APEC e-Invoicing Guideline for Future Development

APEC Electronic Commerce Steering Group
Paperless Trading Subgroup

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ACKNOWLEDGMENTS

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Chapter 1 Introduction

1.1 APEC overview

Asia Pacific Economic Cooperation, or APEC, is an inter-governmental organization for economic growth, cooperation, trade and investment in the Asia-Pacific region. APEC, with its membership of 21 economies in Asia, America and Oceania, accounts for approximately 41% of the world's population, approximately 55% of world GDP and about 49% of world trade. Figure 1 shows the geographical location of APEC member economies.

Figure 1. Geographical Location of APEC Member Economies

APEC aims to achieve its Bogor goal of "free and open trade and investment in the Asia Pacific" by collectively working on trade and investment liberalization, business facilitation and economic & technical cooperation through collective and individual actions. Structurally, APEC has multi-layered congregations from leaders' meeting to working group meetings covering from policy-level to specific work program level. In APEC, most of working level tasks were initiated by committees, sub-committees, task groups and working groups. Figure 2 shows the structure of APEC.
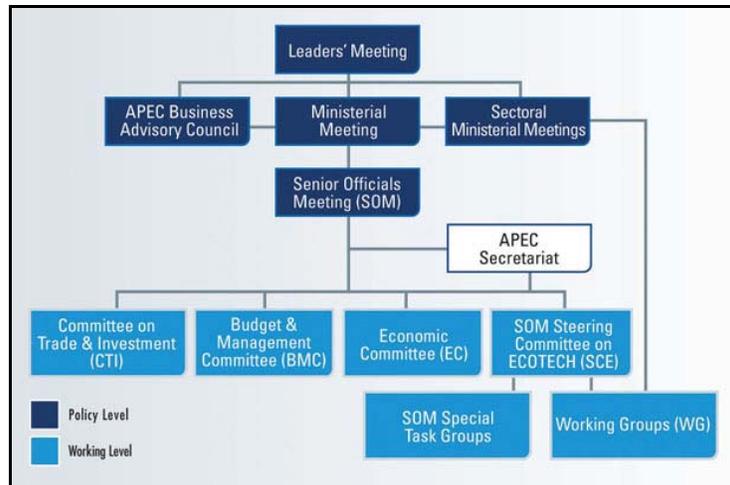
Figure 2. APEC Structure

1.2 Background of this document

In APEC, the Electronic Commerce Steering Group (ECSG) was established in 1999 to promote the development and use of electronic commerce by creating legal, regulatory and policy environments in the APEC region that are predictable, transparent and consistent in accordance with the 1998 APEC Blueprint for Action on Electronic Commerce. The ECSG focuses on two work items, privacy and paperless trading, by having two sub-groups.

Paperless trading is one of main agenda items to promote electronic commerce among APEC member economies. ECSG has worked on several paperless trading issues such as certificate of origin. In an effort to facilitate paperless trading environment in APEC, Peru proposed a 2008 APEC project titled "APEC Seminar to Advance & Promote APEC Work on e-Invoicing Framework" to handle the issue of implementing e-Invoicing in APEC. As part of the project, a framework document was to be developed on e-Invoicing to provide guidance to APEC member economies in the future implementation of e-Invoicing.

1.3 Purpose and scope of this document

The purpose of this document is to provide a high-level framework that APEC member economies can refer in implementing e-Invoicing in the future. Because APEC is operating in the principle of non-binding commitment, this framework purely plays the role of guidance. This framework was developed on the basis of APEC members' requirements collected from the survey as well as the seminar; its primary application is intended to be for APEC members. However, by trying to integrate international open standards and global approaches in its content as much

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as possible, the framework intends to facilitate cross-border exchange of e-invoices among APEC members as well as possible global application.

It should be noted that the framework itself is generic enough and does not provide specific measures for implementation. Such a detailed guidance to meet specific requirements is out of scope of this document and to be further developed.

