this regard. China has special rules and approval requirements for contracts with foreigners.

4. From a legal perspective, the Internet is simply another mode of communication. It is distinctive in its ability to facilitate low cost global access, giving rise to the jurisdictional, cross-border and consumer protection issues discussed later in this paper. But in general, laws, which constrain business communications in the physical world also, constrain communications via the Internet. No more and no less.

5. The law has adapted to many changes in communications technology over the last century. The contractual, jurisdictional, consumer protection and tax issues raised by e-com on the Internet are similar to those raised decades ago in the context of electronic data interchange (EDI) systems, electronic fund transfers and electronic trading on private data networks. Media content issues have been addressed in the context of cross-border terrestrial and satellite broadcasting. So far it has been possible to fashion the practical solutions required by electronic commerce with minimal legislative intervention. Change is required, but it should be evolutionary (modernizing terminology,

[1] The E-com Legal Guide is available at https://www.bakerinfo.com/apec (id=apec; password= tel000. Note the protocol is https, not http).

updating definitions, responding to the most troublesome cross-border issues), not a complete overhaul of the world's legal systems.

6. Even if all the legal and regulatory concerns raised by the Internet could be resolved immediately, the rate at which businesses embrace e-com would probably not accelerate to any significant degree. The binding constraints are mostly non-legal. They include the cost of establishing a complex e-com business, the risks of system failure, the sometimes-dubious value of the commercial benefits to be derived, and behavioural factors of trust and convenience. The customer base of households with a credit card and Internet access is still relatively small. Those that do have access are not finding it particularly convenient to power up a computer and connect to an ISP and a web site for tasks that could be accomplished by a phone call or a quick visit to a local bank or shop. Legal and regulatory solutions can provide *part* of the answer on some of the trust issues, but they are not mission-critical.

Access, cost of use and infrastructure

7. In most APEC economies there is already vast scope for electronic commerce to be conducted within the framework of current laws and regulations. Access and use are functions of

- network capacity at local, country and international levels;
- cost of network access and use;
- availability and cost of access devices (telephones, personal computers); and
- availability of technical skills to facilitate access.

8. Network capacity requires investment. Investment and pricing is most likely to be optimised under free market competition. Accordingly, legal and regulatory structures, which preserve state monopolies and inhibit competition, are issues to be overcome.[2] There are enormous variations among the APEC economies in relation to these factors.

9. The World Trade Organization[3] provides a forum for dealing with market access. Article II of the General Agreement on Trade in Services requires most favoured nation (MFN) treatment for the

2 There is one important caveat here. Competition of itself may not ensure access for remote or low income users. It may be necessary to supplement market forces by imposing universal service obligations, funded by taxpayers generally or by some class or classes of network infrastructure users.

3 http://www.wto.org.

services and service suppliers of WTO member counties. Over the past two years, liberalisation of telecommunications services pursuant to Article II has taken a tortuous path involving formal offers on Commitments and Exemptions, and frequent rounds of bilateral negotiations sponsored by the WTO Negotiating Group on Basic Telecommunications.

10. Any economy seeking to realize the full advantage of electronic commerce must provide a liberal network access regime and a low cost environment. Low access and use costs have been a fundamental driving force in the explosive growth of the Internet. The commitments given under the Basic Telecommunications Agreement are steps in the right direction, but in most instances they stop short of providing the competitive conditions necessary to bring access charges down to levels comparable with those in the leading e-com economies.

11. According to an OECD survey[4], average prices for Internet access plummeted from over $60 to less than $20 a month between 1995 and 1996. However, local telephone charges, which dial-up users pay to access the Internet, have been rising and account for more than 60% of the average total cost. Access in the most expensive country in the OECD table (Mexico) is five times the cost of access in the least expensive country (Canada). Economies that have the potentially the most to gain from adopting e-com tend to have the most prohibitive network access and pricing regimes.

12. The Agreement on Information Technology goes some distance towards creating a low tariff environment for access *devices*, including software.

13. Access is also a function of affluence. For many, electronic commerce ranks quite low in the heirarchy of needs. Liberalization of regulatory constraints will stimulate general economic progress, but unfortunately the road to personal participation in the digital economy is much longer for some than for others.

Transport infrastructure and customs barriers

14. Sale of physical goods by means of e-com also requires an efficient *physical transportation infrastructure*. The ability to transact with global customers is meaningless if there is no cost-effective way of shipping the goods. Cross-border shipments also require efficient import-export procedures and low tariffs. The greater the transportation efficiency, the greater the ability of an e-com business to compete in world markets.

15. A special consideration arises in relation to low value single item courier and parcel post shipments to international customers. The cost

4 OECD *Communications Outlook 1997* http://www.oecd.org/dsti/sti/index.htm.

of complying with import-export procedures can sometimes exceed the value of duty payable. The appropriate forum for resolving this obstacle is the World Customs Organization.[5] The International Convention on the Simplification and Harmonisation of Customs Procedures (the Kyoto Convention)[6] is due for revision.

The legal framework for electronic transactions

16. Contract theory requires an *agreement* between people, acting either in their own capacity or as agents for companies and other contracting entities. It requires a meeting of minds, an element of contractual intent.

17. The rules for determining when an agreement should be legally binding in the context of personal, paper and mail communications also work for telegraph, cable, telephone, telex and facsimile, because it is relatively easy to establish exactly who causes such communications to be transmitted, and their content. However, *computer* communications pose more of a challenge. Various operators can use computers. They can be operated remotely, or programmed to communicate automatically, and data stored on computers can be altered. When an agreement is established by communications between computers, it can be difficult to prove which individuals were operating the computers at the relevant time, and the exact content of their agreement. If my computer places an order with your computer while we are both asleep, and your computer confirms acceptance, do we have an enforceable contract, and if so when was it formed, what are the terms, and how can you prove it in court? And if we (or our computers) are in different countries with different legal rules for implying terms in contracts for the sale and purchase of goods, which law will prevail?

18. Legislation relating to contracts and other legal instruments has been developed in a paper world, and either assumes or positively requires written, signed or original documents. These concepts are difficult to apply in a digital world. In a digital environment, what is writing? What is a signature? What is an original? What is a document?

19. In most countries, requirements of writing, signature, original document retention and documentary evidence apply in only a narrow segment of the commercial spectrum. There is a surprisingly large range of commercial activity that can operate in full legal compliance in an entirely paperless environment. This has enabled electronic commerce to develop ahead of systematic law reform.

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5 http://www.wcoomd.org.

6 http://www.wcoomd.org/ky-01-e0.htm.

20. It is possible to solve most of the *contractual* difficulties associated with electronic communications by establishing a framework agreement, setting out the circumstances under which the communicating parties will become legally bound, and their agreement as to what will be acceptable evidentiary proof. In an EDI/CALS context, this framework agreement is typically called a Trading Partner Agreement. Persons who want to enter into online contracts must first become party to the trading partner agreement.

21. Substantial business-to-business e-com relationships have been operating for many years. Many date back long before the development of the World Wide Web. They typically operate over leased lines, private networks or secure dial-up connections, using UN/EDIFACT EDI protocols and standards. Even today, the aggregate dollar value of such transactions is probably much higher than the value of electronic commerce conducted over the Internet, because companies such as Boeing, General Motors, Ford and General Electric deploy private network EDI on a very large scale in their dealings with major customers and suppliers. Such arrangements have not been greatly inhibited by legal and regulatory issues.

22. It is technically possible to run EDIFACT protocols over the Internet. While this may be a solution for smaller business relationships, at least some large companies are concerned as to the speed, capacity and reliability of Internet communications for critical business-to-business transactions, and are maintaining their private networks. It is more difficult to set up and administer the functional equivalent of an EDI trading partner agreement to for business-to-consumer e-com on the Internet.

23. In recent years the more legally advanced states and countries have provided a *legislative* solution to the problems associated with electronic contract formation and proof. Others have plans and proposals for introducing such legislation. The approach is generally one of finding expressions that are functionally equivalent but technology-neutral. For example, if a signature serves as an indication of identity, adoption, acceptance and authenticity, it is possible to rewrite the law so that it recognises anything, which serves these functions as being a “signature”. Similarly, if the function served by a legal requirement to create or retain an original (paper) document is to ensure access, integrity and reproducability, these functions can be specified in technology-neutral language. Prudence requires that the full effects of such changes be considered. This usually means a full review of all statutes, regulations, forms and legal procedures where the new definition or term will apply, and a carving out of exceptions where appropriate. Even though it may not involve any significant change in the underlying legal principles, this can be slow work.

24. In 1996 the United Nations Commission on International Trade Law (UNCITRAL) prepared a Model Law on Electronic Commerce.[7] Part one covers *electronic commerce in general*. Chapter 1 deals with its scope, definitions, interpretation and variation. Chapter II deals with *the application of legal requirements to data messages*, and in particular legal recognition, writing, signature, references to original documents, the admissibility and evidential weight of data messages, and retention of data messages. Chapter III deals with legal aspects of the *communication of data messages*: formation and validity of contracts, recognition by parties of data messages, attribution of data messages, acknowledgment of receipt, and the time and place of dispatch and receipt. Part Two deals with contracts and messages in connection with the carriage of goods.

25. The Model Law is based on extensive legal scholarship. Commentary and explanatory information to assist legislators and executive branches of governments accompany it. It contemplates modifications and exceptions to accommodate national circumstances. The provisions dealing with carriage of goods in Part two are merely intended as the first of several specific provisions. Detailed work will be required within each APEC economy to draft national laws.

26. In parallel with the legislative developments, a number of companies and groups are working on *technical* solutions. Some are offering a solution based on high level encryption and the concept of a creating a digital signature by matching a public and private key. Other companies are developing electronic signatures based on digitization of fingerprints and other unique physiological identifiers (biometrics).

27. The asymmetric public key encryption approach appears at this stage to be more generally favored. It requires a trusted certification authority to validate ownership of the public key. A lot of work is being done to establish such authorities and to promote the establishment of an international Public Key Infrastructure (PKI). UNCITRAL has formulated Draft Uniform Rules on Electronic Signatures.[8] It endeavors to remain technology-neutral, while recognizing that the public key approach appears to be establishing a clear lead.

28. The Model Law and the approach being taken under the Uniform Commercial Code[9] in the United States also avoid locking into any one particular signature technology. Others approach, including that in the Malaysian Digital Signature Act 1997 are specific to public key cryptography. The Malaysian Act establishes a Controller of Certification Authorities, and states that no person shall operate as a

7 http://www.un.or.at/uncitral.

8 http://www.law.upenn.edu/library/ulc/ulc.htm

9 http://www.law.uh.edu/ucc2b.

certification authority unless that person holds a valid license issued by the Controller.

29. In the United States, all 50 states have enacted or proposed legislation to facilitate digital signatures and electronic transactions[10]. There is great disparity among them. The National Conference of Commissioners on State Law has been working for several years on a draft Article 2B to be added to the Uniform Commercial Code[11], providing a general legal framework for electronic commerce. The NCCSL has also drafted a Uniform Electronic Transactions Act.[12]

30. Among APEC economies outside the United States, most have e-com legal issues under active consideration. Malaysia, Singapore, Korea and Guangdong Province in China have enacted or pending legislation in relation to some of the issues addressed in the UNCITRAL Model Law.

31. Enactment of uniform Model Law provisions is highly desirable in the interests of greater legal certainty, and should be strongly supported by the APEC Task Force. At present there is little evidence that economies *with* e-com laws are more attractive to business and investment than those without. However, once such laws are fully operational and business practices coalesce around them, economies which do not provide a consistent "international standard" legal framework are likely to be perceived as relatively backward by comparison.

Jurisdictional and cross-border issues

32. A business located and doing business solely within a particular state or country will not normally need to ask whether local or foreign laws apply or whether local or foreign courts and enforcement authorities have jurisdiction over its activities. In such a situation, local law clearly *will* apply, and foreign law will not.

33. The position becomes more complicated when business communications cross state and national borders, especially when the business has no physical presence or operations in the foreign state or country. There are four key issues:

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10 California at http://www.ss.ca.gov/digsig/code165.htm.

Extensive information on the Utah Digital Signature Program at http://www.commerce.state.ut.us/web/commerce/digsig/dsmain.htm.

11 http://www.law.upenn.edu/library/ulc/ulc.htm

12 http://www.law.upenn.edu/library/ulc/ulc.htm

- *Does foreign law apply?*

Most law is intended to apply only within the territory of the state or country in which it is enacted. However, legislation is often written in universal, borderless terms, and some statutes are specifically intended to have an extraterritorial or long arm effect. Each country has its own rules for determining whether local or foreign law will be applied. There are different rules for tax, criminal penalties, contracts and torts. They follow a general pattern from country to country, but differ in detail.

- *Do the foreign courts have jurisdiction?*

A court's jurisdiction is normally limited to parties who are physically present within it, or who have done some act within it. Courts have procedures for service of documents outside their jurisdiction, and will in some circumstances hear claims against foreign defendants. International treaties also facilitate the service of court documents across national borders. Courts in various countries have considered jurisdiction over Internet communications.

- *Will the foreign law be enforced in the foreign place?*

If a foreign court imposes a penalty or makes an order against a defendant who has no presence within the jurisdiction, enforcement will be an issue. Many prosecutors and courts take this into account in deciding whether or not to prosecute or take jurisdiction over a claim against a foreign defendant. If there is no practical way of enforcing a judgement, either the prosecutor or the court may decide not to waste their time and resources.

- *Will any court order obtained in the foreign place be enforced in your home state or country*?

International treaties provide for reciprocal recognition and enforcement of foreign judgements. However, there may grounds for challenging an attempt to enforce an adverse foreign judgement through a local court.

34. The legal rules relating to territorial, jurisdictional and international enforcement issues are extremely complex. As we have already noted, in terms of legal theory they are no more difficult for electronic commerce than they are for cross-border dealings in the physical world. There may be a *practical* difference in an e-com environment, and particularly on the Internet, because it is sometimes more difficult to determine exactly where actions and transactions are taking place and who is responsible. The simple factual question of “who did what where?” can sometimes be difficult to answer in virtual reality.

35. The Internet is inherently international, and as the volume of cross-border business increases there is likely to be a corresponding increase in the need to resolve cross-border disputes and issues relating to the application and enforcement of national laws.

36. An e-com business must assess international legal exposure in terms of *rights* and *obligations*. Does it have any rights that it may need to assert in foreign courts? Are there likely to be any foreign legal obligations imposed on its business? How can it eliminate or minimise the risks?

37. Most companies engaged in international business will be concerned with *rights* to recover money from foreign customers, and to enforce contract terms against foreign trading partners. International litigation is expensive, and in some countries local defendants have a considerable hometown advantage. There are various practical ways of reducing risk exposure - including use of credit card payment mechanisms, letters of credit and bank guarantees. It is also important to consider the need to enforce of trademark and other intellectual property rights in foreign courts.

38. In practice, it is usually quite easy to tell whether a business has a sufficient presence within a foreign jurisdiction to make it feasible for enforcement and other court proceedings to be effective against it in that jurisdiction. If the issue or the amount in dispute is sufficiently large to warrant enforcement, available enforcement mechanisms are likely to be invoked. Many corporate groups already have a physical presence in the major countries where they do business, and their e-com activities will be solidly within the jurisdiction of local courts and enforcement authorities. Others wish to be good global citizens, and will endeavour to comply with applicable local requirements wherever possible even where the risk of adverse local enforcement of rights and remedies is remote.

39. From a *consumer's* perspective, the cost and inconvenience of using court proceedings to bring a small claim against a distant e-com vendor is quite daunting. Most consumers in such situations are left with no cost-effective remedy. One suggestion[13] is to look to the financial intermediary that facilitated payment (e.g. the credit card company) to arbitrate the dispute, and if appropriate to "charge back" the transaction to the merchant's account in the event of mistake, non-delivery, delivery of the wrong item etc. Intermediaries are not keen and not qualified or equipped to take on the role of judge and jury, but they have much to gain from building public trust and confidence in e-com.

40. From the perspective of *government* and *law enforcement agencies*, the key issues are whether activity on the Internet contravenes the

13 This suggestion was made in the OECD paper on *Dismantling the Barriers to Global Electronic Commerce* at http://www.oecd.org/dsti/sti/it/ec/prod/dismantl.htm.

provisions of domestic law, and if so what can be done to effectively enforce such laws. These issues are gradually being resolved and clarified through enforcement actions and court proceedings. Here again, the need for fundamental legal reform should not be overstated. There are difficulties with applying local law to cross-border activity in the physical world. They are driven by differences in legal culture, and by considerations of state and national sovereignty. They are not necessarily an indication that the law itself is defective.

41. The Internet makes the issues more acute because it multiplies the amount of cross-border communication and activity and involves households and consumers. However, they are not at a level, which requires radical change to the framework of international law. There is already considerable scope for effective application of domestic laws to online communications and activities. The best and only practical policy is to allow any necessary development effective legal remedies to evolve over time. APEC should encourage all member economies to become party to the major international treaties on reciprocal service of process and enforcement of judgements and arbitration awards.

Trust, confidence, security and privacy

42. Many people believe that concern about security and personal data privacy is inhibiting use of the Internet for electronic commerce.

Security and encryption

43. Concerns about security could be largely alleviated by use of high-level encryption technology. However, in the United States and many other economies it is proving difficult to reconcile a policy of wanting to provide a secure environment for electronic messages with a desire to facilitate surveillance by national security and law enforcement agencies.

44. The Council of the OECD has recently adopted Guidelines for a Cryptography Policy (March 1997)[14], setting out criteria for encryption of computerised information for governments to adopt and for businesses, individuals and law enforcement officials to apply in safeguarding electronic transactions, communications and data storage.

45. Encryption technology provides a foundation for digital signatures and secure electronic payment mechanisms, as well as for encryption of data, text and voice messages.

Privacy

14 http://www.oecd.org/dsti/sti/it/secur/index.htm.

46. Concerns about privacy may require a legislative rather than a technical solution. The European Union's 1995 Directive on Data Protection prescribes comprehensive legislation, which must be implemented by EU members by October this year. However, within APEC, only Hong Kong and New Zealand have followed the full EU approach. Other economies, including the United States, Australia, Canada and Taiwan, provide much more specific and limited protection. Most APEC economies provide relatively little privacy protection for personal data.

47. The less comprehensive approach usually involves placing limitations on government use of personal data, and specific protection in areas where privacy concerns are particularly acute (particularly in relation to consumer credit). The United States also advocates adoption of private sector codes of conduct.

48. Two factors are likely to influence the direction of privacy law in the immediate years ahead. One is the provision in the EU Directive prohibiting transfer of personal data to countries that do not provide adequate protection. The other is the growing concern of consumers within the United States and elsewhere that their Internet use and spending patterns are being systematically monitored, collected and used for marketing and other purposes.

49. Countries which disagree with the comprehensive and far-reaching approach of the EU Directive are mindful of the need for a free flow of information in the information economy, the cost of compliance with mandatory regimes, and the flexibility of self-regulation to adapt to changing market conditions and technology.

Building trust and confidence

50. Trust and confidence in electronic commerce will be generally enhanced by the adoption of the Model Law, liberalization of legal restraints on encryption technology, and by privacy protection. Many of the concerns that have been expressed on these issues may simply diminish over time, as people become more comfortable and familiar with Internet communications. Other forms of communication are also insecure. Internet users will gradually come to see it in proper perspective, and learn where additional caution and security measures are appropriate. Education can accelerate this process. Governments can help build the necessary familiarity and confidence by promoting use of the Internet as a mode of interface with citizens. There appears to be an ever-increasing willingness to use credit cards over the Internet as people conclude that convenience outweighs security concerns. The demand for secure electronic payment technologies appears to be coming more from financial intermediaries seeking to protect themselves against fraud, and less from consumers or online merchants as they become more comfortable with use of credit cards.

Taxing e-com

51. Income tax is based on concepts of source, residency and permanent establishment. Value added taxes distinguish between domestic and export sales, and refer to the place of supply. Stamp duties depend on paper instruments. These and other tax concepts can be difficult to apply in a virtual world.

52. Tax is not presently a great obstacle in the path of electronic commerce. It is necessary to ensure that it does not become one as the volume of e-com business continues to expand. Tax offices in various APEC countries have clearly signalled the issues and their concern to protect their revenue base.[15] In the months and years ahead, it will be necessary to resolve these issues. The key concept is neutrality. Electronic commerce should not be permitted to provide avenues for avoiding taxes that would apply to equivalent business transactions or profits in the physical world. But nor should it an excuse for governments to impose new taxes. APEC has an important role to play in brokering a consistency of approach within the region, and ensuring that measures introduced to safeguard tax revenue do not unduly hinder electronic commerce.

Other legal and regulatory issues

53. Legal and regulatory issues have been identified and discussed in several recent policy papers and studies commissioned by governments and international organizations[16]. In addition to those addressed above, other issues include

- Lack of consumer confidence because of uncertainty as to the effectiveness of consumer protection laws.
- Uncertainty on the part of companies as to the operation of consumer protection laws in relation to cross-border electronic commerce. (For example, laws which regulate “distance settling”).
- Exchange controls, which require specific prior approval for international contracts and payments. They do not sit easily with

15 See in particular the US Treasury paper on *Selected Tax Policy Implications of global Electronic Commerce* (November 1996) at http://www.ustreas.gov/treasury/tax/internet.html.

16 See in particular the OECD paper on *Dismantling the Barriers to Global Electronic Commerce* at http://www.oecd.org/dsti/sti/it/ec/prod/dismantl.htm; the Clinton/Gore Framework for Global Economic Commerce at http://www.whitehouse.gov/WH/New/Commerce/index.html; and the Sacher Report on *ELECTRONIC COMMERCE Opportunities and Challenges for Government* at http://www.oecd.org/dsti/sti/it/ec; *Moving Canada into the 21st Century* http://xinfo.ic.gc.ca/info-highway/society/toc_e.html.

international electronic payment mechanisms (e.g. use of credit cards online, or by phone, fax, or e-mail).

- The operation of escheat laws in relation to debit cards, stored value cards and electronic money devices. (Escheat laws deal with "unclaimed money", and generally require that it be paid to a government agency after a certain period).

- Who can issue stored value cards and other electronic cash devices? (In Hong Kong, locally licensed banks can only issue multi purpose stored value cards).

- Liability of service providers, e-mall operators and other intermediaries for the content and conduct of e-com sites.

- Laws restricting particular industry sector (e.g. paper certificate requirements in share trading, limitations on electronic securities offerings, prohibitions on cross-border lotteries and telemedicine).

- Inadequate protection for intellectual property. This is particularly relevant to copyright-based businesses, which supply software, music, film, video and literary works. The 1996 WIPO Copyright Treaty seeks to upgrade copyright protection to meet the requirements of the digital economy. It clarifies and extends the application of copyright to computer programs and compilations, and provides rights of rental, distribution and communication to the public. As of March 1998, only 5 of the 18 APEC economies (Canada, Chile, Indonesia, Mexico and the USA) had signed or ratified this treaty. However, if should be noted that some economies that have yet to join in the treaty already provide all or most of the protection prescribed.

54. This is not an exhaustive list of issues – there are probably hundreds more that are of concern to particular businesses.

Conclusions and recommendations for the Task Force

55. In most APEC economies there is already vast scope for electronic commerce to be conducted within the framework of current laws and regulations. It is important to highlight this point, to ensure that SMEs and consumers are not unnecessarily deterred by a disproportional focus on the many legal and regulatory issues. Apart from the access issue, the "fixes" required to better facilitate electronic commerce are more in the nature of good housekeeping and removal of uncertainty in the law. They will not in themselves significantly expand the online economy.

56. Access and cost of access is by far the most important e-com regulatory issue in the region.

57. The legal and regulatory issues are quite different as between business-to-business, business-to-consumer (and small SMEs),

government-to-business and government-to-consumer e-com. It will greatly assist the policy-making process to channel analysis in these four streams. They should certainly be considered together, but separating the streams would create much greater clarity and precision. At a business-to-business level, the need for international uniformity is greater, and national and cultural differences tend to be relatively less important.

58. Enactment of uniform Model Law provisions is highly desirable in the interests of greater legal certainty, and should be strongly supported by the APEC Task Force.

59. APEC should have a “watching brief” on development of a common approach to authentication. If the PKI digital signature approach wins wide market acceptance in the United States and Europe, it will make sense to extend it within other APEC economies.

60. On cross-border issues, the best and only practical policy is to allow more effective legal remedies and enforcement mechanisms to evolve over time. Meanwhile, APEC should encourage those member economies that have not already done so to permit digital records to be admitted as evidence in court proceedings (this principle is included in the Model Law), and to become party to the major international treaties on reciprocal service of process and enforcement of judgements and arbitration awards.

61. Trust and confidence in electronic commerce will be generally enhanced by the adoption of the Model Law, liberalization of legal restraints on encryption technology, and by privacy protection. Many of the concerns that have been expressed on these issues may simply diminish over time, as people become more comfortable and familiar with Internet communications.

62. Perhaps the greatest single contribution APEC could make to the advancement of legal and regulatory solutions is to provide clear timely information – particularly in implementation of WTO commitments, and in relation to regulations and policies which affect network access and costs.

CHAPTER 5

Government And Business Sector Relationships

5.1 Overview (Co-Chairs)

1. Elements of all previous Topics combine in Topic 5. From the papers provided by New Zealand and Australia, it is evident that governments' and businesses' roles in the evolution of electronic commerce mirror those roles played out during the last 40 years in commerce generally, but that the electronic age is also changing their respective roles in particular areas. Each is contributing to the evolution of soft norms and new conventions, as well as creating assurance systems to provide security and integrity for online transactions. The two key activities for governments and business are creating a sense of trust and confidence in electronic commerce, and working cooperatively across borders to resolve disputes.

2. Parallel evolutionary paths being forged by governments and business are not, and cannot become, entirely separate. A strong correlation exists between the ability of government to establish enabling regulatory frameworks and conduct government business online, with the ability of businesses to provide assurance to their customers and resolve disputes. These parallel paths are in several ways already proving to be symbiotic. They need to remain mutually reinforcing, for the promise of truly global and widely accessible electronic commerce to be realised in developed and developing countries alike.

3. The symbiosis between government and business roles is perhaps most apparent in attempts to create trust and confidence in electronic commerce. As governments establish online processes, they can create a climate of consumer confidence in online transactions. The fact that governments are seen to be confident in relying on electronic systems provides an important demonstration effect to citizens/consumers -- although, of course, electronic means will never entirely replace paper and face-to-face relationships between a government and its citizens. Governments' ability to establish online services has largely depended on industry-led development of technology and systems. And governments' use of electronic means assists in integrating citizens/consumers into the broader commercial arena of electronic commerce.

4. The symbiosis between government and business roles is also apparent in the emergence of new norms for the resolution of conflict between individuals transacting internationally. The New Zealand paper points to current experience, which indicates that industry self regulation combined with entrepreneurial ingenuity and technology are fostering the ongoing development of the Internet. In many ways, the development of the Internet has been anarchic, but it has remained viable because of the efforts of those businesses which understand that to foster long-term customer relations, and business-to-business relations, they must provide the highest possible level of assurance and security to their clients, and attempt to resolve differences quickly.

5. As electronic commerce moves towards a new level of mass-consumer transactions and provision of a wide range of services online, however, business is looking to government to provide an environment, which enhances their operations. Businesses' ability to protect their reputations and intellectual assets, for example, is greatly enhanced through international governance of copyright and trademark protection, with appropriate compliance mechanisms and penalty provisions. Exporting/importing businesses similarly have an interest in working with their governments to ensure that a new generation of non-tariff barriers -- which may be created inadvertently through, for example, inappropriate or unworkable domestic regulation -- does not evolve. Businesses, particularly smaller players less capable of shouldering costly international litigation, have a direct interest in influencing the emergence of new rules and practices for resolving disputes. Existing practices enshrined under WTO and WIPO rules, for example, may not be capable of dealing with the non-territorial nature of online transactions. These bodies, as outlined under Topic 3, are exploring other modes of dispute resolution, including through multilateral mediation centres and workshops involving business and industry.

6. International cooperation between governments is vital but often time consuming. In the interim, businesses themselves must promote clear online consumer protection policies. As the New Zealand paper points out, effective self-regulation is likely to become a competitive asset for businesses, as in an electronic commerce environment, reputation is paramount.

7. In summary, the role of governments includes

- establishing the right balance of regulation with the flexibility required to contend with the realities of new technology and new forms of commercial relationships

- creating higher level rules and norms within international fora, without erecting a new generation of non-tariff barriers

- continuing responsibility to ensure infrastructure development, broad access, and provision of essential services

- creating an environment which includes a competitive and fair market, unfettered by inappropriate regulation and associated compliance costs (in this regard, the New Zealand and Australian papers include scenarios of possible government regulatory responses to different commercial and operational situations)

- taking into consideration the regulatory approaches of other economies and emerging norms, so as to help avoid the emergence of a "patch work" of incompatible regulatory regimes; the costs of fragmentation will become more apparent as electronic commerce grows; global consistency will become increasingly important.

8. Technological developments mean that industry and business will have a greater role in resolving obstacles and remedying market failure. The role of business includes

- assisting governments, where possible, by advising on technical and commercial realities which will affect the way international rules and norms evolve
- developing their own operational policies that can provide assurance to consumers
- taking an active role in industry groups and forums to reinforce ethics in business practice, and to ensure that self-regulation becomes an effective adjunct to government regulation
- intermediaries such as banks and credit cards companies can contribute to the development of a secure environment by acting as guarantors in electronic commerce (as they currently do for other modes of transaction), and may also serve as a first point of reference for arbitrating cross-border disputes
- researching the legal environments in markets they are attempting to enter, whether physically or electronically; as networks become global, businesses will enjoy the privileges but also assume the responsibilities entailed in "going global".

Issues for APEC

- How can APEC economies contribute to the emergence of higher level rules and norms?
- APEC economies can exchange information on the evolution of domestic regulatory regimes, and thus contribute to global efforts to gain consistency of approaches.
- APEC can provide an forum for exchanging information on technical developments and business strategies for electronic commerce, particularly as APEC includes both developed and developing economies.
- APEC economies can benefit from analysing the range of domestic approaches to establishing government-business forums, technical assistance programs and awareness raising.
- The richness of experiences among APEC economies, and the ready-made forum APEC provides, could mean that APEC is well placed to develop a "best practice" list on the enabling of electronic commerce in both government and business sectors.

5.2 Summaries of Discussion from Kuching and Kuala Lumpur Roundtables (Co-Chairs)

Kuching

- The Roundtable noted that this is a difficult issue because the role of government which may be desired, or already in place, is different in various economies within APEC
    - it is, however, important to ensure that government activity facilitates and does not impede commercial activity, that stakeholder interests are factored in, and approaches are not overly prescriptive.
- Both the government and business sectors have roles in all areas under discussion including infrastructure, trust and confidence, promotion and facilitation, and regulatory frameworks
    - governments can have a particularly positive role in ensuring access, in ensuring electronic commerce plays a positive role in positioning economies for future growth and development, in providing education and information, and as an arbiter between various business interests.
- Both government and business should play a leadership and demonstration role for SMEs, via their roles in supply chains
    - and in some cases, SMEs may lead by demonstrating innovative or low-cost approaches to electronic commerce.
- Funding of electronic commerce may be a different mix of government and private sector in different economies.
- The meeting noted that there are particular concerns for government roles in avoiding emergence of “information have-nots” in less commercially sustainable parts of economies, like rural and remote area communities
    - providing universal access and reducing gaps between “information haves and have-nots” is in everyone’s interests.
- Although recognising industry's leading role, governments actually may have a role in legitimising industry positions and roles
    - as gaps develop, we may need to adjust levels of involvement in various aspects of electronic commerce to address problems that emerge.

- Government and business will interact with each other on-line, and have a direct relationship, which will have implications for government and business using those relationships to lead, promote and demonstrate to each other.

Kuala Lumpur

- The Task Force welcomed ABAC's presentation on their electronic commerce work and noted a very high degree of consistency between ABAC and APEC Task Force recommendations

    - particularly with regard to the business sector's leading role, the need to protect consumer rights, and the importance of education and awareness raising.

- The Task Force agreed that APEC needs to examine financial aspects of e-commerce in the future payments, credit issuing and clearing mechanisms and involve financial institutions in those discussions.

- The Task Force welcomed a presentation from New Zealand High Court Justice Baragwanath on legal issues relating to e-commerce

    - noting the need for legal facilitation rather than legal obstruction and delay

    - noting the TEL-WG study of e-commerce legal impediments

    - agreeing that any discussion of legal impediments needs to reflect the diversity of legal systems in the region.

- Noting the importance of discussing and coordinating, rather than prescribing, the Task Force recommended efforts to convene a joint workshop in 1999 on legal issues involving business representatives, APEC and UNCITRAL

    - to ensure coordination and avoid duplication in discussing legal aspects of e-commerce

    - discuss legal impediments and advise APEC Ministers on how legal frameworks can facilitate the operation of e-commerce.

- The Task Force noted the important role industry can play in setting their own codes to guide the practice of e-commerce

    - and supported industry bodies working together to develop and achieve consistency in self-regulatory codes.

5.3 Joint Business/Government Outreach (Chinese Taipei)

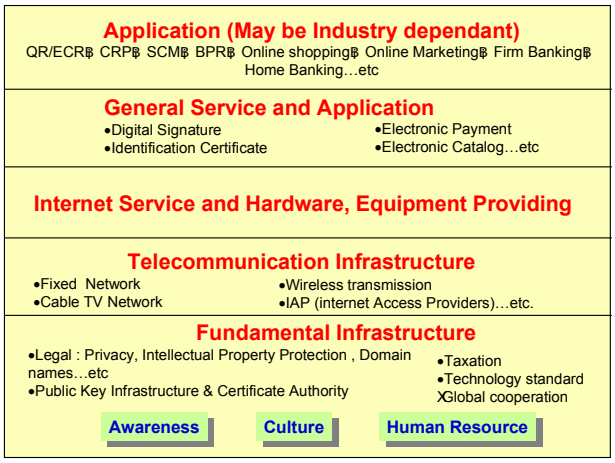
Foreword

1. Collaboration is always the driving force behind the development of Internet. We all know that Internet would not have been possible if it had been isolated alone. We also note that no single enterprise can gain the most benefits of EC without collaborate with its trading partners. Moreover, no economy can successfully promote EC alone. Therefore, the key factor is really to open and collaborate.

An overview of the framework and obstacles of EC promotion

2. The framework of Electronic Commerce is an Internet ecological chain. It is composed of fundamental infrastructure, telecommunication structure, hardware, software and ISP, general service and application.

The Framework of
Electronic Commerce Promotion



3. From the application point of view, a mature marketplace for Electronic Commerce should consider the activity of both demand side and supply side. In addition, Electronic Commerce should be based on general public awareness to form a so-called reinforcement cycle. The reinforcement cycle is an iteration process between supply and demand. Moreover, clear game rules for global EC development such as legal issues, PKI & CA, taxation, telecommunication deregulation, technical standard and security are all essential for building an ideal mature market place for EC.

4. The obstacles of demand side are the following:

- Do not know the benefits of Internet
- Know Internet, but has no idea of how to use Internet
- Hesitate to invest
- Worry about security issues
- Use only part or primitive of Internet applications
- Used within respective enterprise, but not the whole industries
- Has no confidence to use
- Has no confidence to share information with its upstream and downstream enterprise

5. The obstacles of supply side are the following:

- Mass Market doesn't come
- Costs are still high, especially the initial marketing and training cost
- Difficult to establish effective business strategy among diversified investment possibilities
- Must deal with legacy system in hand or in customer's hand
- Hard to find disciplined human resource
- Large scale Business to Business customer services still in the air
- "Who should I follow? " question raises when choosing a platform or a standard

Public-private partnership in Chinese Taipei

6. In order to develop EC environment and implement EC application, Chinese Taipei has launched the NII programs, including MORE (Million Online Residences & Enterprises) project, III (Industry Integrate on Internet) Project, as well as other projects. The following sections will briefly introduce the NII programs, strategies, objectives and contents.

<u>NII program</u>

7. The National Information Infrastructure Steering Committee was formed in August 1994. The Convenor is Minister S. C. Yang. There are six working groups in the NII organization. They are network construction WG. (In charge of Ministry of Communication) and application technology and promotion WG.(In charge of MOEA) and

other four WGs. The organization had set strategies and several objectives. These objectives are trying to create growth environment for developing Chinese Taipei into one of the most informational economy. The NII project also sets up application for EC, standardization for EC environment, and a high-speed broadband network for telecommunication infrastructure.

8. There are two major EC related projects in NII program. These two EC projects are MORE project and Electronic Commerce project. The objective of these projects is to

- Reduce operating cost
- Improve service quality
- Raise competitiveness

9. The tasks of the Electronic Commerce Project are to:

- Develop Electronic Commercial Document Standards, including Bar Code and Document Exchange Standards
- Stimulate the Development of Electronic Commerce, Initially through EDI Implementation
- Complete the Integration of Upstream and downstream Operations, including wholesalers, Retailers, Transportation and Financial Institutes.

10. From 1997, MORE project and III (Industry Integrate on Internet) project, which is also called “Internet Commerce Promotion Project” began.

<u>MORE Project</u>

11. The purpose of this project is to raise level of IT utilization and industrial development to develop Chinese Taipei as Internet application center in the APEC region and to support NII promotion. Our goal is to achieve at least one million users, 700,000 residents and 300,000 enterprises, in year 2000 for supporting three million users within three year of the goal of NII program.

12. The strategy of MORE is to provide and promote Chinese content to users. It has been introducing killer applications on Internet for different interest groups of general public. Through following approaches, MORE aims to reach the goal of one million users.

- Through members of non-profit and central-satellite hierarchy system to promote business on Internet users

- Promote Internet usage starting from existing 2.5 million PC users and 700,000 annual new PC install.

- Compliance with students on net program to promote families use Internet

Partnership of MORE Project

13. The project is an excellent example of alliance which integrates public and private sectors. The members of partnerships include government agency (MOEA), non-profit organization (Institute for Information Industry & some industry associations), private sectors (ISP, PC retailers and Computer Education Institute).

Internet Commerce Promotion Project (III Project)

14. The vision of this project is integrating industry activities and creating business opportunity. Our goal is to help 40 industries and 50.000 enterprises through Internet to do the following:

    - Apply information and network technologies to: improve efficiency:

        - Business inside (Intranet)

        - Business-to-Business (Extranet)

        - Business-to-Consumer (Internet)

    - Integrates the upstream and downstream partners of industries to make it running as a virtual company

15. Concerning the B - C Model, the project has the mission for constructing an obstacle free electronic business environment between supplier and consumer. The major work items of this model are related with promotion and awareness, service, regulation, standard, and technology. Especially in service field, the ECC (Electronic Commerce Consortium) has formed in February 14, 1997 for providing a self-regulated EC environment. There are 697 members on the first anniversary. The missions of this Consortium are trying to assist enterprises to utilize new channel (i.e., Internet), joint promotion internal marketing of EC, and being a standard discussion group for EC.

16. With regard to B-B model, the scope includes whole industry from maker, distributor to retailer and consumer through Intranet, extranet and internet. The work items of Internet Commerce Promotion Project are :

    - To establish a well environment

- To identify problems of industry and find killer application for that specific industry. The applications may include communication, content, E-form, database, group-ware…etc, depend on which application can be best foe facilitating EC in that industry.

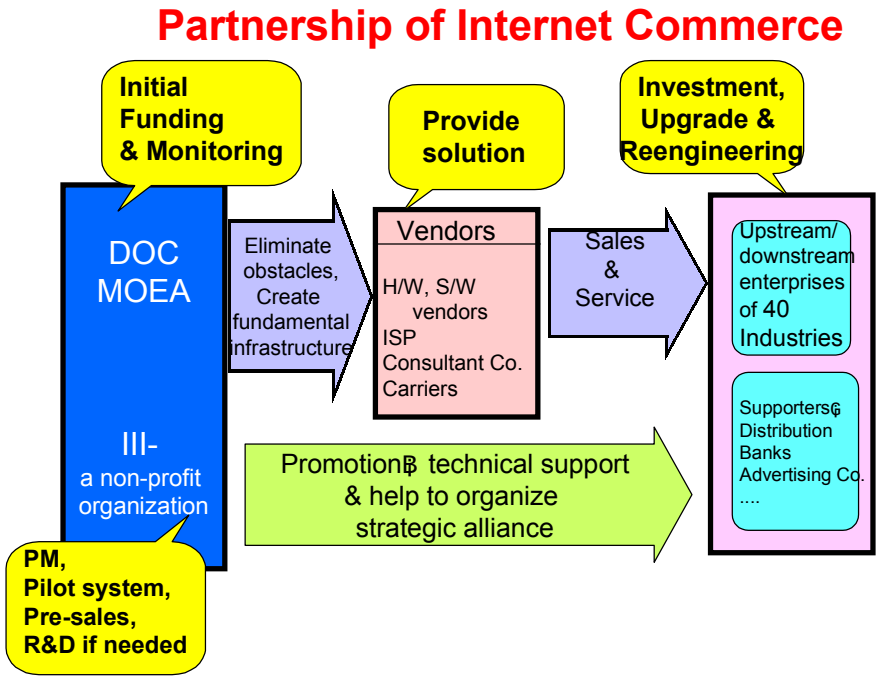
- To develop pilot project for hub companies to link with its upstream and downstream spokes.

- To promote pilot projects

17. The significant industries selected in 1997 are grocery, 3C, and publication. In these industries, there are up to 45 hubs and 3404 companies adapt Internet at March of 1997.

Partnership of Internet Commerce Project

18. This is an example for industry alliance and public-private partnership for EC promotion. The government agencies initiate funding and monitoring. Subsequently, the project selected a non-profit organization to build up pilot system, to manage the project and to integrate vendors to provide solution. Therefore, industries are trying to make investment, upgrading, and reengineering. Generally speaking, it is a mechanism of promotion, technical support and organize strategic alliance. The concept of the mechanism is pictured as below:



19. The project is developed step by step, from initial stage to developing stage, to growth stage and to mature stage. In each stage, focus activity is to set to be different so that more promotion efficiency can be achieved. For example, in the initial stage, the major promotion tools are DMs, booklet of project introduction, exhibition and general seminars. In developing stage, that introduction of successful story to

those who are interested yet not adoption becomes essential. In addition, “know-how” skill sets seminars are implemented in the developing stage.

Suggestions for alliances in the region

20. From the experience Chinese Taipei has gained, we suggest an alliance with other economies in the region. The alliance will enable our domestic Internet Commerce Promotion to contribute to, and benefit from the Asia Pacific Information Infrastructure. The possible tasks are the following:

- Technical collaboration with other economies for APII knowledge, experience and resource sharing
- Joint R&D programs in telecommunications and applications to advance the state-of-art technologies in these areas
- Alliance with international corporations to encourage their investment and participation
- Tightly with neighboring economies toward the regional APII development
- Interconnection and interoperability on interface and standards

Conclusion

21. Chinese Taipei, a member of APEC with limited natural resources, will gain our unique competitive advantage through the wide spread utilization of Information technology and Internet. There is the need to further encourage private participation and investment. However, with many SMEs in the Asia Pacific region, the government has also an undeniable role in technology R&D to accelerate information development for supporting economic growth and social evolution.

22. The Asia pacific has become a region with one of the most dynamic economics in the world. We believe Electronic Commerce will change our future into a more networking society, in which consumers, enterprises, government, and economies will be linked closer than ever together to make our lives better. In that bright future, the prosperous EC development of tomorrow will have become the reality of today.

5.4 ABAC Task Force Recommendations (ABAC)

Electronic Commerce

1. E-Commerce plays a major role in tomorrow's global economy:

   - 66 million households will have access to Internet by the year 2000
   - Creation of 24-hour market place
   - E-commerce is projected to grow from USD1.3 billion (1996) to USD220 billion by the end of the century

Recommendations

ABAC Roundtable on E-Commerce held in Hong Kong on 28th April 1998:

1. The private sector should lead in the development of E-Commerce
2. Great opportunities for SMEs with adequate education programs
3. Development of legal framework for E-Commerce must be addressed
4. Government should lead by example, making maximum use of E-Commerce in its own activities, such as taxation, information gathering and government procurement.
5. Public-Private Partnership will be vital to realizing the full potential benefits of E-Commerce to APEC economies
6. Establish mechanism to ensure consumer protection across borders
7. Efforts to be taken by the private sectors to build confidence and trust in E-Commerce.

<u>Private Sector Should lead In The Development of E-Commerce</u>

Recommendations:

- APEC should address individual needs of member economies, according to local conditions, to assist in the development of their IT infrastructure before looking into more global issues.

- APEC should take the lead by developing among member economies an awareness of the need to develop potential of E-Commerce.

- APEC member economies should establish commercial insurance Institutions providing for consumer rights and promoting trust in E-Commerce transactions.

E-Commerce Will Provide Great Opportunities for SMEs Provided That There Are Adequate Education programs

Recommendations:

- Education is an important function of Government. Government should improve curricula on information technology at all levels of education with the end in view of promoting computer literacy, including that aimed at SMEs.

- Government and the private sector should work to raise the awareness levels among SMEs of the efficiencies E-Commerce can produce. An environment to promote the establishment of ISPs and the network infrastructure that could help SMEs do more business on-line should be encouraged in all member economies.