Chapter 2 Invoicing in Trade

2.1 Invoicing overview

Invoicing plays an important role as one of major processes in domestic as well as cross-border trade. As illustrated in Figure 3, the process of an international supply chain can be mainly divided into three meta-processes: buy, ship and pay. Under these three major processes, a variety of procedures fit into a complete model in the areas of commercial, transport, regulatory and financial. The process of invoicing overlaps on the processes of ship and pay.
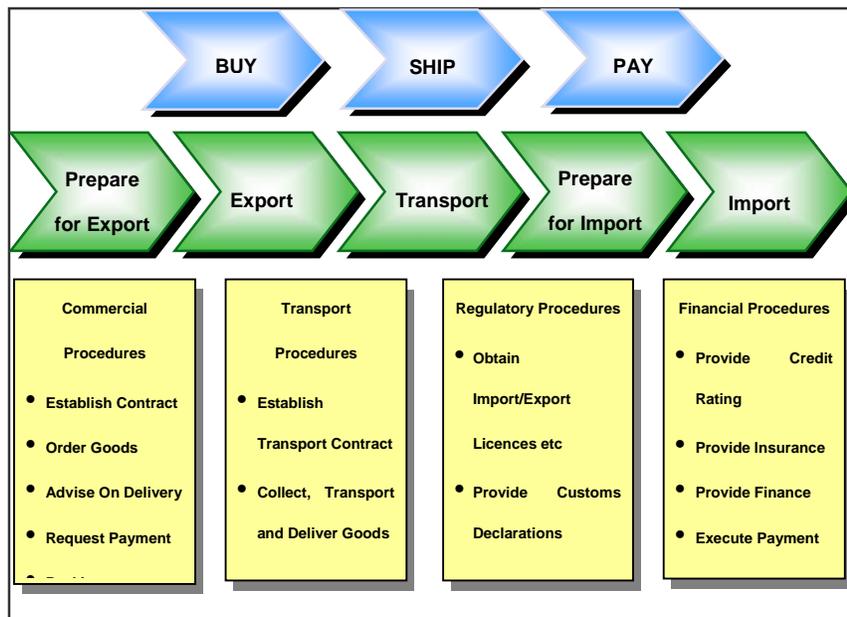
Figure 3. International Supply Chain Reference Model of Buy-Ship-Pay

Invoicing is commercial process of issuing an invoice, usually by the supplier to the customer, specifying the details on goods and services provided with inherent indication of due payment; so, it is also called to be a part of billing process. Therefore, an invoicing basically pertains to the end process of ship, but it also bears its partial role in the process of initiating payment. Figure 4 shows a basic illustration of invoicing process in trade. On the other hand, an invoice is an accounting document with legal implications to transacting parties. In a global level this is an important issue due to different legal position of invoice within each economy. This is one of the factors that limit the implementation of electronic invoice just for inter company accounting application.
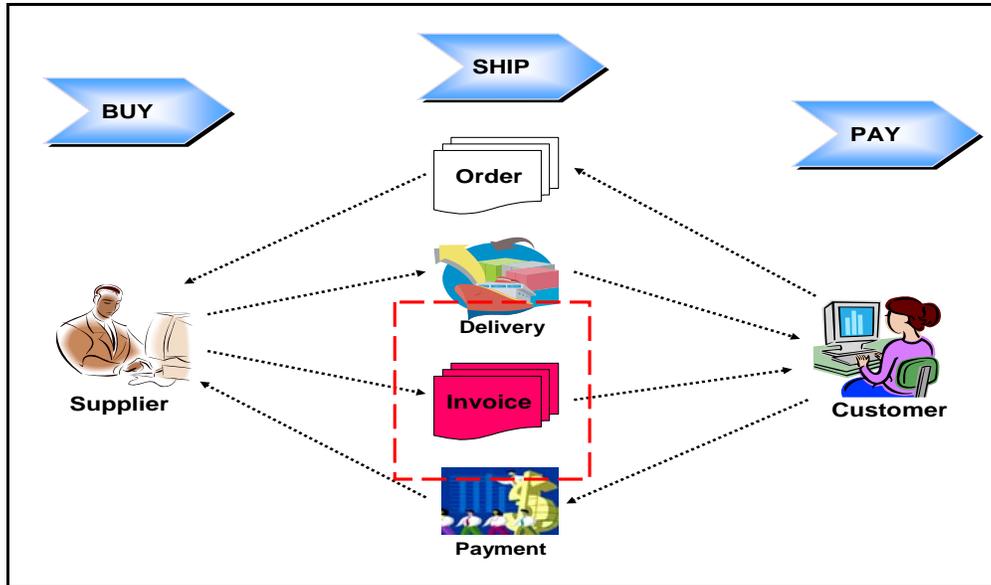
Figure 4. Generic Invoicing Process

2.2 Invoicing processes and types of invoices

There are mainly two types of invoicing processes. One is the traditional invoicing, an invoice being issued by a supplier to a customer. Another process is called self-billing, an invoice being issued to oneself by a customer. Both processes are illustrated in Figure 5. The most common process is the traditional invoicing, while certain supply chains adopt self-billing as more preferred one. In this framework document, the focus will be basically on traditional invoicing.

As illustrated in Figure 5, an invoice is a commercial document, issued usually by a supplier to a customer, specifying the details on goods or services provided with the implication of request for payment.

There exist various types of invoices that are commonly used. However, regardless of their types, all the invoices share common contents and serve basically similar purposes, while adding specific feature or functionality. A tax invoice is an invoice document usually used in domestic trade, mainly to meet regulatory requirements for tax declaration with necessary inclusion of tax information in addition to regular invoice information. It should be noted that a tax invoice is a separate document from an invoice even though a regular invoice can also serve the purpose of tax invoice by having a field for tax information. A tax invoice is not used in every economy. The relationship of an invoice to its variation is depicted in Figure 6.
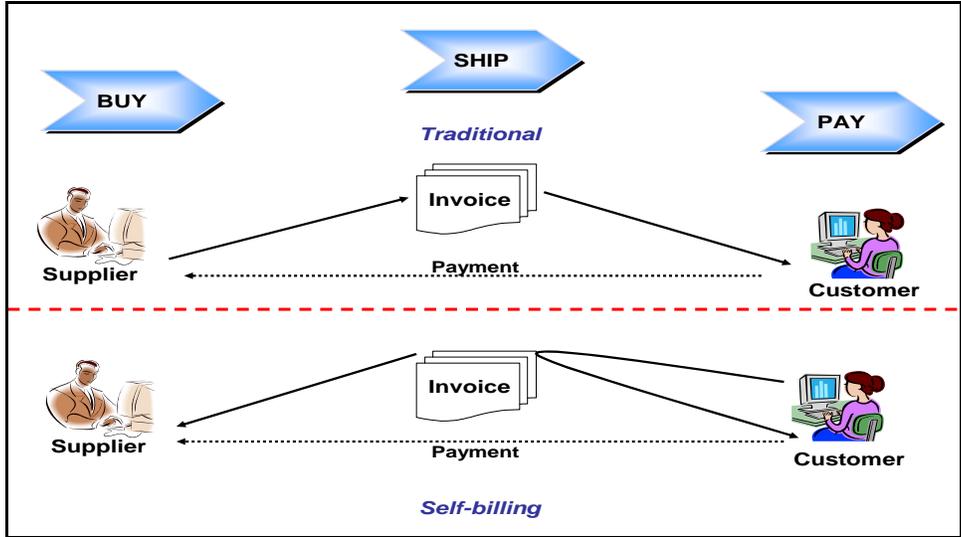
Figure 5. Two Processes of Invoicing - Traditional and Self-billing
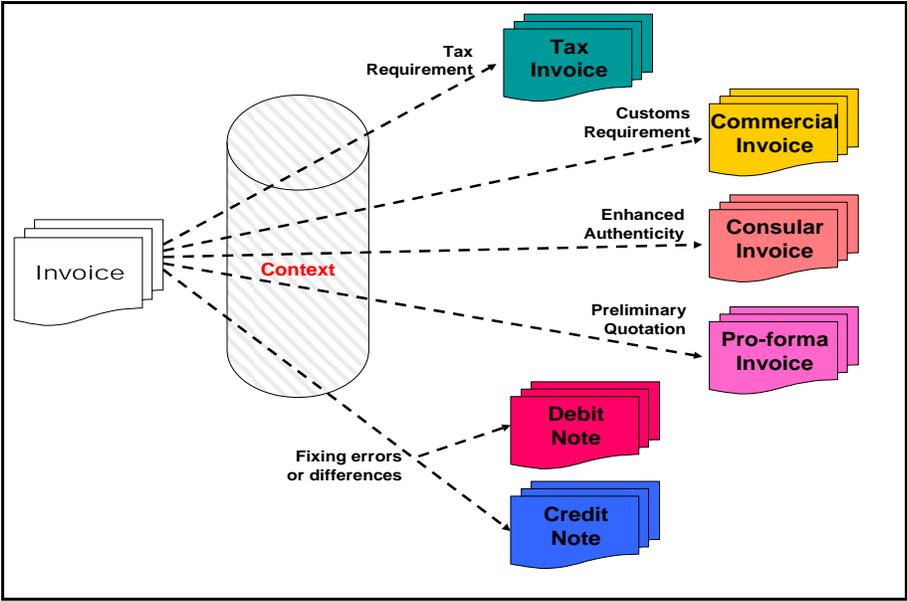
Figure 6. An Invoice and a Family of Its Variation