Development of Legal Framework for E-Commerce Must Be Addressed

Recommendations:

- New laws should not be introduced where existing laws can apply Laws and regulations should not commit business to specific technology and standards which may be a barrier to future technology adaptation

- Policies and regulations should be compatible with the existing agreements made in other multilateral for a such as the WTO and the ITU

- Financial institutions should be brought into the discussion to lay down the legal framework for payments, documentation of credit issues, and dispute resolution. A central clearing house mechanism may be required to deal with the settlement of electronic payments and the resolution of any disputes arising thereof

- A consumer protection framework and mechanism across borders must be developed and implemented possibly through a network of consumer protection agencies. This would help promote trust and confidence in business conducted electronically.

Government Should Maximize Use of E-Commerce In Its Own Activities

Recommendations:

- Government undertakes to conduct more business electronically including, but not limited to: business registration and licensing tax payment and collection, customs documentation and payment.

- Government provides incentives to people using E-Commerce to transact business with government

- Government should share information and collaborate with each related section for effective and consistent policy. It will be helpful to take into account some member economies which have already centralized all bodies responsible for E-Commerce policy and implementation (eg., Australia, Malaysia, the Philippines, Hong Kong and China).

On-E-Commerce

2. ABAC believes that private sector should lead in the development of E-Commerce while relying on Government to lay the framework including the issues of cross-border consumer protection.

3. Government should avoid introducing new laws when existing laws can be applied and ensure the development of electronic infrastructure to provide economic and equitable access throughout the region.

4. In this regard, public-private partnerships will be vital in realizing the full benefits of E-Commerce especially where the trust and confidence needs to be established in the area of electronic payment system.

5. One area in which E-Commerce may be promoted in government is through maximum usage of technology in government operations, such as on-line tax payment and procurement.

6. In like manner, E-Commerce provides great opportunities for SMEs mindful that the need for education and training programs will be paramount.

7. We also urge the Government to address squarely the Y2K issue which through the very process of globalization has made the problems faced by the smaller member economies systemically linked to, and with severe implication for the more developed member economies.

8. Given the interconnectedness of the present global economy, even if 20% of all system are not Y2K-complaint, the danger to all ABAC economies will be great.

9. Output wills severely compromised and essential services and life-savings medical equipment will be disrupted. The cost to fix the shocks and associated problems will be tremendous. Therefore we should focus out efforts in several priority areas such as the financial, transportation, utilities and medical services.

5.5 The Role of the Government and Private Sector (New Zealand)

Executive Summary

1. This paper looks at the issues that are confronting governments as rapid changes occur in the way business is being undertaken. It looks in particular at the development of electronic commerce and the implications it will have for the respective roles of government and the private sector in commerce.

2. It contends that the breadth and speed of change are such that they will constrain the ability of governments to manage the commercial sector through narrowly focused regulation and that attempts by governments to continue with this form of control will lead to reducing levels of economic activity and trade. The experience of New Zealand suggests that in such circumstances the role of government should be more appropriately targeted at setting a general framework or environment, which rely upon competition rather than regulation to achieve government goals of economic growth and prosperity. Such a framework is not only more adaptable to rapid change, such as that being brought about by electronic commerce, but also brings benefits to the private sector of reduced compliance costs and increased flexibility to respond to market demands.

3. From a private sector perspective, assurance is required that this environment will continue to allow them to protect themselves from unfair competition and enable them to seek redress for loss of reputation and intellectual assets through, for example, copyright and trademark legislation with appropriate enforcement and penalty provisions.

4. The effect of electronic commerce to transcend national borders also means that organisations are increasingly looking for such protection internationally.

Introduction

5. At the APEC Leaders meeting in Vancouver (November 1997), APEC Leaders agreed "that electronic commerce is one of the most important technological breakthroughs of this decade". The Leaders directed Ministers to undertake a work programme on electronic commerce in the region, taking into account relevant activities of other international fora and to report back in Kuala Lumpur. According to the Leaders' statement, the initiative "should recognise the leading role of the business sector and promote a predictable and consistent legal and

regulatory environment that enables all APEC economies to reap the benefits of electronic commerce."

6. As a first step in developing a work programme, APEC Senior Officials agreed to the establishment of a Task Force on electronic commerce at their meeting in February 1998. At the first meeting of the Task Force, economies agreed to provide papers on some of the key issues electronic commerce raises. New Zealand volunteered to prepare this paper, which sets out the issues relating to the relationship between the government and the private sector.

What is electronic commerce?

7. In this paper, electronic commerce refers to all commercial transactions based on the electronic processing and transmission of data, text sound and image. This includes EDI, Eftpos, electronic banking, digital cash and other electronic payment systems, as well as Internet and other network based commerce. While the trend is towards electronic commerce over open Internet based systems, the definition used here includes transactions on closed electronic networks and includes those transactions which are only partly completed using electronic means.

8. Electronic commerce has the potential to deliver some significant benefits to business, to consumers and to governments. Electronic commerce enables businesses greater access to distant markets, reduces the time they take to supply those markets, and reduces production, storage and transaction costs. Doing business electronically literally shrinks the distance between producers and consumers by allowing them to communicate directly, without the intervention of traditional intermediaries such as importers, exporters, wholesalers and retailers, enabling businesses to learn more about their customers. Electronic commerce can thus increase competition by lowering transaction costs, lowering barriers to entry and improving market participants' access to information and to a wider range of goods and services. Consumers benefit from access to a wider range of information and products, available 24 hours a day, often at cheaper prices than similar, locally available products. For governments, there is the potential to make efficiency gains using electronic networks to deliver information and services to citizens.

9. These potential benefits of electronic commerce underlie the future relationship and roles of government and the private sector.

Issues Raised by Electronic Commerce

10. Moving from a paper based system of commercial transactions to one where electronic transactions predominate raises a number of issues for businesses and consumers that may require a response from government, including:

- issues relating to taxation and tariffs;
- potential trade barriers;
- legal questions relating to the formation of contracts electronically;
- questions of applicable law ie jurisdiction:
- authentication and integrity of electronic communications and the admissibility in court of electronic evidence;
- the application to electronic communications of statutory provisions which mandate paper or paper based concepts such as original, writing and signature;
- consumer protection and privacy;
- verification of a correspondent's identity including location of entities and the ability to seek redress across national borders;
- time and place of receipt and dispatch of electronic communications; and
- transaction and other record retention and management.

11. Many of these issues will be covered in papers prepared by other APEC economies. This paper deals with those issues surrounding the relationship between government and the private sector including the balance between government regulation and industry self regulation, the respective roles and responsibilities of government and the private sector, and prospects for future work involving both government and the private sector.

Policy Issues

12. There are a number of challenges governments will face as electronic commerce develops. One of these is achieving a balance between their role and that of the private sector and between regulation and industry self-regulation.

13. And the growths of the Internet are driving the growth of electronic commerce. The growth of the Internet depends on three factors. The first is the state of development and spread of the telecommunications infrastructure over which the Internet operates. Generally in countries with well-developed telecommunications infrastructures, the Internet tends to be growing quickly. The second factor is the skill level of the population.

14. Thirdly, but perhaps most importantly, is the demand for the applications such as electronic commerce, that run over the Internet. Such demand can only be met if there is a legal and commercial environment facilitating the development of those applications. In doing business electronically, businesses and consumers demand the same level of confidence they enjoy when doing business in the real world. It is apparent that currently electronic commerce does not yet enjoy the same conditions in terms of consumer protection, privacy and security.

15. While consumer electronic commerce is growing rapidly from a low base, indications are that the bulk of Internet commerce is business to business transactions rather than direct customer to business transactions, because there is inevitably a continuation of existing business relationships, supported by established contracts, that have already developed a degree of trust. It is also in business to business transactions that the greatest efficiency gains can be made through reduced transaction costs, or large transaction volumes.

Government and Private Sector Roles

16. The role of government in many countries is about creating an environment in which commercial activity can take place. Traditionally, governments have concerned themselves with the development of infrastructures and the delivery of services to their citizens eg the building of airports and operation of airlines. While governments still deliver a range of services, particularly in the health, education and welfare sectors, recent trends indicate that increasingly their role is one of setting a consistent and certain environment in which the private sector can operate. In this environment, industries are treated equally and the government's role is related to allowing fair competition and markets to develop, while ensuring consumers are protected. This environment is characterised by broad regulatory rules for economic activity, which facilitate the constructive participation of private interests, rather than narrowly focused or command and control regulation.

17. In creating such an environment in which competitive markets can flourish, governments monitor market failures and step in where the benefit of government intervention clearly outweighs the costs and will lead to an improved outcome.

18. The issues listed earlier in this paper raise a number of potential obstacles or market failures with respect to electronic commerce. A government's role will be to ensure the consistent and timely resolution of these issues, either through direct intervention, or through alternatives arising out of new market and technical developments, which will provide a level of certainty for businesses and consumers.

Technology Neutral Approach

19. In view of the speed with which new technologies are developing, the private sector will have an increasingly important role in developing market or technical solutions. As a result, governments should take a technology neutral approach to regulation, that is regulation that neither favours nor discriminates against any particular technology, to avoid creating new barriers to electronic commerce.

20. Most of the potential obstacles to electronic commerce exist largely because the technology has developed ahead of the law. In many cases it will not be difficult to determine the functional concern of the law and provide an equivalent technology neutral alternative, which should not involve significant or fundamental policy changes. Tackling these issues is important, but it should be noted that electronic commerce has already developed a long way without fundamental law reform.

Regulatory Framework

21. The key for government is to ensure that the establishment of any electronic commerce regulatory framework, if one is required, does not create new barriers or exacerbate existing ones. Poorly designed regulatory frameworks could, by impeding electronic commerce, result in the loss of economic activity and tax revenues to countries with more suitable regulatory environments.

22. At the same time, governments must also consider how to reduce or eliminate any already existing barriers. For instance, most current regulations for the conduct of business are framed for a paper-based environment involving physical goods and national borders. However, electronic commerce requires an evaluation of the applicability of these regulations in an electronic environment and where necessary, an updating of the commercial codes that govern business activities. This will require examination of the legal status of digital signatures; the formation, validity and enforcement of contracts formed electronically; consideration of whether electronic documents can be accepted in place of paper; and discussion of the convergence of other commercial practices relating to communication, advertising and pricing. Consideration will have to be given to making all of this compatible on an international basis.

23. By ensuring regulation is not a constraint on electronic commerce, governments will avoid imposing new or higher compliance costs on businesses and consumers. In setting an environment in which business can operate and meet the demands of consumers, governments should continue to decrease compliance costs. Businesses to business electronic transactions are increasing as described above, but this does not mean governments should not

review current legislation to see if it is impeding the growth of electronic commerce.

24. However, the changes that are resulting from the rapid growth of the Internet as a tool for business, communication and entertainment are occurring so rapidly that government and international policy responses are lagging behind. This, combined with the unpredictable nature of some of these changes and the need to be able to respond to them quickly and flexibly, means that governments should look to create an environment based on broad principles or higher level regulations.

Self Regulation

25. This move away from sector specific regulation means the role of government will be increasingly focused on setting the rules and monitoring compliance with them. In this environment the private sector is able to get on with doing business, within those higher level rules. In turn where they think their competitors are not following the rules, they must be able to seek redress through the courts. This is moving closer to self-regulation. It is becoming increasingly apparent that in such an environment the private sector and the market will have a significant part in driving the development electronic commerce.

26. In New Zealand, the role of government has changed over recent years from being closely regulated to one of setting the environmental framework within which private sector organisations can compete fairly. This reflects what legitimate private sector organisations are asking of governments namely: the provision of a commercial environment, which includes a competitive and fair market, unfettered by inappropriate regulation and associated compliance costs. Increasingly business is also asking for the ability to protect their reputations and intellectual assets through, for example, copyright and trademark legislation with appropriate enforcement and penalty provisions.

27. As international co-operation at government levels to solve electronic commerce related issues is a necessity, legal consistency across all countries will involve complex, time consuming negotiations. In the interim, some of the mechanisms to solve the issues may emerge as a result of the competition between on-line businesses, as they seek to attract customers by promoting clear on-line consumer protection policies. This self-regulation may be an attractive solution for genuine electronic businesses as an expression of their self-interest in building trust and confidence in doing business on-line. Effective self-regulation is likely to become a competitive asset for businesses, as reputation in an electronic environment is everything. The technologies that enable electronic commerce also facilitate greater self-regulation and market based solutions to potential problems with electronic commerce. Experience to date indicates that self-regulation combined with entrepreneurial ingenuity and the technology are fostering the ongoing development of the Internet.

28. Intermediaries such as banks and credit card companies may also act to build business and consumer trust in electronic commerce by acting as guarantors as they do now to a great extent. Such intermediaries may also arbitrate in cross border disputes between buyers and sellers, given the difficulties in resolving problems through the Courts. However, for systematic fraudulent and misleading conduct, cooperation between national law enforcement agencies will be required.

29. The underlying principle appears therefore to be that if government intervention is required, to maintain certainty for business and consumers, it should consist of simple and predictable regulation that is technology neutral and is able to respond to the pace of change in the electronic environment.

Government Use of Electronic Networks

30. Governments can assist in creating trust in electronic networks and electronic commerce by facilitating the electronic provision of government information and services. By making it more convenient to access government departments and agencies, file government forms and obtain government permission, licenses and services electronically, governments can build trust, confidence and the critical mass of usefulness necessary to encourage citizens to go on-line.

31. As in a number of other APEC economies, New Zealand government agencies have established Internet web sites with information on the range of services provided by departments and also increasingly they provide services such as passport and driving license applications and export certificates. This is in line with the 1996 Gold Coast ministerial direction to the APEC Tel WG to explore initiatives for making government information more widely available via electronic means and for the development of government use of telecommunications to encourage business use.

Balancing the Respective Roles

32. Having outlined the respective roles of government and the private sector, it is clear, the issue is then whether it is necessary to place self-regulation within a legal framework to ensure enforcement and implementation.

33. An example of this is in the area of transaction security, in particular the process for authentication of identity over the Internet and the entities that will provide guarantee services, often referred to as certification authorities. Put simply, certification authorities would check the identity of individuals and organisations and provide them with identity certificates so others wishing to do business with them can independently verify their identity.

34. It has been suggested that certification authorities need to be established by government in order to provide electronic businesses and consumers the level of trust and certainty they need to use the certification authority services. However, it is not clear that this is the case, as there are at least four possible scenarios, which involve different levels of government action and industry self-regulation.

35. The first two would involve the government either acting as the high level certification authority, or acting to guarantee such a certification authority. These are much the same things with the government being the ultimate guarantor for all transactions undertaken within its certification authority hierarchy. This could prove problematic for governments and would be contrary to the trend of governments to move away from such insurance mechanisms (for example in banking). It also has the potential to skew the market for such services. If governments chose to follow one of these options they could limit their liability, however, this again might create the wrong incentives, for example, by encouraging multiple low value transactions in preference to fewer high value transactions.

36. The third scenario is one where a government would license private sector organisations to act as certification authorities, perhaps in association with the lodging of a bond by the licensees. In this case, the government might have a role in setting standards or conditions for prospective certification authorities to meet. As reputation will have a significant part in determining who will gain the most from electronic commerce, there will be a strong incentive for self-regulation by the certification authorities so licensed. However, there is still a possibility that the government might be considered and may have to limit any liability it may face. The licensing process may also create entry or other barriers.

37. In the fourth scenario, the government would be the provider of the environment for a competitive, private sector led certification authority market. In this situation, the government would provide appropriate regulations relating to relating to fair trading, accurate reporting of financial status, location or registration of the company etc and would allow redress through the courts for disputes arising out of the transactions. It would not act as a guarantor. Given that such a scenario would depend greatly upon reputation this approach would rely heavily on self-regulation by the certification authorities. Governments would need to put in place provisions for organisations to protect their reputations.

38. This last scenario suggests that new legislation or regulation is not required for the establishment of certification authorities. Private sector initiatives could take the lead in setting up these institutions without legislation. Trust is obviously an issue. Users of certification authority services may feel more confident if an organisation is legislatively guaranteed. However, the reputation of major international banking groups is not dependent on a government guarantee. What is required

is that the parties to a transaction know the jurisdiction the guarantor is established in.

39. This would suggest that moves to legislate to establish certification authorities might be premature. This is also likely to apply to wider electronic commerce issues as there should be a strong basis for any government intervention: it should not occur just because commerce is moving to an electronic environment. What may be more appropriate might be for governments to adjust the underlying framework, rather than creating a whole new legal framework, to allow for greater self-regulation and the need to find international agreements on a range of complex issues.

International Cooperation

40. The inherently global nature of electronic commerce challenges the ability of national governments to address these issues. The intangible and borderless nature of electronic commerce is complicated by the rapid rate of growth in electronic transactions. As a result of this growth, there is likely to be an increase in the need to resolve cross border disputes and issues relating to the application and enforcement of national laws in the international environment.

41. The importance of international organisations in examining electronic commerce related issues would grow. However, given the range of national approaches, ensuring the consistency of regulation will be a complex process. It is desirable therefore that rather than mandating specific regulatory solutions, countries work through international organisations to develop guiding principles to respond to electronic commerce issues.

42. Consistency of approaches based on the same guiding principles is desirable as the benefits that electronic commerce promises will only accrue if domestic and international policies and principles are closely aligned. Uncoordinated and inconsistent policies that are substantially different from the norm, no matter how well intentioned, could reduce the benefits for an economy. With varying approaches in a number of economies, fragmentation may radically reduce the gains from electronic commerce to all users. These costs will become more apparent as electronic commerce continues to grow. The points made in previous sections apply equally in the international sphere. Industry and governments need to work together to identify which policies require change, addition, or elimination to facilitate electronic commerce: any regulatory approach should be minimal, globally consistent and independent of specific technologies. The same basic tenet holds: new regulations should not be imposed merely because commerce is being conducted electronically.

43. An example of the need for international cooperation on these issues is in the area of consumer protection. While electronic commerce has

many quality consumers find attractive such as variety and convenience, there are a number of factors that hold back consumers from shopping on the Internet. In particular, consumers are thought not to have confidence that the kind of protection and redress they enjoy in their home country will be available to them when they trade on the Internet, precisely because fair and efficient redress mechanisms will have to transcend national borders. However, the Internet as an international network makes it difficult to determine which court would have jurisdiction over a given transaction in the event of a dispute, or if an authority can be established, how it would hold a transgressor to account. Even more confusion may arise if three or more countries are involved in the transaction. Further, there may be difficulty in actually establishing the country in which a vendor resides and possible regulatory havens will exacerbate these doubts.

Commercial and Technical Issues

44. Speedy resolution of the issues electronic commerce raises will not necessarily lead to an increase in the rate at which electronic commerce grows, as access to the Internet, the convenience of Internet trading, and familiarity and trust in buying over the Internet also affect the potential of electronic commerce. Technology will no doubt improve levels of access and the convenience of shopping on the Internet, but alone it will not lead to higher levels of familiarity and trust. Legal and regulatory changes can assist in improving the level of trust, but as outlined, governments must ensure that regulation is not a constraint on electronic commerce and its potential benefits. Businesses entering into new markets have to take account of differences in the law in the new jurisdictions, whether their expansion is achieved through physical or electronic means. The ability of businesses to enter global markets is a significant benefit that electronic commerce offers, but it does not alter the underlying legal principles.

45. The key technical issue in relation to electronic commerce is the question of access to and use of the networks over which electronic commerce will be conducted. The development of networks and in particular widely available broadband access to the Internet is likely to be a function for the private sector. This kind of development will require investment, and this is most likely to be optimised under free market competition. Accordingly, regulation, which inhibits competition, will not lead to the realisation of the potential benefits electronic commerce promises. Although liberalisation of telecommunications is occurring in many countries, regulations remain in place that are likely to influence the access and use of communication infrastructures for electronic commerce.

46. As a result of liberalisation and changes in technology, increasingly it is private sector organisations that have the role of network provider as mentioned. The expansion of network capacity is central to the further

development of electronic commerce, as the bandwidth and speed of the network infrastructure will be significant factors in how quickly electronic commerce applications develop and are accepted.

47. In New Zealand, it has become apparent over the last ten years that competition in all aspects of network provision significantly assists in the development of network capacity. The New Zealand experience indicates that competition ensures a range of choice for consumers puts pressure on prices and enables a range of network technologies to be provided. This suggests that policies that encourage competition will greatly assist in ensuring the development of the high speed, high bandwidth networks that can handle the relative sophistication of electronic commerce applications. Low access and use costs have been a fundamental driving force in the explosive growth of the Internet and any economy seeking to realise the full economic advantage of electronic commerce should try and replicate this low cost environment.

48. As well as improved network access, trust and confidence are also factors behind more widespread use of electronic commerce over the Internet. Trust and confidence can be promoted through technical solutions such as the use of strong encryption technology. Restrictions on the import, export and use of strong encryption inhibit the development of secure electronic transaction protocols which if user friendly would assist the development of trust and confidence in electronic commerce processes. It is recognised, however, that governments may wish to impose these restrictions for national security and law enforcement purposes.

Principles

49. A number of other international organisations including the OECD, the UN and the WTO are working on a number of the specific electronic commerce issues referred to here eg security, privacy, digital signatures etc. However, it appears that no other organisation has formalised any work on the specific issue of the relationship and respective roles of the private sector and governments in relation to the development of electronic commerce.

50. The discussion above points to the following principles as guides for both government and the private sector in responding to the challenges electronic commerce raises:

- the private sector should lead through self regulation that enables genuine entities to protect their commercial reputations;
- the expansion of electronic commerce should be market and technology driven;
- governments should support and enforce a predictable, minimalist, consistent and technology neutral legal and regulatory environment for

electronic commerce; and given the international dimension, issues relating to jurisdiction and electronic commerce will need to be the subject of international agreement.

Conclusion

51. It is clear that the electronic or digital age is changing the roles of the government and the private sector. New technological developments will mean the private sector has a greater role in resolving some of the potential obstacles or market failures that electronic commerce raises. Coordination of such solutions could be achieved by industry self-regulation. Government input, however, should when required consist of simple and predictable legal tools that are sensitive to the technology and to the pace of change. Aside from this, the precise degree of direct government involvement cannot necessarily be predefined. None of the issues that need to be considered by governments are particularly new, but the speed of changes in technology makes it important to ensure that regulation, where required, neither falls behind nor unnecessarily interferes with the development of electronic commerce.

What can APEC do?

52. Given the complexity of these issues and the cautious approach that most governments are taking to them, APEC's role in them will require consideration. However, as an international organisation representing the interests of a range of economies, APEC can assist by developing guiding principles based on those outlined above that reflect its membership and their approaches to electronic commerce issues. APEC should at this stage be a forum for providing and exchanging information on electronic commerce development. This provision of information can be powerful stimulant to action. Secondly, by giving electronic commerce issues a high priority at the Ministerial and Leaders levels, a further stimulus will be given to members and non-members to give these issues consideration. In doing so, APEC should encourage members to understand that while action may be required to remove the legal and regulatory obstacles, there is already considerable scope for electronic commerce to develop within the current legal and regulatory environment.

ANNEX A

Electronic Commerce in other APEC Fora
(APEC Secretariat)

Electronic Commerce in other APEC Fora

1. OBJECTIVE

The objective of this paper is to update on Electronic Commerce projects currently being undertaken under the auspices of various APEC Fora.

2. BACKGROUND

The Leaders declaration issued in Vancouver, Canada on 26 November, 1997, agreed that electronic commerce is one of the most important technological breakthroughs of this decade and directed Ministers to undertake a work program on electronic commerce in the region, taking into account relevant activities of other international fora, and to report to them at the Kuala Lumpur Leaders meeting in 1998.

The Ministers in their statement at the 1997 Vancouver meeting agreed that electronic commerce is an important technological breakthrough (and) called for a workplan to study a wide range of issues on electronic commerce. The Ministers recognized that the private sector should take the lead role as innovators and developers of this important medium. The workplan should be reviewed at the June 1998 Meeting of Ministers responsible for trade to consider further steps.

3. APEC TASK FORCE ON ELECTRONIC COMMERCE

The APEC Senior Officials agreed at their meeting in Penang in February 1998 to establish a Task Force to manage the work of electronic commerce in APEC and is being co-chaired by Australia and Singapore. The Task Force has met twice during the first six months of the year and proposed a work program that will be implemented in two stages.

The first stage of the work program concentrated on improving member economies' understanding of the key issues arising from the increasing use of electronic commerce and its impact on the trade and economic interests of APEC economies. An
APEC Electronic Commerce Task Force website has been established in order to facilitate the work of the Task Force and communication between member economies. The website contains the electronic commerce issues papers prepared by member economies on the above themes, Task Force correspondence and information about electronic commerce and APEC economies, APEC working fora, other organisations and meetings/conferences of interest.

The first stage of the work program culminated in an Electronic Commerce Task Force Roundtable meeting in Kuching, 12-13 June 1998, attended by APEC officials, business representatives, and representatives from the APEC Telecommunications and Transportation Working Groups and PECC.

The Task Force reiterated the importance of continued information exchange, and agreed to focus on the following main areas of work at the stage two of the work program.

1.consider possible development of principles to guide future APEC work on electronic commerce, so facilitating its wider use in the region;

2.exchange information to promote greater public sector use of electronic commerce as a catalyst to wider uptake;

3.identify impediments to electronic commerce in the region, in cooperation with relevant APEC sub-fora and other international organisations;

4.identity areas for technical cooperation and capacity-building between APEC economies;

5.consider the potential for development of joint government-business outreach and training programs, particularly for SMEs;

6.identify other areas for further cooperation in APEC on electronic commerce, to be pursued by relevant APEC sub-fora. The Task Force on Electronic Commerce through the SOM recommended and were adopted by the meeting of the APEC Ministers responsible for trade, in Kuching on 22-23 June 1998 on the following: -

Take note of the progress of work to date and endorse the two-stage work program of the Task Force, including the next steps to be taken to intensify APEC's work on electronic commerce, taking into account the attached indicative list;

Acknowledge work under way on electronic commerce in other international fora; Welcome the TEL Reference Framework on Electronic Commerce and the contributions of ABAC, PECC, and TEL.

TPT-WG, SCCP, and other APEC sub-fora to APEC's work on electronic commerce, and call for continued close coordination on the issue;

Note the Task Force's intention to consider possible development of principles for promoting electronic commerce in the region;

Acknowledge the importance to trade and economic activity in the APEC region of remedial action on the ìmillennium bugî problem, and endorse the development of a program of information exchange and technical cooperation among APEC economies;

Endorse the development of a program of information exchange to identity impediments to electronic commerce in the region, in collaboration with relevant APEC sub-fora and other international organisations;

Call for development of specific recommendations to Ministers in November on further technical cooperation and capacity-building activities, public sector use of electronic commerce, and outreach and training programs.

4. STOCKTAKE ON ELECTRONIC COMMERCE PROJECTS IN APEC FORA

The APEC Secretariat has researched the range of electronic commerce projects being undertaken under the auspices of the various APEC Fora. The following APEC Fora have been identified as being involved in electronic commerce projects:

a) Transportation Working Group (TPT WG)

The Transport Working Group initiated a pilot Electronic Data Interchange (EDI) trial program to determine future direction in the adoption of electronic commerce (as widely as possible) through out the transport sector in the region. This is part of facilitating the electronic commerce and eliminating the requirement for paper documents (both regulatory and institutional) for key messages relevant to international transport and trade as soon as practicable within the next ten years.

i) APEC Commercial Message Project

The Australian Department of Transport and Regional Development and Tradegate ECA jointly funded this project under the auspices of the Transportation Working Group. The project is aimed at demonstrating through pilot projects the use of harmonized EDIFACT messages in the trading chain between organizations in the APEC economies and is expected to be complete by September 1998.The project is managed by Tradegate ECA.

Three companies that have participated in the project are Cadbury Schweppes, Murray Goulbourn Co-operative and BHP Transport. Cadbury Schweppes in Australia and its sister company in Singapore are working towards the removal of paper documents and their replacement with EDI airfreight messages that conform to the relevant EDIFACT implementation guidelines. The airfreight forwarder in Australia is Specific Freight at Tullamarine airport and the Singaporean freight forwarder is Skylift Consolidator. Murray Goulburn Co-operative is looking to replace paper documents with EDIFACT messages. The project work involves trade between Murray Goulburn (an Australian exporter of dairy products) and its customers in Asia, particularly in Malaysia and Singapore. BHP Transport is developing a system for the electronic exchange of ship's manifest data between BHP Transport's agents in West Coast USA ports and BHP's shipping agent in Australia (McArthur Shipping).

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b) Telecommunications Working Group (TEL WG)

The rapidly increasing number and variety of electronic commerce applications and services, has made the work that TEL WG more challenging. The use of electronic commerce has grown rapidly and the addition of the Internet has redefined electronic commerce applications. The TEL WG has the task of exchanging, compiling and disseminating telecommunications infrastructure and regulatory information, including markets and statistical data. It also has a responsibility to promote electronic commerce and standards information sharing. The TEL WG hopes to develop its future work plan through the following activities in electronic commerce.

i) Public Key Authentication Framework

Australia leads a Task Force to review and assemble information about international trends in public administrations re: PKA. A working meeting to compare experiences and share information will be developed, tentatively to be held prior to TEL 18 in PNG After some discussion the Task Force agreed to also consider possible activity to promote internationally harmonised data protection practices.

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ii) Electronic Commerce Survey Projects

Survey of 3000 SMEs to assess penetration and uptake of electronic commerce has been tendered, with a report to be produced during 1998. Overview of Electronic Commerce Law in the APEC Region: Baker & Mackenzie, Hong Kong Branch, presented a final draft of this report at their website, including hotlinks to related sites (HYPERLINK http://www.bakerinfor.com/apec www.bakerinfo.com/apec). Baker & Mackenzie also agreed to periodically update the report.

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iii) Cybernet/INGECEP (Integrated Next Generation Electronic Commerce Environment Project)

Led by Japan, this project aims to help the extension of the global market through the development of new multimedia applications and security systems for electronic commerce. The project will concentrate on providing coherent services to clients both on broadband (IP over ATM) and narrowband (Internet) networks, with a view to filling the gap between large-size enterprises and small//medium size enterprises, and between developed and developing economies. This business project has now included a component concentrating on building consumer confidence. Japan is currently looking for a counterpart to participate in a joint project involving the marketing of products to consumers in Japan. They reported that the interconnection experiments between cyber malls reveal issues including methods of payment, transportation and tracking of products. The international interconnection trial will begin in 1998 with the final report to be published 3/99.

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iv) Electronic Commerce Seminars

Asia Oceanea Electronic Messaging Association (AOEMA), Australia, reported on these ongoing seminars held to raise awareness of the benefits of and requirements for electronic commerce. These seminars are designed to help SMEs understand the benefits of doing business electronically. AOEMA and Japan will continue these seminars in 1998.

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v) EDI-Internet Pilot Project

This project aims to promote the growth of commercial (business-business) electronic commerce transactions by evaluating readily available hardware and software to make Internet-EDI easy to implement, even for SMEs.

Japan has published Guidelines for Implementing EDI over the Internet, which are available at the APEC Web Site.

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vi) APEC TEL Web Site

The Asia Pacific Information Infrastructure Cooperation Centre in Korea has agreed to host the APEC TEL web site at HYPERLINK http://www.apii.or.kr. Korea and Canada are to jointly report on options to upgrade the site at TEL18 (9/98).

vii) Joint Study on the Impact of the AP II

Korea leads this project, which aims to determine economic and societal implications of the Asia Pacific Information Society. An interim report has been prepared, and the study should be completed by TEL 18, September 1998.

viii) Key Elements Necessary for Promoting Business & Private Sector Participation in Telecommunications Infrastructure Development

A Task Force led by Japan has developed a report, which will be presented to Ministers at TELMIN3. The Task Force noted that the demand for infrastructure can not be met without private sector investment, and has defined a number of elements, which must be in place to attract such involvement.

x) Database of Existing Certification Authorities (CAs)

AOEMA on behalf of APEC TEL monitors the development of CAs in the region and the world and has established a database of information on their operation, with a second report to TEL 18.

ix) Dialogue on Creating a More Sustainable Model of Internet Infrastructure Financing

In collaboration with the Asia Pacific Internet (APIA), the BFSG has agreed to accept and consider a report on possible areas of activity, which APEC might undertake to create a more sustainable model for the Internet. APIA will report at TEL18.

c) Human Resources Development Working Group (HRD WG)

The HRD Working Group proposes to train and capture an overview of electronic commerce activities in the Asia Pacific region with the view to empower skilled technocrats and inform governments on relevant issues arising from the use of this new mode of commerce. This will be done through the projects as mentioned below:

i) Internet and Electronic Commerce: Training on Java Base Technology for APEC Economies

The project aims to develop training modules and courses in Java based technology. Java is a language and computer software specifically designed for the Internet. It will attempt to identify gaps in government policies and strategies to encourage the practice of electronic commerce in business and government in the Asia Pacific region.

The project was endorsed at the 16th meeting of the HRD WG in May 1997. There was in-principal support from the TEL WG and was endorsed at TEL WG meeting in September 1997. The total cost of the project is $US60,000. The BAC has recommended funding approval of $US36,000 for the project. Commitments for contributions from the participating economies of Australia, Canada, Japan, Malaysia,

Indonesia and USA to the value of $US24,000 by each economy have been obtained. Contributions from interested institutions such as IBM, Telstra are also included.

The project is due to commence in January 1998 and expected to be completed by May 1999.

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d) CTI Sub-Committee On Customs Procedures (SCCP)

The SCCP has already undertaken a number of E-Commerce projects in its Collective Action Plan (CAP) which includes UN/EDIFACT (UN/EDIFACT: United Nations/Electronic Data Interchange for Administration, Commerce and Transport), Common Data Elements, Express Consignments and other non-CAP activities such as the APEC Tariff Database. The SCCP recognizes the differing requirements and capabilities of Customs administrations with regard to E-Commerce and is providing technical assistance to its members to gradually implement E-Commerce environment. The SCCP has set up a Virtual Customs Group.

Essentially, E-Commerce helps Customs Administrations to automate customs procedures and processes, specifically to streamline cumbersome paper-dominated regulatory arrangements/procedures. It would lead to a faster and more accurate work as well as reduce costs, which in turn facilitate trade and benefit the private sector.

The SCCP CAP work programs on E-Commerce include the following:

i) Express consignment Clearance

The project emphasizes on express customs clearance. SCCP members agreed to implement the principles in WCO Guidelines on Express Consignment Clearance, which is an international standard procedure for clearance express goods by year 2000 project, emphasizes on customs clearance. In accordance with the WCO Guidelines, this project emphasizes automated clearance procedures.

In a more intensive and shorter term phase of this project, the customs administrations of Chinese Taipei, Indonesia, Malaysia and Philippines are exploring the expansion of current automated processes for express shipments. Experts comprising of express industry association representatives and administrators will be sent to each of these economies to determine their respective needs and future requirements in 1998. In the longer term, those SCCP members still using manual methods will be encouraged to automate their express shipment clearance procedures with a specific module to be designed for express consignments. The SCCP will be seeking for APEC

TILF funding to assist its members in their implementation. The SCCP have also explored the possibility of seeking funding from the private sector, ie from the International Express Carriers Conference (IECC), to advance this project proposal.

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ii) SCCP Program to implement EDIFACT electronic message standards

In order to enhance regional trade, it is helpful regional customs utilize electronic communication effectively. Thus, APEC economies recognized that it is necessary to have an international standard, which is essential to this goal.

This can be done at an agreed standard referred to as UN/EDIFACT (United Nations/Electronics Data Interchange for Administration, Commerce and Transportation). Under the SCCP CAP, the target date for implementation of this program for all members is 1999.

The introduction of a common level of UN/EDIFACT throughout the region will facilitate streamlining and harmonization of customs procedures. This will eventually lead to a greater level of transparency of customs documentation and assist in the standardizing of customs information requirements as well as promoting compliance with standardized customs process.

In order to assist the SCCP members in implementing this collective action, a technical assistance project for interested SCCP members (Brunei, Chile, PRC, HKC, Indonesia, Mexico, PNG, Philippines, Singapore, and Thailand) is on going under the APEC TILF Special Fund. As part of this project, IATA in Singapore conducted an introductory seminar on EDIFACT in April 1997. A consultant has been engaged to deliver the technical assistance program. Thus far, the consultant has conducted site visits to various economies to do assessment needs in the first quarter of 1998. There were two technical workshops conducted in April 1998 at the APEC Secretariat. Expert missions will be conducted in late 1998 to all participating economies to monitor/oversee the implementation of appropriate standards of UN/EDIFACT. A network of EDIFACT contacts linking regional customs organizations is being formed.

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iii) Program to develop a core set of harmonized trade data elements and customs clearance procedures

Under this work program, the SCCP agreed to develop a compendium or directory, which would include a simplified ìcore setî of data elements that would satisfy the standard data requirements of SCCP members. This would then facilitate exchange of information and subsequently provide a foundation for common forms and electronic commerce. This work program thus complements the SCCP's program on UN/EDIFACT. The SCCP has received funding for 1998 under the APEC TILF Special Account for its proposed project to develop the compendium on the simplified ìcore setî of data elements, which is supported by UN/EDIFACT.

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e) Industrial Science and Technology Working Group (IST WG)

The Industrial Science and Technology Working Group is looking at the current utilization of EDI networks, research into recommendations for wider use and recommend strategies for implementation of EDI networks. A three-day conference that covers a wide range of issues including government policy, corporate managerial agendas and information technologies was also be organized. The two projects are as follows:

i) Study on the Utilization of EDI in all APEC Trading Area

The People’s Republic of China proposed the project. It will look at the current utilization of EDI networks, research into recommendations for wider use and recommend strategies for implementation of EDI networks. The project was adopted at the 12th IST WG in March 1997 which proposed to hold a symposium to exchange economies' views on EDI and to formulate an action plan. This project proposal will to be submitted to the next BAC meeting for consideration.

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ii) APEC Commerce At Light Speed (CALS)/EC 1997 Seoul

National CALS conferences were held since 1993 in Japan, Australia and Korea respectively while the private sector-led CALS Pacific conferences were held on a rotating basis since 1993 in Australia, Chinese-Taipei, Japan and Korea. In 1996 Korea proposed that APEC to sponsor a CALS/EC conference in Seoul in 1997. The three day conference held on December 8 - 11, 1997 covered a wide range of issues including government policy, corporate managerial agendas and information technologies.

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ANNEX B

Across Asia Pacific
Examples of Electronic Commerce Uses
(Task Force Project - compiled by US)

Across Asia Pacific: Examples of Electronic Commerce Uses

BUSINESS APPLICATIONS

- **DA INFORMATION SERVICES PTY LTD (AUSTRALIA)**

DA Information Services Pty Ltd. of Australia provides scientific, technical, medical and other academic information using books, electronic media, journals, document delivery and video. DA provides customers with a wide range of titles from Poland, Germany, the UK and the USA at lower prices than many imported titles. Its customers include librarians, researchers, scientists, government organizations, business professionals and the general public. The company has a high quality web site to facilitate online ordering and provide user-friendly online catalogues. DA markets its services globally and conducts research on the web. The web site provides current and potential customers with 24-hour access to DA's catalogue and allows them to place their orders online, using electronic payment services. Using the Internet also enables DA to assist customers in locating the resources they need. DA research facilities reach almost all books in print, even those available from publishers not represented by DA. Apart from assisting customers in their search, DA also can acquire these materials quickly and efficiently. Using electronic commerce tools (facsimile, electronic mail, the web and EDT) for daily business operations has driven DA's success in expanding its market worldwide. DA has found that by using the web and other Internet services (such as electronic mail and remote computer log-on), the firm has evolved and progressed. The Internet enables the firm to increase its portfolio of publishers around the world, and has helped make it the largest Australian owned provider of scientific, technical, medical and other academic information. These fast and reliable communication channels have also enabled DA to reduce the cost of acquiring materials by 20 per cent, and has enabled DA to reduce the average transaction cycle (ordering from overseas) from 21 to 12 days. By making its presence felt on the web, DA can expand its market worldwide and trade internationally. Consequently the firm has employed additional staff to deal with increased demand, as the business is growing rapidly. DA is experiencing a revenue growth rate of around 15 per cent per year with online ordering now accounting for 40 per cent of sales. DA believes using the web and Internet is a matter of business survival.

- **7 AM NEWS (NEW ZEALAND) (WWW.7AM.COM)**

Based in Kaipara north of Auckland, 7am news is the brainchild of Bruce Simpson. It is a global Internet news service that provides a growing range of free news services to other Web sites. Most of these services are provided on a "value exchange" basis. The centerpiece of 7am news is a simple but highly innovative concept, namely a Java apple news ticker that anyone can add to their web page for free. The site concerned gets to add some valuable, regularly updated news to their offering and 7am gets the chance to more widely display its advertiser's message. 7am news is now syndicated to over 10,000 web sites

around the world and has a global audience of over 15 million people every month. Because of the simplicity of the concept combined with its effectiveness in delivering an audience to advertisers, 7am news are able to offer some of the lowest advertising rates on the web. How it uses electronic commerce. 7am news is a knowledge economy business par excellence. It is entirely built around packaging and delivering information to as wide an audience as possible using the Internet. Marketing, sales and service are all Internet based. Without the Internet 7am news would not exist. The Internet eliminates the barriers of time and distance – indeed New Zealand's time zone with New Zealand being awake while the rest of the world is asleep is a positive advantage. It has not been all plain sailing, with some barriers being encountered. Because many of it's sales are to US customers 7am News prefers to deal in US dollars. However, the policy of local credit card companies allows billing of customer credit cards in New Zealand dollars only. The inability to bill a customer's credit card in US dollars would seem to be a substantial and unnecessary barrier to the development of electronic commerce. However, these problems are outweighed by the advantages provided by the Internet which, when combined with an innovative product, allow a very small New Zealand organization to successfully compete with the major news organizations of the world, attracting more "viewers" than such luminaries as the online edition of the New York Times.

- **VIPAR (U.S.)**

VIPAR is a leading truck part marketing group based in Williamsburg, Virginia. In response to industry changes, VIPAR is creating a strong customer focus strategy, which will allow them to be more effective. To create these efficiencies for their members, VIPAR implemented a technologically advanced Electronic Commerce (EC) system, which will enable VIPAR's members to exchange electronic documents via the Internet. This EC system will allow VIPAR members to expand their customer bases, reaching larger national clients who require electronic business transactions. This capability will assist in balancing inventories for VIPAR providing a great return on their inventory investment. It is now much easier for VIPAR's members to interact with their supplier partners and brings new customers to VIPAR's members, creating the potential for higher profits, in addition to the cost savings in improved order efficiency.

- **C. STOKES & CO PTY LTD (AUSTRALIA)**

C. Stokes & Co. LTD's a small, family owned and operated Australian customs broker that provides clients with import and export services from customs documentation handling to freight forwarding and cartage services. Prior to installing computers, the firm had *50* staff to process paper documents (including typists and personnel who completely checked the documents). Now, the firm has *25* staff and a UNIX-based computer system to automate procedures and provide better quality customer service. C. Stokes & Co. uses electronic data transfer (EDT), such as the EXIT and EXDOC systems, to lodge customs and quarantine entries, request customs clearances, and pay customs duties with

direct bank-to-bank funds transfers. Through the use of electronic commerce, C. Stokes & Co. has significantly reduced document cycle times. For example, it used to take three days to obtain quarantine clearance for meat exports, but the current lead-time is a few hours using EDT. C. Stokes & Co. believes document cycle times will improve further when internal business applications are integrated with the EDT systems, which will then allow staff to concentrate more on customer service. (Currently, both the inefficient paper-based and more expedient EDT-based method of doing business operates simultaneously). C. Stokes & Co. plans to extend its use of electronic commerce when EDT systems are fully integrated with its internal business applications, and will focus initially on improving internal business processes through electronic mail and EDT. After developing its internal expertise with electronic commerce, C. Stokes & Co. plans to use EDT and electronic mail with clients, shipping agents and overseas freight forwarders. Once these tools are used with these partners, C. Stokes & Co. anticipates that it will financially benefit by using EDT. Export growth from using electronic commerce most likely will come from marketing the firm as EDI-capable, which, in turn, should win new clients.

- **BERITA BOOKCENTER (MALAYSIA)**

Berita Bookcenter (www.bbc.com.my) sells books on-line. It specializes in Malaysia-published books but sells foreign books as well. Shoppers may browse via keyword or subject category.

- **THE PILLSBURY COMPANY (U.S.)**

The Pillsbury Company, based in Minneapolis, produces a range of refrigerated dough products, frozen foods, and other grocery products for the U.S., European, and other international consumer markets. Pillsbury has a number of transportation EDI documents in place, including the load tender and the shipment status message. Both of these documents are used with truck, trailer, container and rail car carriers. The transportation EDI documents were implemented as part of a program to centralize logistics. Pillsbury sought to streamline operations by moving the load tender function to company headquarters and away from the company's numerous plants and distribution centers. The electronic shipment status message replaces the invoice as part of an evaluated receipt settlement (ERS) program with carriers. Pillsbury uses the shipment status document to eliminate the freight invoice. Benefits of this new system for the load tender, response, and shipment status message, include improved speed and accuracy including freight payments, elimination of manual effort and paper invoicing, reduced cycle times and inventory levels, and improved supply chain management. These benefits combine to help Pillsbury improve customer service, build stronger relationships with carrier trading partners.