In international trade, a few forms of invoice are used to meet some requirements in import and export. Commercial Invoice is an invoice document used for commercial transaction as well as customs declaration in international trade to be issued by exporter (seller) to an importer (Buyer). In some economies such as the United States, customs authority may require customs invoice for the purpose of customs declaration. Consular Invoice is an invoice document certified by the consulate of an importing country stationed in an exporting country for the purpose of enhancing invoice verification. Pro-forma Invoice is a type of invoice document

having the function of quotation for the goods to be traded before actual transaction. An importer may need it from an exporter for import declaration. Another variation of an invoice is the documents called credit note and debit note. These variation documents are used to fix the errors and/or differences found in the already processed invoice.

2.3 e-Invoicing

e-Invoicing is the activity of processing and handling paper-based invoicing process using electronic means such ICT as Internet, XML, EDI, etc. Figure 7 shows how e-Invoices are exchanged among trading partners.
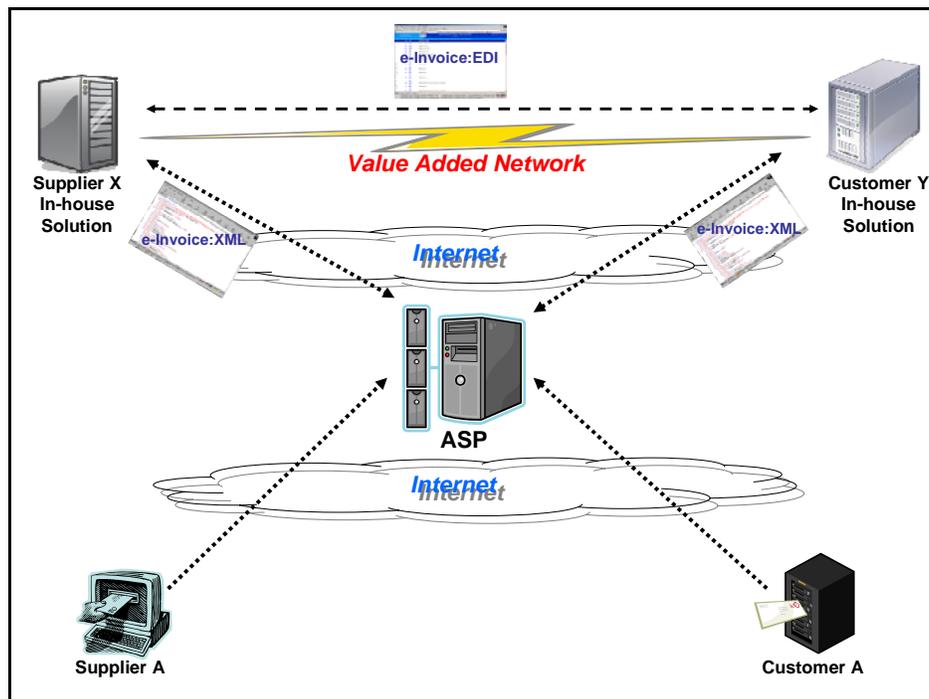
Figure 7. e-Invoice Transaction

Because invoicing is one of critical processes in trade, processing it electronically can greatly improve domestic and international supply chain, leading to transaction efficiency and transparency. Some of the benefits that can be brought to by implementing e-Invoicing are listed in Table 1.

Table 1. Benefits of e-Invoicing

Benefits
- Reduction of processing related cost
- Reduction of processing time
- Improvement of transparency in processing
- Increased security in delivery
- Improved data (information) accuracy
- Reduction of storage cost through e-archiving
- Creation of additional market through value-added service
- Better maintenance of invoice data
- Helping the environment

Chapter 3 Current Status of Global Approach on e-Invoicing

In recognition of the potential benefits of e-Invoicing in domestic and global supply chain, an effort to implement e-Invoicing has been actively made at national, regional and global level by multiple entities. For the purpose of this document, individual e-Invoicing implementation approach at economy level will not be covered. Rather, focus will be on regional and global level. The approach at the global level centers more on standardization, while regional approach encompasses need for actual business implementation.

3.1 Global Standardization

3.1.1 UN/CEFACT

UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business) is the United Nations body to standardize e-Business and facilitate international trade. UN/CEFACT supports activities dedicated to improving the ability of business, trade and administrative organizations, from developed, developing and transitional economies, to exchange products and relevant services effectively. By focusing on the activities of the simplification and harmonization of processes, procedures and information flows, UN/CEFACT intends to facilitate national and international transactions and contribute to the growth of global commerce. In UN/CEFACT, standardization work is conducted by the Forum, which is the congregation of five independent groups. The work is conducted through bi-annual Forum meetings, individual group meeting and online meetings such as tele-conference. More than 300 experts and stakeholders of eBusiness and trade facilitation in the world contribute to the development of global standards in UN/CEFACT.

UN/CEFACT produces its standards using a series of coherent methodologies to ensure reusability and interoperability of business knowledge derived in the process of standardization. To model business process and related information, UN/CEFACT uses the UN/CEFACT Modeling Methodology (UMM), which is based on the Unified Modeling Language (UML). To derive reusable and interoperable business data element, called Core Component, UN/CEFACT has developed the Core Component Technical Specification (CCTS). Based on the CCTS, UN/CEFACT is building the Core Component Library (CCL) to be globally used by entities in the world in producing interoperable business solutions.

UN/CEFACT also introduces the development of the Business Requirements Specification (BRS) to define business requirements of specific business domain or area based on the UMM. Once the BRS is defined, the Requirements Specification Mapping (RSM) is developed to apply syntax specific methods in producing final solutions. Once the BRS and RSM are completed, such syntax-specific solutions as XML Schemas or EDIFACT messages are produced using syntax-specific methodologies like EDIFACT MIG or XML Naming & Design Rules (NDR). This process is illustrated in Figure 8.
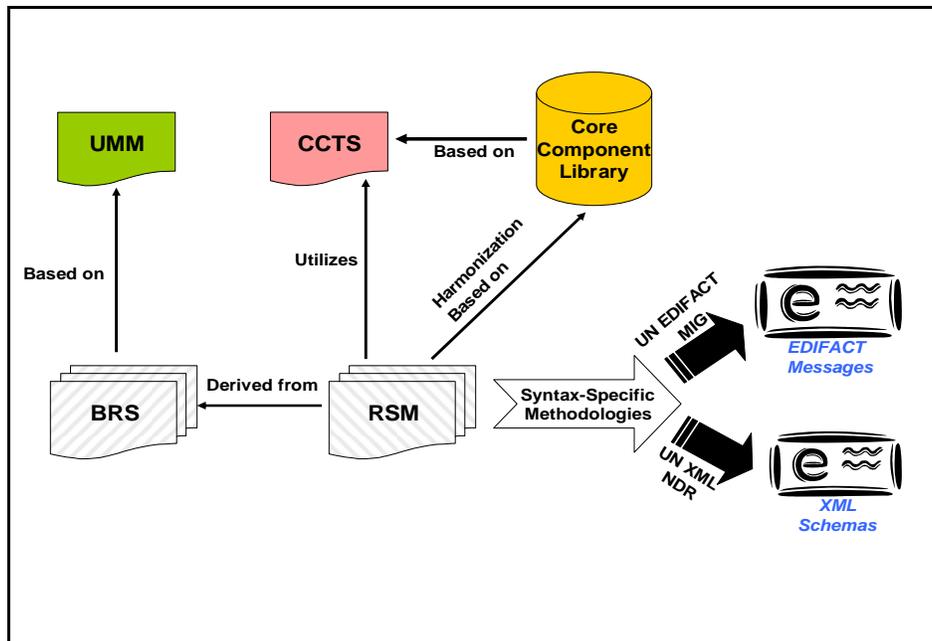
Figure 8. Production of Standard Solution in UN/CEFACT