- **TOWER SOFTWARE (AUSTRALIA)**

Incorporated in 1985, TOWER Software is a software research and development company based in Canberra. The firm, which specializes in records and electronic document management and offers off-the-shelf, records management solutions to both the government and private sector. Although TOWER is an SME, it is one of only around ten companies worldwide, which are well positioned to take advantage of the large potential demand for more efficient electronic records management. Currently, the company uses the Internet to advertise worldwide, provide demonstration versions of products for distributors to trial with customers, accept orders, and distribute products. In addition, customers use the TOWER Records and Information Management System (TRIM) for electronic data interchange over the Internet - for transferring documents both between companies and within companies - in Australia and overseas. TOWER Software's growth rate reflects the opportunities afforded by electronic commerce: the release of the windows version of TRIM doubled revenues from $1.5 million in 1995-96 to over $3 million in 1996-97. TOWER Software has also been able to move into export markets at a phenomenal rate going from virtually zero exports in 1994-95 to a projected $600,000 in 1996-97, or about 30 percent of the company's turnover. TOWER currently exports to 30 different countries. TOWER Software's rapid growth to date and its uptake of opportunities in export markets are built around its use of electronic commerce, particularly the Internet. For instance, the company recently won an Internet-based tender to apply its product to Administaff in the USA in which over 30 other companies submitted a tender. Because tender results were advised over the Internet, TOWER Software now gets 3000 to 4000 visits to its web site per month amounting to around two actual qualified prospects per day. Electronic commerce is a major component of TOWER Software's business, and is set to become even more important if its strategic plans to expand export markets are realized. The company recently employed seven new staff, bringing total employees to 40 and intends to employ another ten staff within the next year (a 50 percent increase in one year). The company also plans to list on the Australian Stock Exchange within the next two years.

- **POSBNET SINGAPORE POSBANK (SINGAPORE)**

POSBank, a statutory board, is also Singapore's national savings bank. In line with its mission, POSBank's accounts and services are designed to promote saving and to meet the banking needs of its customers by providing convenient and excellent service. Established as part of the postal service in 1877, POSBank became a statutory board in 1972. With over 5 million savings accounts and 600,000 Current accounts, almost every Singaporean has a POSBank account. As at end 1996, depositors' balance totaled S$25, 814 million. Today, the Bank has a network of 130 branches and over 660 ATMs situated throughout Singapore. Its staff strength stands at about 1,800. Use of the Internet: POSBank introduced POSBnet in December 1997 to provide more convenient banking. Available from 7.00am to 11.00pm, the service provides the

following: Account balance inquiries, Account statement inquiries and downloading of account statements, Transfer of funds to your own accounts, Payment of bills, GIRO applications, GIRO/Inter Bank GIRO linkage and transaction inquiries, GIRO/Inter Bank GIRO terminations, Cheque enquiries, Stop payment of cheques, Change of mailing address, Benefits: benefits that a bank can realize: Quick and convenient banking, Cost saving and productivity, Enhanced competitiveness and corporate image Cost Savings. With POSBnet, the Bank is able to reduce labor-intensive transactions. For example, customers need not issue cheques to make payment. POSBnet can be used to pay bills. Savings are also made in areas such as the use of stationery (forms, mailers, letters, etc.), postage, printing and filing materials (microfilms for transaction records). The cost of a POSBnet transaction is also much less than branches transactions and self-service transactions. Accessibility with POSBnet, customers need not visit the branch or any of the self-service facilities. With the convenience of banking from home, customers also benefit from banking outside office hours and from abroad. Customer Convenience and the Bank's competitiveness the banking processes are very much reduced and simplified, making it easy and convenient for customers. For example, POSBnet users need not write to the Bank should they require a statement of account, apply or terminate GIRO, place a stop payment on a cheque or change their mailing address. The Future: After the acquisition of POSBank by DBS Bank, POSBnet will be integrated with DBS Bank's Internet banking service. Thereafter, a larger variety of services for both customers and organizations will be offered.

- **ASIABOOKS.COM (MALAYSIA)**

Asiabooks.com (www.asiabooks.com.my) is an on-line bookstore that currently offers recently published Malaysian titles as well as U.K. and U.S. titles stocked by Malaysian distributors. It will introduce magazines, CDs, and VCDs to its Internet inventory by stages. When fully operational by the end of 1998, Asiabooks.com will have most of the familiar functions of a conventional bookstore.

- **E COMMERCE RESOURCE CENTER (KOREA)**

In September 1997, Korea launched the E-Commerce Resource Center (ECRC) project which will assist Korean companies (SMEs in particular) to increase their uptake of electronic commerce by providing access to e-commerce technology, technical support, education, and information management assistance. Launched in January 1997, the Electropia project was developed to give Korean companies access to four different e-commerce-related services: An electronic tendering system, a technical information system, a customer services system, and an electronic shopping mall system for electronic marketing of goods.

- **HEARNE SCIENTIFIC SOFTWARE PTY LTD (AUSTRALIA)**

Established in 1981, Hearne Scientific Software Pty LTD is an Australian software development company with 15 employees. The company distributes software and provides support services worldwide and deals with customers throughout Australia, New Zealand, Asia, Europe and South America. It provides services and support primarily for customers in government, tertiary education, banking, insurance, financial services and consulting services. Hearn uses electronic commerce tools in daily business operations, including facsimile, electronic mail, the Internet and financial EDI, which has helped drive the firm's successful worldwide market expansion. Hearne also has a high quality website to facilitate online ordering, easy-to-use inquiry and technical support. Customers and prospective customers around the world have 24-hour access to information about the company's products and services and can download full versions of Hearne's products from the Internet upon request. Hearne also places online orders to other companies to ensure prompt delivery of products. As Hearne has increased the volume of software exported to the rest of the world, the company's web site also has expanded and now has text in 15 different languages. The global expansion of the business, in turn, has enabled the firm to reduce its product prices, some by over 25 per cent. Like many SMEs, Hearne found the greatest benefits of electronic commerce came from using the web. This has created worldwide opportunities for sales of products and services, enabling Hearne to compete internationally. In addition, the website offers potential to reduce personnel as an electronic business structure is used to carry out daily business operations. One lesson Hearne learned from using electronic commerce is that it enables speedy business transactions and allows the company to provide real-time processing, which, in turn, enables Hearne to move speedily when opportunities present themselves. Switching to a heavily electronic commerce oriented business approach has helped Hearne's revenue grow by 20 per cent- per year, and Hearne has plans to become even more involved in electronic commerce.

- **AMSTAN LOGISTICS (U.S.)**

Amstan Logistics is a third-party logistics service based in Hamilton, Ohio. A division of American Standard, this medium-sized enterprise has annual revenues of $30 million and has been involved in EDI for three years. In the early 1990s, a large-volume shipper requested that Amstan become capable of handling electronic advance ship notices. In response, the company implemented a PC-based EDI program. They are satisfying a large retail customer and streamlining operations, which is attributed to EDI. The primary benefit of EDI is the opportunity it provides for heightening service levels to shippers. In addition, EDI is enabling the company to function more efficiently. They have been able to streamline operations thanks to EDI. By linking the information in their system to EDI, the need to re-key data is eliminated, saving a considerable amount of time and money. EDI is also helping the company fortify trading relationships. Through EDI and improved customer service, they are strengthening the business partnership with their customers.

- **WHITE HAT TOURS (AUSTRALIA) (SME)**

White Hat Tours offers set or self-organized tours of Melbourne's well know landmarks to visitors. Tours are advertised in brochures and the Internet. It has a Melbourne city office and runs operations from a home office in Northern Melbourne. It is a small enterprise. The Internet allows White Hat Tours to market its service to international customers, without having a physical presence overseas. A staff member handles bookings and inquiries from overseas and provides confirmation using electronic mail, facsimile or post. This saves time and office space. About one-third of tour inquiries currently come through the Internet, and many of these inquiries turn into business. The existing booking service has potential to become a tourist information center. Reciprocal arrangements can link hotel accommodation web pages to White Hat Tours and vice versa. Alternatively, the White Hat Tours home page can be linked to the home page of a virtual tourist center or a hotel information kiosk. These links would provide multiple exposure to different customers.

- **SIEMENS**

Customers of Siemens Components Inc. now can walk through the company's vast inventory of components online.

- **PINTARMEDIA (MALAYSIA)**

Pintarmedia (www.pintarmedia.com.my) sells its own interactive educational software aimed largely at secondary school students in physics, chemistry, biology, and math.

- **BANK OF CHINA CREDIT CARD INTERNATIONAL (COCI)**

COCI will launch a Secure Electronic Transaction (SET) based gateway this month.

- **ABSOLUTE ON-LINE (MALAYSIA)**

Absolute On-line (www.absolute.com.my (Malaysia) bills itself as Malaysia's first online IT warehouse with an ordering and cataloging system displayed in a user friendly environment.

- **CHESS DISCOUNT SALES (AUSTRALIA)**

Established in the early 1970s, Chess Discount Sales of Australia is a two-person firm specializing in the sale of chess books, chess computers and other chess equipment. The chess market is seen as highly specialized and primarily catering to a small number of serious chess players. However, indications are

strong that a major change is under way in the chess industry, fueled by the growth of the Internet. Chess Discount Sales is a good example of how the simplest form of electronic commerce - electronic mail - can still provide an effective sales interface for small and specialized enterprises. When the firm was initially set up, it communicated with its suppliers in Europe, Asia, and North America through the mail and over the telephone. However, this proved slow, costly for small orders, and occasionally unreliable. The firm then switched to facsimile but in the last five years, switched almost completely to electronic mail to place and complete import orders with its suppliers, most of whom also use electronic mail. Chess Discount Sales has found electronic mail generally to be faster, cheaper, more secure and more reliable than facsimile. While orders are received and transmitted electronically, the firm is still reluctant to provide credit card details on the Internet so payment continues to be made by overseas draft or a trade letter of credit. Chess Discount Sales also uses electronic mail to receive orders from customers, but currently, electronic mail facilitated sales form a relatively small part of its overall sales. Cheap, effective and easy to set up, electronic mail provides a natural starting point for small companies, like Chess Discount Sales, that import and export specialized products and information relating to hobbies and games. While Chess Discount Sales' use of electronic commerce is currently restricted to electronic mail only, the firm is now looking at accessing new Internet-based markets. Generally, aficionados of hobbies and games are often very enthusiastic and extremely persistent in tracking down hard-to-find information or material, and find the resources and search facilities of the web perfect for identifying these needs. Thus, the firm is currently considering the benefits that would justify the investment needed to establish and maintain a home page for advertising purposes that would be the first step in seeking a higher profile in the chess product market. While it is recognized that this may well become a commercial necessity, the start-up costs are significant enough to require careful planning.

- **MOBIL (U.S.)**

The Mobil Corporation is one of the world's preeminent companies, with energy and chemical operations in over 125 countries on six continents. Electronic commerce is vital to their worldwide operations, both for procurement and marketing. In October of 1995, the company began to reorganize and reengineer its procurement operations globally. Mobil's goal was to streamline the procurement process and strengthen ties with their suppliers. With Mobil's strong strategic-partner orientation, they wanted to bring suppliers into the process as strategic partners. Electronic commerce, including EC forms for smaller suppliers, was implemented as part of this overall streamlining effort. Mobil is using the Internet to strengthen partnerships with distributors around the world. At their web site, "Mobil.com", distributors can check product availability in addition to ordering products using an EDI purchase order.

- **ROYAL SELANGOR INTERNATIONAL (RSI) (BUSINESS TO CONSUMER)(MALAYSIA)**

Royal Selangor International (RSI) is a Malaysian company that manufactures and sells pewter goods. Customers from around the world can access RSI's secure website and electronically order RSI merchandise using their credit cards. One of the major benefits cited by RSI in using e-commerce is the ability to offer attracts repeat customers by. RSI is able to offer their on-line customers special services, such as customized designs and engravings through the use of a personalized ordering page that is accessed through the web site with a password. Some of the challenges cited by RSI in using electronic commerce included difficulty in advertising the existence of the website and instead having to rely upon *word of mouth* advertising. Other challenges cited included customer reluctance in using the web site due to concerns over security of transactions, inadequate server bandwidth, and difficulty in pricing products for international customers because of complicated currency conversion requirements. While RSI reports that only 10 percent of their orders are currently placed on-line, it predicts that this percentage will grow as more customers gain access to the Internet and become aware of the existence of the RSI website

- **BEIJING CHAOYANG FOREIGN TRADE CO. (CHINA**) (Business to Consumer)

Beijing Chaoyang Foreign Trade Co. is a five employee enterprise in the Peoples* Republic of China that primarily engages in import and export transactions. Through the use of a website and e-mail, Beijing Chaoyang Foreign Trade Co. indicates that it has been able to successfully compete against much larger firms. Benefits cited included enhanced communication with trading partners streamlined trading processes, improved customer service, reduced overhead and decreased travel expenses. Challenges cited include high start-up costs, the need for more technical support, and home country infrastructure limitations. However, Beijing Chaoyang Foreign Trade Co. indicates that the benefits gained definitely outweigh the initial costs and the current challenges and now has plans to focus exclusively on Internet-based e-commerce.

- **J. BLACKWOOD & SON LIMITED (AUSTRALIA)**

Established in Sydney in 1878, J. Blackwood & Son, Australia's largest distributor of industrial and engineering products has over 80 outlets in Australia. With an annual turnover of more than $500 million, Blackwoods offer over 146,000 products for sale, and have more than 1,700 staff.
Blackwoods see many advantages to having both EDI capability and online access to their product catalogues. Customer service has improved, leading to shorter delivery times. This in turn has led to reductions in warehouse inventory, and increased customer responsiveness in determining where goods are held in

stock prior to order. An EDI/Fax corporate gateway will eventually handle full automation of the procurement cycle, with expected savings for Blackwoods, once the system is fully operational, in the order of $1.5 million per year.

- **SINGAPORE INDOOR STADIUM TICKETING SYSTEM (SISTIC)**

SISTIC is Singapore's biggest and leading computerized ticketing agency. It provides ticketing services for events at the Singapore Indoor Stadium and other venues. SISTIC launched a ticketing website, a first for Singapore and the region as it offers real-time ticketing services. This allows customers to book and confirm seats on the spot. To cope with the general public's unease of disclosing credit card information over the Net, SISTIC employs the Security Integration Toolkit (SIT) and the Commerce Toolkit (CT) - in consultation with the National Computer Board - to facilitate the electronic credit card payment. The real-time website complement SISTIC's other ticketing channels. Further, it is able to offer customers a hassle-free, 24-hour booking service. Presently, about one-third of SISTIC's ticket sales are made over the hotline. This has put tremendous cost pressures on staff training, increasing telephone lines and maintaining the standard of customer service. Going online would help ease such pressures and the hotline staff can focus on providing better services to ticket buyers. It also enables SISTIC to enlarge its customer reach, including overseas customers. Yet another benefit of going online is the ability to generate greater awareness and publicity for promoters' events. The borderless world of Internet allows SISTIC to reach a wider audience, including those beyond the shores of Singapore, a target group previously possible only through tie-ups with promoters overseas and travel agencies. Currently, SISTIC still has the task of convincing its clients and partners of the benefits of investing in this new method of marketing. However, with the government's active promotion of the benefits of this new infrastructure and the accompanying technologies, such investments should become a widely accepted practice in the near future. One of the biggest challenges of SISTIC would be to promote and encourage electronic commerce to SISTIC's partners - the show promoters as well as the ticket buyers. SISTIC hopes to act as the catalyst to spice up the dynamism of the entertainment industry through convenient ticketing services and greater awareness of events.

- **JARING (MALAYSIA)**

Jaring, Malaysia's pioneer Internet service provider, has developed Mall of Malaysia (www.mom.com.my) as a showcase for thousands of products including apparel, pharmaceutical products, comics, novelties, and car audio accessories.

- **DIONYSUS (AUSTRALIA)**

Dionysus, based in Cheltenham, Victoria, is a subsidiary of Galileo Publishing Pty LTD, formed because the directors were interested in both the wine market and

the Internet. The company is involved in retailing wines solely on the World Wide Web. Dionysus uses its home page to advertise its products, provide information about the vineyards supplying the wines, and sell wine with options covering delivery, payments and packaging. Dionysus is a niche supplier and concentrates on the exclusive end of the market, supplying premium wines mainly sourced from Victorian wineries and not normally found in wine stores. Advertising costs are kept low while the company establishes itself, and advertisements target niche markets. Dionysus first must let people know that it is possible to purchase wine over the Internet; it must gain access to the target market. Dionysus is a small enterprise and proves it is possible to establish a business on the web with a very low asset base. While Dionysus believes the web is a highly appropriate market for wine buffs, this novel method of wine distribution will have a fairly long period of awareness building. Like many small companies using the web to sell products and services, Dionysus has identified a niche market. Survival in such a market depends on many factors including: developing long term links with producers, so that supply can be guaranteed; having expert knowledge of the products understanding thoroughly specialist consumer markets; having great flexibility to cope with fluctuating demand and changing consumer preferences; and, being able to innovate and continue to offer lending edge services to consumers who see themselves as fashion leaders. Although Dionysus plans to-extend its use of electronic commerce to the supply side, it does not expect that EDI with suppliers will be a major area of growth in the near future, as most vineyards sourcing Dionysus are small to medium enterprises. At present, it plans to use EDI with both the Australian Customs Service and the Australian Quarantine and Inspection Service for export clearances and, where possible, with suppliers.

- **BEIJING CHAOYANG FOREIGN TRADE CO. (CHINA)** (SME)

Beijing Chaoyang Foreign Trade Co. is a state-owned company, mainly engaged in import and export business. They are currently using the website and e-mail to enhance communication with trading partners. Through the use of website and e-mail, Beijing Chaoyang Foreign Trade Co. has been able to make global deals, streamline its trading process and respond more rapidly and accurately to customer inquires and demands. Given that Beijing Chaoyang Foreign Trade Co. competes against much larger firms, this small enterprise now depends on the worldwide web and e-mail for the very survival of its business. E-commerce based communications have increased its import and export activities. Internet will prove to be a cost-effective marketing channel relative to traditional retail and direct marketing channel. In network, communication orders, inventory information and delivery status electronically reduces telephone calls and data entry costs. Because information is more timely and does not get passed through different hands, errors that cause network and delays are also reduced. Due to the outstanding results from using e-mail and the web, Beijing Chaoyang Foreign Trade Co. now focuses exclusively on Internet-based e-commerce. This will reduce overheads, avoid the need to rent shop space and save traveling time.

Beijing Chaoyang Foreign Trade Co. is very interested in adopting EDI to speed up existing paper procedures. But it needs the development of related infrastructure in China. Also there are some technological problems which need more technical supports. Beijing Chaoyang Foreign Trade Co. uses e-commerce to show how an innovative small company can use e-commerce to gain a competitive edge over larger competitions. Although the initial investment for the technology can be costly in terms of paying for Internet service provider connections and developing a web page, the benefits gained definitely outweigh the initial costs.

- **MY FLOWERS (MALAYSIA)**

My Flowers (www.myflowers.com.my) is Malaysia's first interned florist. Open since April 1998, the company advertises its services as a way to send flowers without the hassle of traffic jams or from abroad.

- **TEXAS BEARINGS (U.S.)**

Since the mid-1940s, Texas Bearings has been distributing bearings and power transmissions to customers such as Raytheon, Texas Instruments, and the DOD. As a supply chain member for a defense prime contractor, Texas Bearings continues to look for ways to continue fulfilling its mission: reducing customers' cost of doing business, while providing them with the quality of service that exceeds their expectations. The company knows the challenges of embracing new technology; however, to fulfill its mission and compete in a global economy, it needed to aggressively pursue appropriate business technologies. As a small company, it could not afford to market worldwide. The Texas Bearings website includes product information for government procurement transactions and for attracting new customers in international trade. Now that its website is presenting Texas Bearings and its products to the world, the company wants to make sure its Mexican and South American markets are not ignored: the website will soon be translated into Spanish. The company will also create an online product catalog this year.

- **CONSUMER CONNECT NATIONAL COMPUTER SYSTEMS PTE LTD (NCS) E-COMMERCE OUTSOURCE SERVICE BUREAU (SINGAPORE)**

As the principal IT solutions provider to the Singapore government, NCS handles the development and maintenance functions of the Civil Service Computerization Program (CSCP), the largest computerization project in Singapore. They also worked with various solutions partners together to offer a range of fulfillment services to merchants planning to effect online services. NCS has gained significant benefits as a service bureau: enlarged customer base, offering users as a one stop solution provider; enhanced competitiveness and corporate image; and, better knowledge of trends and customers needs. NCS Consumer Connect is one solution with numerous manifestations. Packaged in a seamless end-to-

end e-commerce application, NCS solution is designed to save the client's time, giving this organization opportunities to focus on more important core competencies. Significantly, it will help to reduce up-front costs that are usually associated with the building of in-house electronic commerce. In short, with NCS Consumer Connect, the merchant who wishes to have his organization e-commerce enabled can do so with less bother. NCS provides the following infrastructure or packages that encompass the necessary hardware and e-commerce software to assist merchants: contacts and online connections with banks for payment capabilities; contacts with warehouses, distribution centers; courier companies for hard goods fulfillment; call center and help-desk facilities; and, an operations center to manage the day-to-day business operations of e-commerce.

- **GENENTECH, INC.(U.S.)**

Genentech, Inc. – a leading pharmaceutical manufacturer and biotechnology research firm based in San Francisco – continually seeks faster, more economical, and more efficient ways to get its products into the hands of customers. Genentech's sales and marketing department determined that improved customer service and reduced costs could be achieved by introducing EDI technologies into the sales order cycle. Today Genentech is reaping the many rewards of an integrated EC implementation that includes several custom-built EDI tools. Benefits include a marked reduction in data-entry errors, and faster product shipment to the manufacturer's customers. The most noticeable benefit has been the reduction of time required to process orders. At the end of their first year of EDI purchase orders, their order department expects to realize savings equivalent to the salary of one full-time staff member. EC and EDI are helping Genentech to save money, while offering and exceptionally high level of service to their customers.

- **PLAZA PUTRA (MALAYSIA**)

Plaza Putra (www.plazaputra.com) bills itself as a virtual shopping mall. Merchants offer a wide range of products and services ranging from electrical appliances to personal computers to education and travel agent services

- **MEDEX (U.S.)**

Medex, headquarters in Dublin, Ohio, manufactures and supplies critical care products to hospitals, health care facilities and health care providers in more than 50 countries. Critical care product customers rely on Medex to help them maintain a safety stock level of inventory. To ensure accuracy and responsiveness, Medex decided on a vendor managed inventory (VMI) program. Carefully managing and planning their EC investment has helped Medex make a powerful impact on their business mission to make their customers a top priority.

Through using a cost-effective, efficient, and reliable VMI system, Medex is able to better manage customer inventory.

- **KURONEKO YAMATO (JAPAN)**

Yamato Transport Company, Ltd., or Kuroneko Yamato, is an express shipping company that serves both consumer and business customers throughout Japan and fifteen other countries. With over 100,000 phone calls a day to its customer service center, the company was looking for a new and more effective parcel tracking system that was also cost-efficient. To accomplish this, Kuroneko needed a solution that not only gathered trace information more quickly but also provided that information to the customers in a timelier manner. They linked to a Web Server linked to Kuroneko's existing back end systems which enables their customers to track these parcel tracking systems by accessing an Internet site. The system provides Kuroneko's customers direct access to tracking information for a total of 18 hours per day (5 a.m. to 11 p.m.) and this has already resulted in significant improvements in customer satisfaction. The system will also save the company money over time due to a decrease in operating costs; i.e. the ability to quickly track and provide shipping information to the customer. Reduced costs, improved responsiveness to customer requests, and increased customer satisfaction should improve Kuroneko Yamato's ability to improve upon its already impressive customer base and hence create additional revenue.

- **SHOPNET SINGAPORE** (Business to Business)

ShopNet is an industry-wide integrated information technology (IT) community developed jointly by Singapore Article Number Council, the Retail Promotion Centre and the National Computer Board for small retailers in housing estates. ShopNet enables small retailers in Singapore to conduct point-of-sales (POS) scanning, inventory control and EDI for procurement. Currently, there are 170 retailers and 38 major suppliers participating in the ShopNET project. Benefits cited by retailers participating in the project include: access to vital product information from suppliers; store specific product mix for better customer service; standardization of product code and symbols; electronic tracking of product movement at each store; improved cash flow through increase in stock turnover and reduction of inventory; and, daily electronic sales and profit reporting on a store by store basis. One of the challenges of cited is difficulty in changing the conventional SME business attitude of doing business through EC instead of using physical intermediaries.

- **CYBERBANK (MALAYSIA**)

Cyberbank (www.cybank.net) provides a global secure e-commerce and e-payment service on the Internet. It allows merchants with websites to link to the Cybank shopping mall. Shoppers who register with Cybank pay an administrative fee of 5 percent. Client software is provided free of charge and

multiple accounts are permitted. Customer accounts are portable and can be saved onto diskettes for security, and can be opened on and operated from any computer with Cybank software and Internet access. Cybank uses the latest encryption technology and provides comprehensive transaction trails. A secure relay proxy security feature prevents bookmarking of merchant's delivery URL. Merchants do not have to pay credit card fees because all payments are made through Cybank. Cybank's owner Dato' Mohammad Kamal Bin Hussain is opening Internet banks in the U.S. Australia, as well as Malaysia.

- **BOSTON EDISON (UTILITY COMPANY) (U.S.)**

At Boston Edison, 3,400 employees have been using an intranet to access mostly internal information about the power company. Over the past year it has added an electronic commerce feature to the intranet allowing three of its vendors to post pricing, availability and delivery information on the network. Staples, for example, is able to offer Boston Edison next-day desktop delivery for all office supplies. Because of the electronic commerce capability of the intranet, the cost of writing a purchase order has dropped from $150 to $25 at Boston Edison.

- **AGRICULTURAL ENTERPRISE (AUSTRALIA)**

Four years ago, a farming family from the irrigation area of northern Victoria involved in a single commodity producing operation, found this enterprise increasingly unprofitable and set out to examine alternative agricultural enterprises on their land. The grower decided to produce and supply Asian vegetables, herbs and fresh fruit to meet top-end demand (restaurants and hotels with a regular demand for premium quality products), initially in Singapore. This farming operation is a small enterprise that has expanded from (on average) two to eight employees. The grower developed a model of electronic management that he seeks to further implement and refine. In the evening, an electronic mail order is received from the agent in Singapore, indicating the next day's requirements. Similar-minded farming enterprises combine to fill the order. Before picking begins at 6 am, the grower informs the agent by electronic mail how much of the order will be filled. Then electronic mail is used to inform the transport company of that day's freight movements to Melbourne and Singapore. Payment is made electronically, directly into the farmer's account, at a pre-agreed and very consistent price. The key element of this model is that the whole process takes just 24 hours from receipt of order to delivery to market, and full payment is made within that timeframe. This enterprise, made easy through electronic communication and electronic funds transfer, has enabled a marginal producer (to quote the grower) to regain equity in his property, extend his farm and expand his workforce significantly.

- **CREATIVE TECHNOLOGY, LTD**

Founded in 1981 in Singapore, Creative Technology, Ltd. develops, manufactures and markets sound, video, software and multimedia products for personal computers. Creative Technology has developed a software product that creates a unique Internet Community for music, games and entertainment enthusiasts. Called “Creative Inspire”, it broadcasts a mix of music, games and entertainment programs over the Internet. Creative Technology needed to establish a highly scaleable and reliable “virtual store” where customers using “Creative Inspire” could purchase the products to include in their own sites. Due to the high hit rate that was expected and the need to reduce frauds, online credit card verification was critical to the establishment of this “virtual store”. The solution enables each customer to establish, install, customize and maintain their own site. Key to the entire implementation was the integration of an Electronic-Data-Capture Point-of-Sale (EDC-POS) device that dials into the bank’s credit card authorization system. This allows real-time verification, without human intervention, of a credit card number entered by the potential buyer through a secure channel on the Internet. The system also offers Secure Electronic Transaction (SET) Internet credit card payment via Citibank’s regional gateway system in Singapore. In entering the online market, Creative Technologies was able to build on its existing business strengths which are rooted in personal computer sound, video, software and multimedia products. Creative Inspire and the creation of the “virtual store” enables Creative Technologies to extend its business by serving as a distributor/retailer of music, games and entertainment programs. By going on line, marketing costs were greatly reduced through the use of Electronic-Data-Capture Point-of-Sale and Citibank’s SET Internet credit card payment system based in Singapore.

- **GENERAL MOTORS INTRANET**

At General Motor’s dealerships around the country, stacks of printed manuals are being replaced by a new intranet that provides dealer’s with the most up-to-date information about warranty claims, special incentives, and vehicle availability, in addition to any configuration that a car buyer wants. Such a multifaceted intranet is expected to become commonplace in corporate America. Instead of thumbing through printouts, manuals, or floppy disks that GM previously sent on a daily basis, dealers are logging onto the satellite-delivered intranet to communicate to the car maker via Lotus Notes. Or they can use the intranet called GM Access to checkout administrative tools to make their business more efficient. On the other hand, GM envisions the intranet will enable buyers to specify car configuration at a dealer showroom and receive their order in a few days. Or if the car owner is stranded, he or she could hit a button on the dashboard and send a signal to the satellite that relays the message to the nearest dealer, who then dispatches a representative to the scene.

- **KESSLER INDUSTRIES, INC. (U.S.)**

Kessler Industries Incorporated is a family-owned manufacturer of metal indoor and outdoor furniture. In the early 1990s, Kessler began doing business electronically with a major retailer, and as more customers became interested in EDI, the company sought to expand and integrate its electronic commerce program. In order to create a bridge to connect EDI with their manufacturing system, they use EDI translation and integration software to link EDI to its internal applications and to create custom templates for documents such as purchase orders, invoices, advance ship notices and price/sales catalogs. The benefits of Kessler's integrated EDI system include improved customer service and customer satisfaction, labor savings and improved accuracy.

- **CSX TRANSPORTATION (U.S.)**

CSX Transportation, a subsidiary of U.S. multinational transportation company CSX Corporation, launched it's business-to-business commerce site, Transportation Workstation Net (TWSNet). Its 1997 sales through TWS Net totaled nearly $3 billion, two-thirds of the unit's revenue. More than 15,000 transactions were completed daily and the company anticipates the site to handle over 40,000 transactions a day by the end of 1998. Reaching that goal would mean that more than 80 percent of the unit's sales would be conducted electronically, translating into more than $4 billion in online sales. CSX Transportation has over 3,000 large customers that use the site to initiate work orders for train cars and containers, find pricing data, track their shipments to individual trains, dispute claims, send e-mail and check bulletin boards and directories. The site also provides supply chain management so that CSX can directly manage its customers' logistics and supply chain management services.

- **GARDEN ESCAPE (U.S.)** (SME)

Garden Escape is an on-line retailer of gardening products, information and services based in Austin, Texas. Through its garden.com website, Garden Escape can offer gardeners around the world with a selection of over 12,000 gardening supplies, magazine content, professional advice, and garden design software. Garden Escape currently has 55 employees consisting of an editorial staff, a staff of gardening and landscape experts, website/Internet staff, and customer service representatives. According to its original founders, the key to Garden Escape's success is its ability to leverage the unique advantages the Internet brings. In particular, use of the Internet provides benefits in dealing with Garden Escape's 50 different suppliers. Growers tend to be small businesses without sophisticated ordering or production planning systems. By using an extranet system, Garden Escape can transmit orders to suppliers and growers, which gives them the ability to update Garden Escape with revised inventory levels and order shipments. Although the company has yet to turn a profit, Garden Escape is confident its business model has significant advantages compared to the traditional model of distribution in the gardening industry. Garden Escape's revenue and website traffic has both been growing briskly at

about 500 percent annual growth. If sales and technical integration continue at their current pace, the company anticipates it will reach these targets in about twelve to eighteen months.

- **LAWSON CONVENIENCE STORES (JAPAN)**

In Japan, 24-hour convenience stores (conbinis) are found on every street corner from Okinawa to Hokkaido. There are over 35,000 in the country. That's one for every 3300 residents. However, by 1997 all of the best locations had been taken and sales were flat. Moreover, as Japan's economic growth slowed, projected reductions in consumer spending meant that sales per outlet would decrease unless something was done. Faced with this business environment, Lawson, the second largest chain of convenience stores in Japan, installed online shopping terminals in each of its 6,700 outlets that cover all 47 prefectures in Japan. The terminals use touch-screen technology. They allow customers to sign on to online catalogues, browse and place an order for a wider range of products than are normally offered in a convenience store. Once a customer selects a product, they receive a paper receipt. This is taken to the cash register and payment is made either in cash or by a special Lawson card. Items that are not in stock are delivered to the store and the customer can pick them up at their convenience. Large items like computers or perishable goods like flowers are delivered to the customer's home. Computer games and software can be downloaded on the spot from the terminals. If a customer wants to arrange a trip, the process is somewhat different. After inputting information about dates and destination, a Japan Travel Bureau agent instantly calls the telephone attached to the terminal. The travel agent confirms the travel details with the customer who then pays for the trip at the cash register. A few days later, the travel package is delivered to the customer's home. The principal advantages that convenience stores have are their location near to a customer's home or place of work and the fact they are always open. The introduction of online shopping terminals provides a way for them to build on these strengths while eliminating or reducing their disadvantages. Because they must change stocks quickly but have no space for warehousing, convenience stores adopted computerized continuous replenishment systems networked to their supply chains much faster than other retailers. The introduction of online store terminals does not require a change in business processes it simply extends existing ones by routing the orders placed on the terminal to the respective supplier. Because all sales are made online, the terminals overcome one of the barriers to growing convenience store sales—the lack of merchandising space and the cost of holding inventory. The increase in number and types of products has enabled Lawson to improve customer service and win business from not only rival convenience store chains but also from other retailers to include general retailers and department stores as well as specialist suppliers like travel agents and florists. The introduction of online terminals will boost sales by as much as 6% annually—a figure which many think is very conservative.

- **PRUDENTIAL INVESTMENTS (U.S.)**

By consolidating its business operations into similar groups supported by IT professionals familiar with their particular needs, Prudential Investments, a subsidiary of Prudential Insurance Cos., cut $14 million from its customer service operations by simplifying agent access to customers' information. The consolidation cut the average response time to customer requests by 55 percent. Whereas under the old system, a customer with two or more investment plans, e.g., 401k and annuities, would be shuffled between different departments, the new system allows a service representative to access all of the information from a single screen. The $14 million represents labor costs savings.

- **GOWINGS (AUSTRALIA)**

Gowings, an Australian retail clothing store was seeking to extend its customer base and tap into the global market without the costs associated with opening additional retail outlets. In going "global" they also wanted to avoid the cost of an international advertising campaign needed for brand recognition. A "virtual store" on the Internet seemed to be the perfect solution and they established an online ordering system that provides a customer a way to pay using a credit card. Features also included tracking the transaction through to fulfillment. Finally, a customer base was established to conduct targeted promotion programs in the future. Benefits. Extended Customer Base**.** Through its Web site, with orders now from New York to London and since they are open 24 hours a day, seven days a week their Australian as well as international customers can reach them at any time. New Sales Channel**.** Gowings was able to expand its sales without incurring the high costs associated with opening and staffing additional storefronts in urban areas. Ordering and Fulfillment. The integration of an online ordering system which includes credit card payments significantly shorted the ordering, payment and fulfillment system. It also improves inventory controls and reduces the requirement to stock products in multiple locations. These features lead to significant cost savings when compared to those incurred in traditional retail operations. Targeted Sales Promotions. By being able to collect customer specific information to include Internet addresses, Gowings World Store has the capability of conducting targeted sales promotions in the future. Requirements: Access. Because this is an on-line shopping application, affordable access to the Internet was a requirement for its implementation. Data Security and Encryption. Online credit card purchases require that customer information and specifically credit card numbers be protected from unauthorized access and use. Similarly, provisions for data integrity must be provided to protect both seller and buyer; e.g. changes in credit card charges or changes in shipping destinations, etc. Payment Gateway. A Secure Electronic Payment (SET) payment system is necessary for issuing of digital certificates to first-time users, authenticates credit card information and clears payment for on-line transactions.

- **CHRYSLER CORPORATION (U.S.)**

The Chrysler Corporation is targeting cost reductions approaching $2 billion with the second version of its Supplier Cost Reduction Effort (SCORE) application. The original SCORE focused on electronic submission of costs saving proposals by several suppliers. The newest version adds automated processes and e-mail functions that will reduce the amount of time it takes to process and approve submissions. SCORE will be available to Chrysler's suppliers, which provide 70 percent of Chrysler's car parts. Chrysler currently has over 400 suppliers online, up from 160 in 1997. The software application anticipates handling nearly 200 submissions per week, with a 78 percent approval rate. The next version of SCORE will provide Web-based access to the system, which the companies' hopes will add suppliers to its existing system.

- **INTERACTIVE MULTIMEDIA SERVICES (IMS) (HONG KONG)**

Hong Kong Telecom IMS (Interactive Multimedia Services) provides video-on-demand as well as online shopping and banking to over 250,000 customers. The largest Internet Service Provider in Hong Kong, its on line shopping mall acts as a host for over 30 merchants that want to sell their wares over the Internet. In addition to providing IMS with a competitive edge the cyber mall also serves as an opportunity for small and medium businesses to grow their own e-business without investing in their own software and hardware.

- **CHINESE BOOKS CYBERSTORE**

The Chinese Books Cyberstore (CBC) aims at selling quality Chinese books published in Mainland China, Chinese Taipei and Hong Kong to readers all over the world through the Internet It also seeks to them a reader's community on the Internet. CBC has about 30 employees. There are 200,000 book titles now available on its web-site which systematically categorized. Customers can search for books by title, author, book categories and can pay for their purchases online by credit cards. Security of the payment transaction is ensured through using the Secure Socket layer technology.. The books ordered are delivered by post or courier. Benefits. CBC leverages on the global nature of the Internet to target the worldwide Chinese Community as its clientele. CBC is especially popular with overseas Chinese in places where Chinese books are not easily available for sale. CBC allows readers to build their own personalized book stores by selecting subjects, contents or authors according to their stated interest. CBC intents to use such services to attract visitors and to maintain customer loyalty. At present, CBC is receiving an average of 5000 visits to its web-site per day. Its sales grew by 300% in the last 12 months. In order to further expand its network and business CBC also invites other web-sites to join its alliance programs by linking them to the CBC web-site. For books sold by CBC through these connected websites, the web-sites concerned will earn a commission up to 7%. Problems and Challenges Ahead. CBC considers that the perceived security risk of making payments over the Internet is an obstacle to its cyber bookstore

business as well as to the development of e-commerce in general. CBC wishes to see a change of public perception in favor of payment over the Internet, so that its business could benefit through more shopping online.. CBC is capable of: reaching the world-wide Chinese community by effectively exploiting the global nature of the Internet; customizing services to meet the needs of individual clients; low operating cost by eliminating the need of physical book shops; and market penetration can be enhanced by selling through other connected web-sites.

- **BANK PAPAN (INDONESIA)**

Bank Papan started operations as a bank providing mortgages to the Indonesia market in innovative ways. Today the bank delivers its marketing messages through a number of media including "Pulsa-Papan" which is one of the busiest 24-hour call centers in the country. Bank Papan's unique market position has come from a strong synergy between marketing and technology. The synergy is being expanded to new horizons with the current implementation of an Internet solution - proudly named IntraPapan within the bank. The system facilitates employees' access to updates on competitors and clients as well as other information relevant to marketing activities.

- **BLUE SHIELD OF CALIFORNIA (U.S.)**

Competitive pressures and consumer frustrations are beginning to drive the tradition-bound, paper-choked health care industry to the Internet. This month rolled out a program that allows independent insurance brokers to qualify individuals and families for health coverage online. A second Blue Shield initiative will help physicians verify a patient's eligibility for insurance over the Internet, eliminating time-consuming phone tag. At another Web site, corporate employees can sign up for Blue Shield insurance.

- **AEON WORLD CYBER MALL (HONG KONG)**

Launched in April last year, AEON World is Asia-Pacific's first fully functional real cyber mall. It brings a new era of 24-hour Internet shopping to Asia Pacific as every step of the shopping process - from entry to the web site through browsing for purchases to payment and delivery - is combined in a complete end-to-end solution. In other words, the whole shopping process will be completed on-line in real time, with the payment transaction automatically handled by the merchant and the bank. No further action on the customers' part is required.

- **CEMEX (MEXICO)**

CEMEX is the 3rd largest producer of cement in the world and the largest producer and supplier of cement in emerging markets. CEMEX is the number one trader of cement in the world CEMEX has headquarters in Monterey,

Mexico, and produces cement in Mexico and 11 other countries. CEMEX uses electronic commerce to collect and consolidate supply requirements from all of its plants worldwide. With this electronically consolidated information, CEMEX creates single, company-wide purchase orders to its suppliers, which are communicated to suppliers in multiple countries using electronic commerce. CEMEX also uses electronic commerce applications to maintain constant, automated monitoring surveillance of the major manufacturing equipment at its plants around the world.

- **PHILLIPPINE CHAMBER OF COMMERCE AND INDUSTRY (PCCI**)

The Philippine Chamber of Commerce and Industry is a non-stock, non-profit and non-governmental organization of small, medium, and large enterprises, local chambers and industry associations representing various sectors of business. They have committed themselves to working together to foster a healthy Philippine economy and to improve the viability of business. (PCCI) announced a strategic alliance with a Boston based U.S. firm to provide electronic commerce services for Philippine. The Alliance will enable Philippine companies to promote their products to the international marketplace, and generate sales online. This alliance will allow PCCI companies to embrace electronic commerce and develop new opportunities around the world with an affordable and robust system.

- **CANTERBURY INTERNATIONAL (AUSTRALIA)**

Well know for clothing millions of rugby players and sporting enthusiasts around the world, Canterbury International has more than 600 retail stores throughout Australia and New Zealand. To streamline its sales process and improve the efficiency of its mobile sales force, Canterbury applied a solution which provided each sales representative the ability to access customer information, determine the availability of products and place orders from the customer's location. The adoption of this system has greatly improved Canterbury's sales process and its other business processes. Responsiveness. Each sales representative has the capability to immediately provide each customer with pricing and availability information and expected delivery dates. The establishment of this system also permits the customer to use e-mail to contact their sales representatives, request quotes and place orders. This simplifies and speeds the process and eliminates the need to fax information to the customer. Supply Chain Management. Since orders are immediately reflected in the central data base, inventory controls have been greatly improved. Previously, product availability was determined either by checking a printed report which could be a week out-of-date or calling the warehouse to check the number of garments in stock. Preparing for the Future. So successful has been this system that Canterbury is considering extending it to their other internal business processes to include billing and fulfillment systems. They are also looking at setting up an online ordering system which customers could access directly. Requirements Network/Infrastructure. To provide its sale force with remote access to customer data, stockage and pricing information,

Canterbury had to extend its existing intranet. In addition, to enable customers to contact their sales representative, connections to the Internet were also required. Data Security and Encryption. To ensure the accuracy and protect the integrity of the data that was being provided to its sales force, it was necessary to establish "fire walls" between the Internet site and Canterbury's existing, intranet which is used in its internal business applications. Once the system is extended to include remote ordering and linkages to billing and fulfillment system additional security measures will be required.

- **FINANCIAL INFORMATION SYSTEM CENTER (FISC)(CHINESE TAIPEI)**

FISC is a sole switching center in Taiwan linking approximately 400 financial institutions. It is planned to extend its current services, for example bill payment and inter-banking fund transfers, through the Internet to its member financial institutions and the general public. The system will also provide the means for payment of taxes. Implementation and testing has been completed and FISC is now awaiting formal approval.

- **CHINA TELECOM (CHINA)**

China Telecom and IBM have agreed to work together to build e-business solutions tailored for the unique requirements of China's rapidly developing economy. IBM will provide managed network services through China Telecom, allowing international companies to more easily conduct business on-line by connecting their local offices in China to others around the world. This will also allow traveling workers to conveniently access network-based services in China with a local or domestic phone call. The strategic activities in the agreement also include e-business applications and infrastructures, e.g. a Certificate Authority and a secure payment gateway. New e-business pilot projects are also being established. These include an e-business system for Human Telecom, based on SET technology, which will eventually become an e-business network linking several cities. Another project is the first electronic shopping center and payment system for Guangdon Telecom, which has been installed. A payment gateway and Certificate Authority are under discussion. In addition, the China Huicui World Cup '98 web site, developed by China Telecom, will be used to link Beijing, Shanghai, Guangdong, Sichuan, and Hunan to provide inter-province Internet access and e-business services.

- **FREDDIE MAC (U.S.)**

Freddie Mac is a stockholder-owned corporation established by Congress in 1970 to create a continuous flow of funds to mortgage lenders. Freddie Mac's goal was to use EC/EDI to give lenders online access to mortgage insurers, enabling lenders to receive a mortgage insurance decision within minutes. With electronic commerce implementation, Freddie Mac is bringing greater efficiencies to the mortgage market to reduce the time and cost of underwriting mortgage

loans. It also allows lenders to receive approval status within minutes, provides sophisticated tracking and performance capabilities, and automates daily processes, freeing EDI management to focus on strategic plans. Freddie Mac was able to dramatically reduce the time associated with underwriting mortgage loans from several weeks, down to a few minutes.