Based on the above mentioned standard process, UN/CEFACT has already developed the Business Requirements Specification (BRS) for Cross Industry Invoice (CII). The BRS for CII, developed with the participation and contribution from EUROFER, GS1, CIDX, EDIFICE, AIAG, ODETTE, JAMA, GHX, UK Government and EDS, defines business process and requirements in exchanging invoices between different industries in detail. However, the RSM and XML Schema for CII is not yet produced due to further need for harmonization. At the same time, the CII BRS is now going through revision for the enhancement of its features.

Another effort within UN/CEFACT to is the development of UNeDocs or the United Nations electronic Documents. UNeDocs defines data models for the documents used in international trade on the basis of the Core Component Technical Specification. The data models in the UNeDocs are called the Business Information master (BIM), which is basically a directory of core components having the context

of international trade. Using the harmonized data models in the BIM, any stakeholder of international trade can derive interoperable invoices by applying syntax-specific methods. UNeDocs is getting into its maturity for implementation in cross-border trade.

3.1.2 OASIS

The OASIS stands for Organization for the Advancement of Structured Information Standard. OASIS is a non-profit consortium to develop open standards to be used in eBusiness as well as other domains. OASIS has jointly developed ebXML standards with UN/CEFACT and works on such web-based standards as Web Services and Service Oriented Architecture-related specifications. In OASIS, the UBL Technical Committee has developed UBL (Universal Business Language), which is standard XML-based electronic business document, based on the UN/CEFACT Core Component Technical Specification. The UBL TC developed UBL 1.0 in 2004 and UBL 2.0 in 2006 respectively.

UBL 2.0 is composed of XML schemas for 31 business documents (including invoice), CC-based XML data library, UML-base data models, UBL naming and design rules and separate code list values in XML specification. Currently, UBL invoice has been implemented in multiple economies in Northern Europe such as Denmark, Sweden and Finland. There has been also collective effort by five economies (Denmark, Sweden, Norway, Finland, UK and Iceland) in Northern Europe to develop a customized version of UBL 2.0 called the Northern European Subset (NES) profile. Further information on the NES is available at http://www.nesubl.eu/2.349a0e10b3c2567f280001987.html

3.2 Regional Implementation

Regional implementation is led by Europe. Because the European Union (EU) has the authority to enforce regional level regulation to its members, the effort on e-Invoicing has gained enough momentum for wider implementation. Currently, there are multiple economies in Europe that already implemented e-invoicing such as Finland and Denmark. However, Pan-EU level implementation of e-Invoicing is still underway after EU published the VAT Directive 2001 (or Directive 2001/115/EC) to provide legal foundation for implementing e-Invoicing. In 2007, the European Commission Informal Task Force on e-Invoicing published its report on the findings of the three major barriers – legal environment, operational constraint and standardization - in e-Invoicing implementation in EU. The EEI expert group is set up and working on the development of the European Electronic

Invoicing (EEI) Framework by the end of 2009, which is planned to be used in the wider implementation of e-Invoicing in Europe.