- **YOUR PROSPERITY (AUSTRALIA)**

A recently established company, "Your Prosperity" provides fully integrated on-line investment management services. The choice of investment range from quality managed funds offered by Australian investment houses to more than 250 Australian Stock Exchange listed shares and property trusts. It gives investors the opportunity to deal directly with its on-line investment service 24 hours a day, seven days a week, including access to investment research from industry professionals, as well as updated daily portfolio and transaction reports. A customer's buy and sell instructions are delivered via the Internet to a back-end system which processes the request and updates the customer's database. (www.yourprosperity.com.au)

- **INTERNET VEGETABLE MARKET (CHINESE TAIPEI)**

The Tao-yuan Farmer's Association is using IBM's CommercePoint solutions to establish an Internet supermarket to sell special farm produce including organically grown vegetables. If an order is placed by 10 p.m., it will be delivered the next evening. Payments will be made monthly. For those not on the Internet, centrally located kiosks are planned. (http//www.ffnic.org.tw)

- **PROCURENET.COM SINGAPORE NETWORK SERVICES PTE LTD. (BACKEND SERVICE*)***

ProcureNet.com, a web-based, front-end application system developed by Singapore Network Services Pte LTD (SNS), enables companies in the manufacturing/electronics sector to enjoy the benefits of business-to-business transactions. ProcureNet.com links all parties from suppliers to distributors and end-users to integrate all procurement activities for manufacturing supplies. The benefits of using ProcureNet.com include: reduced administration and costs, just in time (JIT) delivery, reduced lead time and inventory, improved customer service, stronger business bonding, and competitive advantage. ProcureNet.com is aimed at improving the competitiveness of local companies within Singapore's electronics sector by removing the heavy start-up costs associated with traditional EDI solutions. It is also especially useful for companies whose volume or frequency of trade with their buyers is low or on an ad-hoc basis. With ProcureNet.com, suppliers need not purchase special software to access the system. All they need are an Internet access and an authorized user-ID. More importantly, as ProcureNet.com resides on the SNS web server, instead of the suppliers' premises, there are no maintenance costs to be borne by users.

By using this service, buyers and suppliers can carry out a host of transactions such as purchasing, delivery, invoicing and payment for goods electronically, thus speeding up procurement processes and facilitating Just-In-Time (JIT) delivery of goods. To date, there are about 60 suppliers who use their Internet account to link to SNS' network to access ProcureNet.com. These suppliers comprise Small Medium-sized Enterprises (SMEs) such as Asia Plastic Manufacturing Co. Pte LTD, Delta Electronics (S) Pte LTD, Gul Technologies (S) Pte LTD, Omron Asia Pacific Pte LTD, Teck Wah Paper Products LTD and M-Flex Singapore Pte Ltd. .Currently, ProcureNet.com processes an average of 1,500 transactions per month between these suppliers and major buyers such as Hewlett Packard Singapore (Pte) LTD, and Aiwa Singapore Ltd.. Benefits of ProcureNet:**:** reduced administration and costs**,** with all stages of procurement automated and made totally paperless, data entry from paper documents and replication of data are eliminated. This, in turn, cuts down data entry errors and costs .JIT delivery ProcureNet.com allows goods to be delivered Just-In-Time (JIT) to supplement existing stock. As such, there is no need to hold high levels of inventory or worry about storage space or out-of-stock situations. Improved customer service**.** Besides more streamlined procurement processing, turnaround time between purchase orders and delivery has also been shortened. By meeting customers' demands quickly and delivering supplies just in time, suppliers are thus able to improve their customer service. Stronger business bonding**.** With ProcureNet.com, both suppliers and manufacturers are now able to communicate over the Internet, regardless of varying interfaces. The common channel effectively facilitates communication and, at the same time, strengthens ties between both parties. Competitive advantage Suppliers can take advantage of the shorter lead-time when delivering supplies. By earning their customers' confidence with a timely response, suppliers can meet demands in a shorter timeframe, thus gaining a competitive edge over other overseas suppliers and increasing productivity. Problems and Challenges ahead: Incorporation of security features**.** As the Internet is an open, global network that can be widely accessed by anyone who possesses an Internet account, users' main concerns are usually associated with a lack of security, privacy, access control and authentication methods. As such, the main challenge that SNS faces is to convince these suppliers that ProcureNet.com addresses their concerns adequately with the incorporation of the security features such as Internet security firewall, Hypertext Transfer Protocol Security (https) servers and Secured Socket Layer (SSL) protocol. These security features ensure protected data transmission between client software and server database over the Internet. Besides preventing trespassing of the system, access to web pages is also restricted with user ID and password. In addition, data is encrypted before it is transmitted. ProcureNet.com has been available to suppliers for nearly two years. Suppliers who have accessed ProcureNet.com have recognized that the benefits of using an automated and electronic procurement process far outweigh any potential security threats. End-to-end supply chain solution Besides delivering ProcureNet.com to facilitate the electronic procurement process between buyers and suppliers, SNS has also recognized the importance of a

complete and end-to-end supply chain solution to enable manufacturers to maintain a competitive edge in the emerging global marketplace. As such, its main challenge is to integrate ProcureNet.com with its back-end application systems and logistical and warehousing operations to provide a seamless link in the supply chain process for the manufacturing industry. Benefits of such an end-to-end supply chain solution include: the optimization of operational costs through the realization of JIT delivery of supplies, better management of global operations and the elimination of intermediaries. Linkage to global manufacturing network As the Internet increases in popularity around the world, business-to-business transactions, such as procurement over the Internet, will subsequently increase. This will give rise to opportunities for ProcureNet.com to be connected to the global manufacturing network, enabling businesses to source for best-in-class components worldwide. As such, linking ProcureNet.com to the worldwide manufacturing network is one of the main challenges facing SNS.

- **MEDNOTES (AUSTRALIA)**

More than one million people are expected to benefit from an on-line health system that was launched in June 1998. This offering is based on a Physician's Desktop Application linked through a secure intranet to medical laboratories in Western Sydney. It provides doctors with on-line access to the pathology results of tests on their patients without leaving their offices. It ensures that these doctors can obtain the results of laboratory tests promptly and without the need for paper copies to be couriered to their offices. It was designed by an Australian general practitioner and developed in partnership with IBM Global Services Australia and the Institute of Clinical and Medical Research in Westmead Hospital.

- **TAIKO ELECTRONICS (SINGAPORE)**

Taiko Electronics manufactures electronic components for the worldwide market, with the Southeast Asian headquarters in Singapore. Taiko introduced a system to enable their employees to communicate through e-mail, share information and work collaboratively within their company and within their company and with their customers through the Internet. In addition, Taiko linked this communications system with its business systems including its Manufacturing Process System and Purchase Requisition System. The first helps facilitate on-line inquiry on the status of Taiko's products, anywhere, an time via the Internet. While the second has completely computerized the whole process of obtaining approval for purchases, resulting in improved efficiency and shorter process cycles.

- **JB MARKETING TECHNOLOGY LTD. (HONG KONG)**

JB Marketing Technology Ltd. (JB) is a local start-up and was established in 1995 as a technology company in the business of developing Internet web-sites for clients. In 1996, JB's owners began development of the JobAsia web-site on

which employers could post job vacancies for searching and viewing by job seekers. JB has about 20 employees. Job advertisements placed on the web-site by JobAsia by employers are charged in terms of the number of words in the advertisements. The advertising time is fixed at a period of 2 weeks, after which the advertisements will be withdrawn from the web-site. Searching of job vacancies by job seekers is free of charge. Benefits. JobAsia allows JB to compete effectively with the conventional printed media, i.e. newspapers and magazines, in the job advertising market by capitalizing on the phenomenal growth in the use of the Internet. Advantages of advertising over the Internet Include the potential for employers to reach out to all potential Internet users, whether at work or at home, 24 hours a day and seven days a week, and the capability for job seekers to search for jobs and to submit applications electronically in a more efficient manner. Currently, visits to JobAsia web-site by job seekers stand at the average level of 3.5 million hits per week. This is more than double as compared with that in February 1998 and ten times of that a year ago. JobAsia's ability to match job vacancies with the specific requirements of individual job seekers by means of its extensive searching capabilities, is another important factor in ensuring that the right candidates will be directed to the relevant jobs. Challenges Ahead. JB considers that the job advertising market on the Internet is still in its infancy stage of development. The market is growing and will undergo a lot of changes due to technological advancements as well as constant innovation on the part of market participants. The ability to respond to market and technological changes and to capitalize on them will be a challenge ahead. JB has so far invested over IIK$1 0 million in JobAsia and expects to recoup the investment in 3 years' time. Looking ahead, JB aims to increase its membership to between 250,000 and 300,000 by the end of 1999. It also plans to expand JobAsia into the markets in the Mainland China and other parts of Asia.This case study example highlights the following benefits that a small or medium sized enterprise can realize when utilizing E-commerce; more efficient, direct and tailor-made customer service. greater client base and market potential. enhanced competitiveness for a newly start- up company vis-à-vis large and well established firms in the market by leveraging on the extensive reach and wide use of the Internet.

- **HOTEL OKURA (JAPAN)**

Established in 1962, Hotel Okura prides itself on a tradition of excellent service with tremendous attention focused on the details of an individual customer's preferences and needs. To ensure that their customers enjoy the same service in any of their 23 hotels, and extranet was established to share the information it has collected on its guests over the years. Information on everything from a customer's preferred table locations in restaurants to favorite pillows and magazines is instantly accessible to any hotel employee or manager. The hotel chain also uses the extranet to link directly with the worldwide reservation system used by overseas travel agencies so that it can respond to reservations 24-hours-a -day without necessarily having a human operator on duty.

- **COLES MYER (AUSTRALIA)**

Coles Myer is well down the track of implementing EDI to achieve greater retail effectiveness through the interaction of information between supplier and retailer in four stages: reference data transfer, purchasing, delivery and payment activities. All products are coded by Suppliers with the standardized EAN (Australian product number) bar-code. EDI documents exchanged include purchase orders, purchase order acknowledgments, purchase order variations, receipt of goods advices, remittance advices and payment instructions. The need for an invoice has been eliminated. Rather than using EDI as a faster postage stamp perpetuating the current processes, the retailer/supplier community has seized the opportunity to streamline and reengineer the processes between both parties.

- **COMMERCENET KOREA**

Funded by the Republic of Korea's Ministry of Information and Communication (MIC) and lead by Dacom, Korea's largest private telecommunication company, CommerceNET Korea is the first electronic commerce infrastructure project in Korea. It provides an end-to-end on-line payment system and digital certificate system in a SET environment. An e-commerce test bed of promising Small and Medium Enterprises (SMEs) have been also established and will put some 2,500 electronic catalogues on-line (www.shopfinder.net)

- **UOB CYBERBANK (SINGAPORE)**

Founded in the 1930's, UOB is Singapore's leading bank with a network of 81 bank branches in Singapore and 60 overseas offices. It is also the core company of a Group that has diverse interests and investments through its more than 100 subsidiaries and associated companies. In October 1997, UOB introduced Cyberbank, which uses Internet technology to ring their banking services securely, efficiently, and conveniently to customers in Singapore and around the world. Now, customers can make on-line account applications, current balance and check status inquiries, stop check payments, transfer funds, view margin trading portfolios, change passwords, pay bills to selected establishments, and host of other services anytime, anywhere via the Internet.

- **CALIFORNIA ASSOCIATION OF INDEPENDENT PHYSICIANS (U.S.)**

California's second-largest association of independent physicians is about to launch a service that enables doctors to log on to a Web site and file claims, make referrals, confirm patients' eligibility and obtain authorization for treatment. A spokesman for Brown & Toland Medical Groups said he expects a 25 percent improvement in productivity when the group's 2,000 doctors go online in a few weeks. Presently this information is taken over the phone and fax and the paper

process that involves 300 employees. The sheer volume of paper generated by the health care industry makes it a natural candidate for automation. The Net's universal standard also makes it the perfect antidote to the incompatible mishmash of computer systems used by insurance companies, doctors, hospitals and employers.

- **NTUC FAIRPRICE (SINGAPORE)**

Welcome to Cybermart, the virtual supermarket run by NTUC Fairprice. Instead of pushing a loaded trolley, jostling with fellow shoppers and dealing with long check-out lines, all you have to do to stock up on groceries in Singapore is to leisurely click a mouse in the comfort of your own home. Fairprice's e-business project has allowed the company to differentiate themselves from the competition and at the same time reach out to a new generation of shoppers. From a chain of 62 stores, Singapore's leading retailer now has an outlet in every home and office with Internet access. (http://cybermart.ntu-fairprice.org.sg)

- **OFFICE CONNECT SDN. BHD. (MALAYSIA)**

Office Connect SDN. BHD. (www.officeconnect.com.my) offers Internet marketing services and e-commerce solutions for businesses ready to utilize the Internet as a part of their overall business strategy.

- **MAZZIO'S CORPORATION (U.S.)**

Benefits: By installing a virtual private network (VPN), Mazzio's Corporation, a Midwest chain of 255 pizza restaurants, is able to connect its restaurants in remote regions to its corporate network. Mazzio's uses a frame relay and ISDN network to connect many of its restaurants to a corporate intranet to handle the company's most important application - the pizza order entry system. In addition to centralized ordering, the company benefited by providing professionally trained salespeople an avenue to better market the company's products. The intranet also provides status information about orders so call centers can tell customers the status of their order. The VPN gives all the locations permanent connections to the corporate network to take advantage of centralized purchase orders. By using Internet connections for the VPN, Mazzio's communications costs are a fraction of what a traditional wide area network (WAN) would cost. Mazzio's added 17 remote-site companies to the VPN in 1998.

- **CITIBANK SINGAPORE (SINGAPORE)**

Singapore-based Citibank Asia Pacific is able to make international electronic commerce possible with the completion of the bank's first live end-to-end credit card transaction. Citibank Visa and Mastercard cardholders are able to make purchases via the Internet with SET-enabled merchants in Singapore, Taiwan, and Hong Kong. The system issues digital certificates to first-time users,

authenticates credit card information and clears payment for on-line transactions and will be extended to 500,000 Citibank customers across Asia Pacific. Currently, Citibank showcases four merchant malls: (1) Creative Inspire which sells multimedia equipment and PC kits; (2) ClickDiz which showcases the latest in CD-ROM games and software; (3) Anne Klein, which sells clothes and fashion ware; and, (4) the BNN Shopping Mall which offers beauty products. This secure on-line payment system, developed to cover electronic transactions, is the first for Visa in the world and Citibank Singapore is the first branch to lead this initiative.

- **MOONCAKES.COM (MALAYSIA)**

Mookcakes.Com's website (www.mooncakes.com.my) offers 12 varieties of Chinese pastries called mooncakes which can be ordered on-line using a visa or mastercard. Once the credit card number is verified, the pastries are delivered locally within 5-7 days and internationally to international courier standards.

- **JINAN SHENQUAN GROUP SHARE-HOLDING CO.,** LTD.(SQ) (SME)

SQ is a chemical product manufacturer located in Jinan, capital of Shandong Province, China. IT has about 700 employees and enjoys a leading position in foundry field and in export of no-bake fliran resin for casting in China. Its export value reached 7 million in 1997.)In 1997, SQ connected to CIETNet (China International Electronic Trade Network, a special network connected to Internet set up by Ministry of Foreign Trade and Economic cooperation). Since then there has been a great improvement to the company's business, either domestic sales or marketing abroad. Benefits: Great development of international market; SQ built business relationship with over 30 customers abroad through CIETNet, and 1/3 among these. customers has been contacted in regular form. More than USD 3 million of export value has been added up to now. Benefit from abundant information resource. Phenol, as a kind of raw material, is regularly demanded by SQ. The company found from CIETNet that a provider's price was RMB 1500/mt, lower than former providers. After many contacts with the provider, a contract was signed and more than one million RMB was saved annually. More information such as maritime transport, trade regulations of many economies and foreign currency exchange rates is obtained every day. Reduction of expenses and cost in business operation. A lot of telecommunication expenses, such as telephone and fax charges, have to be paid by SQ due to large amount of business. At present, SQ can contact customers by e-mail or fax in the network and 60% of expenses is saved. Improvement of work efficiency. Work efficiency has been improved by utilization of e-mail or other new communication ways. For example, a joint venture was built in 1997. Many pictures for the project design provided from UK have been faxed via Internet and after amendment by the engineers of SQ, a new design with high clearance was faxed back to UK and all processes were operated in the network and finalized in a short time. Problems and Challenges: Just like many export enterprises, the export of SQ products

meets many difficulties in 1998 due to the influence of financial crisis, but SQ is confident to make a progress by using CIETNet. There are some problems now during the utilization of the network, such as difficulty in connection and low speed in data transfer. Meanwhile, SQ could not make electronic transactions with customers through the network.

- **CREATIVE TECHNOLOGY LTD (SINGAPORE)**

Founded in 1981 in Singapore, Creative Technology Ltd. develops, manufactures, and markets a family of sound, video, software, and telephony multimedia products for PCs. With a worldwide user base of over 20 million, Creative Technology has a global staff strength of 4,400 with over 400 R&D personnel. Supported by a network of 20 subsidiaries, their products are marketed through 175 distributors in 77 countries and in the U.S. alone are sold in over 30,000 retail outlets.As part of Creative Technology's electronic commerce strategy, the company developed "Creative Inspire," which provides on-lone Internet access to music, games, and entertainment events and programs. Due to anticipated high hit rates, there was a requirement for a highly scaleable and reliable network and, in order to reduce frauds, there is a critical need for on-line credit card verification before products are down loaded from the Internet. Users must also have the capability to install, customize an maintain the software interface on their own personal computer. The key to the product's success was the integration of an Electronic-Data-Capture Point-of-Sale (EDC-POS) devise that dials into the bank's credit card authorization system. This allows for real-time verification without human intervention. The system also offers SET Secure Electronic Transaction Internet credit card payment via Citibank's regional gateway system.

- **FASHION MUSIC STATION (CHINESE TAIPEI)**

Fashion Music Station is using e-commerce to link 70 different record publishing companies to a central database where product information can be stored and then accessed by customers throughout the country. Customers use the Fashion Music Station website to quickly get information on the newest releases (as well as older titles) and then electronically order the CDs they want. The benefits for the customer is the ease and convenience of using the website as opposed to physically shopping for the product, and record publishing companies are able to increase their product circulation and decrease their product returns.

- **AUCNET (JAPAN)**

AUCNET, Inc. operates a nationwide electronic used-car auction house that handles about 300,000 used-car sales per year. Using a communications satellite link, AUCNET transmits data, including pictures, on each used car to registered AUCNET subscribers who then bid electronically on the vehicle. AUCNET is an example of a successful e-commerce application that makes

possible huge savings in labor and distribution costs since vehicles and bidders do not have to be in one single location at the time of auction.

- **MYFLOWERS (MALAYSIA)**

MyFlowers.com: Malaysia's first Internet florist, MyFlowers.com sells flowers and gifts from its electronic storefront. The MyFlowers.com website uses SSL (secure socket layer) technology and customer information, such as credit card numbers and other and personal information, is encrypted to ensure security and confidentiality. MyFlowers.com cites expanded markets and cost savings as the two biggest advantages of using e-commerce, while high start-up costs and reluctance of banks to process credit card transactions were cited as the biggest challenges to overcome. Nevertheless, MyFlowers.com has plans to offer on-line customers even more services, such as personalized pages for repeat customers.

GOVERNMENT LEADERSHIP

- **INLAND REVENUE DEPARTMENT OF NEW ZEALAND**

As part of an extensive strategic implementation program, the Inland Revenue Department of New Zealand has integrated electronic commerce into its overall business operations. Examples include the use of electronically filed tax returns by tax practitioners, Internet and Intranet websites, and electronic payments systems. A major initiative presently being implemented, as part of the overall tax simplification program, is the new electronic filing system for PAYE (Pay As You Earn) details and collection. From April 1 1999, employers with annual PAYE deductions amounting to more than NZ$100,000 are legislatively required to file PAYE information to the IRD electronically; approximately 9,000 employers will fall into this category. Over 50,000 employers are expected to use the system within three years. The system to be used is a highly secure Internet-based system that will allow employers to provide their employer monthly schedules electronically. The use of both encryption and digital signatures will be integral to this process and is a first for New Zealand Government agencies. The new system will not only save employer's time in dealing with paperwork but also more importantly reduce overall compliance costs. In addition, most employees will no longer have to fill out individual tax forms at the end of each financial year.

- **U.S. SOCIAL SECURITY ADMINISTRATION (SSA)**

The SSA is committed to building greater public confidence, extending accurate and efficient world-class service to the public and nurturing its 65,000 employees. The SSA determined it would streamline, reengineer and automate its business processes in order to carry out this resolution. Over 250,000 files are transmitted nationwide each month between state and federal agencies. These requests

took two weeks or more to process and now they take two minutes, resulting in cost savings of $19 million each year for the SSA. Advanced error handling, notification and recovery features provide the level of reliability the SSA mandates to keep the flow of data constant and its records current. Flexible security options allow the SSA to control access to its data, network and resources by individual users or classifications of users. Security violations are tracked and sources identified through audit trails and statistics. Automated communications have helped to eliminate an immense amount of the manual operations and the erroneous overpayment situations caused by human error. Data confidentiality has been greatly heightened and responses to the SSA's customers are delivered efficiently and effectively. Administrative costs and walk-in traffic at SSA field offices have been significantly reduced.

- **ELECTRONIC VISA INFORMATION SYSTEM ELVIS GOVERNMENT TO GOVERNMENT TRANSACTIONS (SINGAPORE)**

The Electronic Visa Information System (ELVIS) is a project which allows electronic transmission of visa information for textile products exported by a country to the United States. Singapore was the first pilot user of ELVIS started in 1992. Other pilot users are South Korea, China, Thailand, Taiwan, the Philippines, Malaysia and Indonesia, all of which are in various stages of test run. Under the ELVIS project between the Governments of Singapore and the United States, a decision has been made to cut over to the paperless textile visa arrangement with effect from 1 January 1998. Both the United States and Singapore had been satisfied with the results of the parallel test run of the ELVIS and paper visa system. Singapore is the first exporting country to go fully paperless. Exporters to the United States go through the Singapore Trade Development Board(STDB) to apply for the Export Permits, Textile Visas and Certificates of Origin. Singapore exporters will receive from STDB an electronically approved visa message on the commercial invoice, which they can present to the banks or their buyers, if required. ELVIS provides a simple standardized format for the electronic transmission of the visa data. In the past, the preparation and handling of the traditional paper visa documents slows the clearance processes in both the US and Singapore. ELVIS is a faster and more efficient means of transferring information over long distances. It also overcomes the issue of misplaced or missing documents, a problem which is magnified when it involves long distance travel. The arrangement will also help to prevent any potential Textile Visa fraud for illegal transshipment as visa information is now electronically transmitted directly from the STDB to the USCS. The visa data are protected with ELVIS because the electronic data transmission have built-in security and data validation safeguards. ELVIS is a significant breakthrough for the trade in textiles between the two countries. ELVIS demonstrates an effective and efficient means of communicating time-critical and sensitive information between government departments. An electronic data transmission system like ELVIS will increase the efficiency, accuracy and security of information exchange

and will drastically reduce the expense and delays inherent in the handling and safeguarding of sensitive paper documents.

- **UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)**

The USDA is developing an EDI solution to manage the flow of nine transaction sets between the national computer center, regional offices and state distribution agencies. Through the implementation of EDI, the USDA is able to improve efficiency. The task of collecting, validating and distributing information quickly and cost-effectively was becoming more labor-intensive, time-consuming and inefficient for the USDA Food and Consumer Service (FCS). To resolve these inefficiencies, the FCS developed an EDI solution that involved the efforts of national and state governments, and private industry. This new system manages the flow of nine transaction sets between the national computer center, Regional Offices and State Distribution Agencies. Benefits include reduction in errors and need for manual intervention, increased response time for recipients, and improved distribution of information among regional, state and federal agencies' systems.

- **U.S. RURAL EXPORT INITIATIVE (REI)** Department of Commerce

REI is coordinating a national rural outreach program that utilizes state of the art technology to provide export assistance to traditionally under served rural manufactures.

- **DEPARTMENT OF JUSTICE, VICTORIA - COURTS EDI SERVICE**

In August 1993, the Department of Justice launched its EDI pilot for electronic submissions of case initiation documents within the Civil Magistrate's jurisdiction, with the aim of improving the efficiency of courts' administration. EDI was introduced to cut down on the need to rekey case data and to dramatically reduce the turnaround time of cases lodged with the Department from several days to one day. The Courts and Tribunals Services Division was the Category B winner (medium size organizations) in the 1994 AIIA National Awards for excellence through Information technology for its Courts EDI Service.

- **HONG KONG POSTAL SERVICES**

E-Post services aims to handle the whole process of printing, enveloping and posting of-mail for business customers electronically. With this service, messages generated by computers of business customers such as bills invoices can be sent to the E-Post center either through dateline or in the form of computer diskettes. At the center, the electronic messages will be turned into physical paper mail by high speed laser printers and inserting systems. These mail items will then be slotted into the mail 1 delivery stream for dispatch to their destinations. This is a total mail solution which allows the customers to

concentrate on their business.

- **THE SINGAPORE GOVERNMENT SHOPFRONT**

The Singapore Government Shopfront consists of, at present, 11 government agencies delivering various types of goods and services. They are as follows: Community Chest, Ministry of Community Development Singapore Department of Statistics, Ministry of Trade and Industry, Land Transport Authority, Ministry of Manpower, Maritime & Port Authority of Singapore, National Health Education Department, Ministry of Health, Singapore Science Centre, Singapore Tourism Board, Traffic Police, Ministry of Home Affairs, Trade Development Board, The Singapore Government Shopfront was launched on 23 September 1998.Use of the Internet: All agencies on the Shopfront have been using the Internet for years for information gathering, publicity and communications. Most agencies are on the Singapore Government Network (SGNet) using Lotus Notes as messaging and productivity tool. For members of the public, one of the main benefits is that they are now able to enjoy faster access to government products and services without leaving the comfort of their homes. As for the government agencies, since purchase orders are now captured electronically, they no longer need to do data entry into their backend systems. One major challenge that the Singapore Government Shopfront is encountering is related to the mode of payment. At present, only CashCard issued by the Network for Electronic Transfers (Singapore) Pte Ltd. (NETS) is accepted. In order to use the CashCard for Internet payment, users need to purchase a SmartCard reader retailed at between S$40 and S$60 which currently has not been widely adopted yet. The Government Shopfront also aims to target buyers outside of the local market. In order to do this; the Government Shopfront must also accept other modes of payment, such as credit card and international debit cards. It is also a challenge to all government agencies to provide timely, useful, relevant and innovative goods and services to their target buyers, local or international.

- **AUSTRALIAN TAXATION OFFICE (ATO) - ELECTRONIC LODGEMENT SERVICE (ELS)**

The ELS, developed by the ATO, allows tax agents to electronically transmit their clients' individual tax returns via modem or disk. Approximately 9 million individual returns and 1.5 million partnerships, trusts and company returns are processed annually by the ELS. Before the establishment of the ELS, paper based tax returns took an average of 10 weeks to process. Today it takes two weeks. The successful implementation of ELS involved more than 3,000 tax agents, 24 software developers, two public sector unions, Telecom's Auspac, and managers and their staff in 16 ATO branch offices around Australia. Tax agents using the ELS have the option of not lodging a paper tax return. However such returns must be held at the tax agent's office and must be able to be produced for the ATO on notice. A signed paper copy of returns must be retained in order to satisfy evidentiary legislation. After the first year of national operation,

just over 3 million or 50% of total tax agent lodgments were received and processed electronically from 3,800 tax agents. Benefits have been realized by all parties using the ELS.

- **U.S. TRADENET/EXPORT ADVISOR**

Small firms interested in increasing export sales will soon receive trade leads or notices of international procurement opportunities through Tradenet/Export Advisor, an interactive, international trade "tool kit" on the Internet. Tradenet is a multi-agency intergovernmental, export assistance online service.

- **HONG KONG GOVERNMENT SERVICES**

To keep Hong Kong in the forefront of world IT development and to further promote the development of electronic commerce in the territory, Hong Kong will further strengthen its program in public sector use of electronic commerce by introducing a comprehensive plan to provide Government services online, i.e. the launching of the Electronic Services Delivery scheme. Under this scheme, Hong Kong will establish an information-infrastructure with an open, common interface, through which the public can transact business with Government electronically, 24 hours a day a seven days a week. The public may access public services on seamless basis through touch screen information kiosks installed convenient public locations like libraries, community centers, district offices, etc., personal computers at home or in the office, telephone via interactive voice response system, interactive television, or other possible electronic devices. We anticipate that the scheme will substantially improve the quality and efficiency in the delivery of public sector services. It will also act as a catalyst to stimulate the development electronic commerce and Hong Kong expects that the information infrastructure developed for the scheme will also be used by the private sector for conduct of electronic commerce at a later stage.

- **TRADELINK ELECTRONIC COMMERCE LTD**

This company has the mission to enhance the productivity and competitiveness of Hong Kong's import & export trading community by making available a wide range of value-added electronic commerce services, with an initial focus on automating common trade transactions involving the Government. The shareholders of Tradelink are all key players in the field of international trade in Hong Kong and the HKSAR Government is the largest shareholder. Tradelink now provides electronic submission facilities which allow textiles and garment companies to apply for quota licenses and lodge trade declarations online. All the relevant fees are collected electronically. No more queuing at Government counters or cash payment is necessary. Companies connected to such facilities can also receive up-to-date information on trade and their quota balance. With the availability of these facilities, Hong Kong plans to phase out all paper lodging of trade declarations by the end of March 2000. This would mean that some

70,000 Hong Kong trading companies, of which more than 98 % are small-to-medium sized enterprises, would migrate to electronic commerce within the next two years. When the migration completed, Hong Kong will have one of the world's largest bases of electronic commerce users.

- **U.S. EXPORT ASSISTANCE CENTERS**

The U.S. Export Assistance Centers will conduct electronic commerce seminars designed to educate the exporting community on the Internet-based marketing and technology tools available today.

- **HONG KONG PRINTING SDN BHD (MALAYSIA)**

The company prints checks, security documents, pin mailers, multifunction mailers, and envelopes. Its target market industries include banking, finance, securities, manufacturing, and telecommunications. HHP needed a set of products and services that would help it to quickly and easily create secure, interactive business solutions for the Internet and the HHP intranet. HHP was able to put in place an effective network and infrastructure that provides its employees with a secure environment and easy access to its business applications and processes, an easy-to-use, yet powerful messaging system for the company, collaborative support, web integration, ease of scalability and a short development cycle.

- **SUPPLYLINE (AUSTRALIA)**

In October 1990, the New South Wales (NSW) Government introduced the first large-scale whole-of-government electronic commerce system comprising an electronic database and EDI software called SUPPLYLINE. NSW Government agencies and departments access an electronic catalogue containing details of over 100,000 common-use contract items and place electronic orders on suppliers using SUPPLYLINE, be that by deploying centralized on-line access, PC-based standalone software, or software integrated to mainframe applications. With $4 billion worth of government purchases per annum, 3,000 suppliers and 12,000 government purchasing sites, a conservative estimate in savings through the greater use of period contracts was around $100,000 million per year. The efficiencies of EDI such as speed and administrative cost reductions, inventory savings and greater access to government trading partners were seen to be the major contributors.

- **THE MALAYSIAN ASSOCIATED INDIAN CHAMBERS OF COMMERCE AND INDUSTRY (MAICCI)**

The Malaysian Associated Indian Chambers of Commerce and Industry (MAICCI) plans to set up an electronic commerce exchange to provide greater access to the world market to Malaysian business. Although the exchange is

expected to be ready in December 1998, when the organization works out further details for the exchange.

- **TRADENET SINGAPORE NETWORK SERVICES PTE LTD (SNS)**

TradeNet, the nation-wide Electronic Data Interchange (EDI) network, processes trade declarations electronically with government agencies and local, as well as overseas trading partners. Operated by Singapore Network Services Pte Ltd. (SNS), it streamlines trade documentation, eliminates preparation of multiple forms, and simplifies application of Certificates of Origin. The benefits of TradeNet are faster transactions, increased productivity, savings in paperwork, manpower and costs, better management of cargo, and no restriction in operational hours SNS was incorporated in 1988 to develop and operate a wide range of value-added Network (VAN) services.. To date, over 23,000 users from the trading, manufacturing, distribution, retail, real estate, construction, healthcare, financial, legal and travel sectors are connected to the SNS network for EDI, Internet and other network services. The successful implementation of network services and extensive networking expertise has put SNS in a good stead in its trust toward regionalisation. Today, SNS has joint ventures in Canada, China, India, Malaysia, Mauritius, the Philippines, and South Africa. Since the incorporation of SNS in 1988, the number of its employees has increased steadily – from a modest number of six staff members to the present strength of 331 employees. These employees work within the various divisions of SNS: Operations, Technology, Finance, Enterprise Solutions and Business Development.T radeNet service was implemented on 1 January 1989 by Singapore Trade Development Board (TDB), developed together with SNS. The driving force behind this nation-wide EDI network known as TradeNet was a national objective which made it possible for the trading community comprising the traders, cargo agents, shipping agents and freight forwarders to work with approximately 20 Government agencies to design and put in place an integrated multi-agency system to hasten the clearance of goods in and out of Singapore. Benefits are**:** faster transactions, increased productivity.. Savings in paperwork, manpower and costs and no restriction in operational hours. Problems and Challenges Ahead :Constant upgrading of technology TradeNet will offer even faster processing of trade declarations to 1-5 minutes from the existing 15-30 minutes. Upgrading of user systems and continuing education/training When fully implemented, the increased efficiency in trade transactions is expected to generate annual savings of some S$2.8 billion. TradeNet Plus will allow Singapore to be positioned as an international trade facilitator for the region by providing an efficient infrastructure for international trade. By leveraging on the TradeNet Plus infrastructure, Singapore will be in a better position to link to other international electronic commerce initiatives.

COOPERATION AND PARTNERSHIPS

- **ORACLE ACADEMIC INITIATIVE (OAI)**

Benefits: More than 100 college and university campuses worldwide have joined the Oracle Academic Initiative (OAI), a $50 million effort to address the worldwide IT labor shortage. OAI is designed to help universities attract and graduate skilled IT professionals. OAI provides academic institutions with software, support, curriculum, instructor education and certification to develop cutting edge technology education courses and programs. In the three months since the launch of OAI, over 100 campuses are able to participate, including San Francisco State University, Arizona State University, and the University of Kentucky and Community College System. Certified IT professionals are going to be a requirement for conducting business in the 21st century At the Asia Pacific Information Technology Summit, President Fidel V. Ramos of the Philippines witnessed the signing of an MOU between Oracle Corp. and the Asia Pacific Economic Cooperation Foundation of the Philippines. Philippines becomes the first international participant in the $50 million OAI.

- **PACIFIC ALLIANCE FOR COMMUNICATION TECHNOLOGIES**

The Edupact initiative directly contributes to APEC's efforts to assist SMEs in their attempts to utilize electronic commerce practices as it will expand the IT literacy and skills levels of potential entrepreneurs and SME managers in the region. EDUPACT Objectives are to: address the APEC leaders call for the promotion of electronic commerce by equipping the regions citizens with state of the art education and training so they may better access and develop the business and social skills needed in the information age, bring attention to, leverage, and facilitate the work of companies, academic institutions, and government offices in the region to develop an IT literate society in the Asia-Pacific Region, build upon the APEC leader's call for establishment of an Asia-Pacific Information Society by the year 2001 by creating an international network of companies and institutions to share data, experience, information and advice in the use of information technologies in learning institutions, support the growth of an accessible, affordable regional communications and information network for the benefit of all the major learning institutions of APEC. To encourage and facilitate projects which promote development of useful, innovative information infrastructures within and among APEC educational institutions. EDUPACT Work Program. Stage I: Stock-take of existing public, private, regional, and global initiatives in CALS and skills training taking place in the Asia-Pacific Region. Document. Stage II: Mapping of Initiatives and Review, through APEC, PECC, IW joint consultation process, of gaps in regional provision of appropriate training and education systems that need to be addressed. Stage III: Support for the development of initiatives, both public and private, to address these gaps through test-bed projects, government-industry joint ventures, or purely private sector lead initiatives. EDUPACT Outcomes**.** A virtual network of firms, academic institutions and government agencies sharing information and pooling resources to expand the IT literacy and E-commerce readiness of the region's population.

A number of public-private sector initiatives to expand CAL, develop curriculums appropriate to the information society, support innovative training initiatives, and further skills development. A Casebook of successful efforts, and report on progress made to date on the E-commerce and APIS initiatives, as they relate to skills training and education, for review by the APEC Educating Ministers and Economic leaders in 2000.

- **ASIAN INSTITUTE FOR MANAGEMENT (AIM)**

AIM is the region's leading school of business management (appropriately called the Harvard Business School of Asia), with its main facility in Manila and a second in Kuala Lumpur. AIM's students come from all over the region, and include graduate students and executives at all levels. Recognizing that its curriculum included too little on the subject business use of technology, AIM has this year substantially increased its IT infrastructure in collaboration with several major IT vendors. AIM's objective is to expose students at all levels to the business uses of computer and communications technologies. This objective will be achieved through hands-on learning, by the development of case studies, and by student "live" case studies involving the adaptation of existing business applications to specific business circumstances. Having upgraded the IT infrastructure, AIM and its faculty are currently engaged in an intensive process of developing a new curriculum to embracing IT and focusing on electronic commerce and several other priority business uses. The principal hurdle is funding.

- **LEGEND GROUP**

Beijing-based PC maker Legend Group has signed an agreement with the Computing Institute of the Chinese Academy of Sciences (CAS) to hire researchers.

- **KOREA NATIONAL OPEN UNIVERSITY (KOREA)**

Providing "education on demand," this is a virtual university project which involves distance learning and provides video and audio instruction as well as digital library for students throughout the country. (www.knou.ac.kr)

- **MONASH UNIVERSITY CENTRE FOR ELECTRONIC COMMERCE (AUSTRIALIA)**

The Centre for Electronic Commerce (CEC) is an integral part of the Monash University School of Business and Electronic Commerce, established as a national and international nucleus for expertise and education in the field of

electronic commerce. The CEC assists industry and government through the provision of a range of independent consulting, education/awareness and research service. The Centre is a unique electronic commerce services organization in that it combines the strength of industry professionals with the academic infrastructure of a top band university.

- **CENTER FOR THE STUDY OF ELECTRONIC COMMERCE AT THE UNIVERSITY OF DENVER (U.S.)**

The Center's purposes are to educate business people on the benefits to be obtained through the use of Electronic Commerce (EC) and the value of having a widespread capability of doing business electronically, and to undertake projects that have both research value to the University and/or practical value to collaborating companies and/or governmental bodies.

- **EC EVISION WORKSHOP FOR EXECUTIVES**

In conjunction with the National Computer Board (NCB), Andersen Consulting (AC) developed a senior executive workshop on EC. The workshop was part of the educational and promotional initiatives under the NCB's Electronic Commerce Hotbed Program. Called "eVision for Commerce",. It was meant to provide senior executives with a clear understanding of EC fundamentals, a vision of how businesses will transform, and a strategy for EC implementation. Group sizes were limited to 10 to 15 participants per workshop. The workshops have proved to be very successful, especially the government series which produced many opportunities to implement EC across government. In total, there were about 10 "eVision for Government" workshops and there were about 123 participants altogether. Participants were taken through an overview of EC. Emphasis would be placed on the fact that EC is more than just virtual transactions. There were discussions on how this new business paradigm would go beyond time, place and form. The workshop format was as follows: Presentation of EC fundamentals and trends, Presentation on how business will transform, Government initiatives that support EC, Guided hand-on to some relevant Internet sites, Use of EC planning framework to identify EC opportunities, Prioritize identified EC opportunities. Andersen Consulting is still continuing the eVision Workshop and to date, they have completed about 30 workshops across various industries.

- **U.S. ELECTRONIC COMMERCE RESOURCE CENTER PROGRAM (ECRC)**

ECRC is driven by the Department of Defense (DoD). The mission of the ECRC Program is to promote awareness and implementation of Electronic Commerce and related technologies in the U.S. and integrate it with the civil-military industrial base. This will help manufacturers improve their competitive posture global markets and strengthen the U.S. integrated civil-military industrial base.

The FCRC Program consists of the ECRC Technology Hub, ECRC Team Integrators, and Regional ECRCs. Each Regional ECRC conducts: Outreach, Education & Training Consultation; and Technical Support activities The ECRC Technology Hub focuses on: Collaborative Partnering STEP Activities (the Standard for the Exchange of Product Model Data - ISO 10303). The goal is to provide a common, vendor-neutral representation for exchange and archiving all aspects of product data for the entire product life cycle Instructional Technical Development Activities Electronic Commerce Testbed Activities to help develop, demonstrate, and transfer technology solutions to industry-identified problems Other ECRC Technical Activities.

- **CANADIAN AND MALAYSIAN WOMEN'S ORGANIZATIONS (MALAYSIA)**

Canadian and Malaysian Women's Organizations, in conjunction with the American firms Global Enterprise Group, IBM, and Lucent Technologies, created a virtual trade mission (VTM) website which used video-conferencing, secure virtual boardrooms, and other Internet technology applications to promote business-matching among women entrepreneurs in Canada and Malaysia. Ten business matches were finalized in memos of understanding on September 4th, 1998 in Kuala Lumpur.

- **SURF @ STADIUM MASS TRAINING & AWARENESS IN TRAINING ON E-COMMERCE**

In line with the National Computer Board's (NCB) goal to promote an IT fluent society, the NCB organized a five-day mass Internet training event - Surf @ Stadium - from 25 to 29 September 1998. This event took place at the Singapore Indoor Stadium, and is the first-of-its-kind in Singapore. Surf @ Stadium was initiated by the NCB and co-organised with the Association of Muslim Professionals, Chinese Business Network, Construction Industry Development Board, People's Association and the Singapore Confederation of Industries. Surf @ Stadium aims to encourage IT literacy amongst Singaporeans, by providing hands-on experience. Using the Internet as one way of promoting IT literacy, this event enabled thousands of people to go online and see for themselves how useful the Internet can be. Electronic commerce applications were included as one of the main modules of the curriculum. The audience was briefly informed about the e-commerce agencies such as certificate authorities, banks, merchants, customers, business partners, government (legal framework). In addition, they were told how they could benefit from participating in e-commerce and tips in setting up an e-commerce store. Three training sessions were conducted daily with 250 participants in each of the three-hour session. Two trainers led each session, and 50 facilitators were present to guide the participants. The target was to train a total of 3,750 participants by the end of the five-day event. The training was conducted in either English or Mandarin. The content of each session was specially customized for the participants. These include businessmen, professionals and workers from the manufacturing and the

construction industry, office administrators, housewives and retirees. In conjunction with the pre-registered Internet training sessions, an exhibition for the public was also held at the Singapore Indoor Stadium from 25 to 29 September 1998, 10am to 9pm daily. Admission was free and visitors to the exhibition could again experience hands-on surfing of the Internet, and enjoy special deals for computers, software and peripherals, and Internet subscriptions.

END PAGE

ANNEX C

Matrix on E-Commerce Activities/Work by APEC Sub-Fora

(Task Force Project - compiled by Singapore)

E-Commerce Activities/Work by APEC Sub-Fora

Issues	CTI	SCSC	SCCP	EC	REC	Finance	HRD	IST	SME	TEL	TPT	TPWG	TWG
Access to Information Infrastructure													
Infrastructure surveys										?			
Infrastructure guidelines										?			
Sustainable bandwidth financing										✓			
Competition among providers										?			
Market access										✓			
SME connectivity									?	✓			
Trust in Information System and Electronic Transactions													
Privacy/protection of personal data										✓			
Authentication/cross-border certification			?							✓			
Skills development and awareness			?				✓	✓		✓	✓		
Consumer protection	?												
E-Commerce Promotion and Facilitation													
Technology trials and pilot projects		?	?		?	?	?	?	?	✓	✓	?	?
Database on economic and social benefits										✓			
Standards issues		?	✓								✓		
SME outreach									✓	✓	✓		
Impediments assessment		?	?	✓	?		?	?	?	?	✓		
International Regulatory Framework													
Legal/regulatory framework	?		?							✓			
Internet Governance	?									?			
IPR issues	?												
Taxation/Financial issues						?							
Customs duties	?												
Content issues	?									✓			
Trade policy/market access	?									?			
Government and Business Sector Relationships													

Consultation with business sector			✓						✓	?	✓		
Principles/best practices	?		?							?			
Governments as model users			✓			?				?	✓		

Notes:

✓ - Indicates work currently undertaken or planned
? - Indicates possibility for work to be undertaken

CTI	-	Committee on Trade and Investment
SCSC	-	Sub-Committee on Standards Conformance
SCCP	-	Sub-Committee on Customs Procedures
EC	-	Economic Committee
REC	-	Regional Energy Cooperation Working Group
Finance	-	Finance Deputies/Working Group
HRD	-	Human Resource Development Working Group
IST	-	Industrial Science & Technology Working Group
SME	-	Ad Hoc Policy Level Group on Small & Medium Enterprises
TEL	-	Telecommunications Working Group
TPT	-	Transportation Working Group
TPWG	-	Trade Promotion Working Group
TWG	-	Tourism Working Group