In Europe, there is a regional standard body called the European Committee for Standardization (CEN).   In CEN, ICT issues are handled by the CEN/ISSS (Information Society Standardization System).   The CEN/ISSS has multiple work platforms such as focus groups, workshops and technical committees to produce European-level ICT standards.   E-Invoicing has been an important issue since early 2000 in the CEN/ISSS.   From 2002 to 2003, a focus group worked on e-Invoicing and produced a comprehensive report.   Consequent formation of e-Invoicing workshop produced multiple reports called CEN Workshop Agreement (CWA) with the completion of phase 1 in 2006.   With the initiation of phase 2, the e-Invoicing workshop is now trying to further standardize e-Invoices in Europe.

Chapter 4 e-Invoicing Implementation in APEC Economies

Some economies of APEC has already implemented e-Invoicing at domestic level. This framework document will not elaborate on the implementation approach of individual economy. Rather, collective overview of APEC members' implementation status will be provided since the framework is intended to be used commonly among the APEC members. This chapter provides summary of implementation status of APEC members based on the result of the survey conducted as part of the project. Out of total 21 APEC member economies, 10 economies participated in the survey. For the details of the survey result, please see the "APEC E-Invoicing Development Report."

4.1 Use of Invoice in Trade

This section provides the status of invoice usage in APEC economies. Basically, the process, type and data element usage is consistent whether an invoicing is conducted electronically or offline.

Table 2. Invoicing process and invoice types used

Category	Status
Invoicing process	APEC economies use both traditional and self-billing process, while the dominant process was traditional one. • Both Traditional and self-billing: 5 economies • Traditional only: 5 economies
Type of invoices used	APEC economies vary in the use of different invoice types. While every responding economy used regular invoice, other invoices are used selectively by the economies. • Invoice: 10 economies • Tax invoice: 8 economies • Commercial invoice: 8 economies • Pro-forma invoice: 6 economies • Consular: 2 economies
Invoice data	- See the Table 3 on next page

Table 3. Data Element Used in e-Invoices

Table 3.1: Information included in invoices used in each economy.

Data Element Name	Chile Included	Chile Mandatory	Chinese Taipei Included	Chinese Taipei Mandatory	Korea Included	Korea Mandatory	Malaysia Included	Malaysia Mandatory	México Included	México Mandatory	Peru Included	Peru Mandatory	Philippines Included	Philippines Mandatory	Russia Included	Russia Mandatory	Thailand Included	Thailand Mandatory	USA Included	USA Mandatory
Invoice Number	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Invoice Date	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Invoice type	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Name of Supplier	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Address of Supplier	Yes	Yes	Yes	Yes/No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Name of Customer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Address of Customer	Yes	Yes	Yes	Yes/No	Yes	Yes	Yes	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Name of Tax Representative	No	No	No		No	No	No	No	No	No	No	No	No	No	No	No	Yes			
Address of Tax Representative	No	No	No		No	No	No	No	No	No	No	No	No	No	No	No	Yes			
Supplier Identifier (VAT registration number, etc.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Customer Identifier (VAT registration number, etc.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Currency	Yes	No	No		Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Total Invoice Amount	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Amount of Charges & Allowances	Yes	No	Yes	Yes/No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Payment Information & Terms	Yes	No	No		Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	No	No			Yes	Yes
Delivery Period	Yes	No	No		Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes		No	No
Delivery Terms	Yes	No	No		Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes		Yes	Yes
Invoice Line Number	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Dates for goods/services sold/rendered	No	No	No		Yes	Yes	Yes	No	No	No	No	No	Yes	Yes	Yes	No	Yes		Yes	Yes
Description of Goods or Services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Unit of Measurement	Yes	No	Yes	Yes/No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Unit Sold (Quantity)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Line Item Unit Price	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Total Line Amount	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Tax Information	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes		Yes	Yes
Shipping Marks & Numbers	Yes	No	No	Yes/No	Yes	No	Yes	No	No	No	No	No		No	Yes	No			No	No
Country of Origin	Yes	No	No		Yes	Yes	Yes	No	Yes	No	No	No		No	Yes	Yes			Yes	Yes
Reference to Other Documents	Yes	No	Yes	Yes (PO)	Yes	Yes	Yes	No	Yes	No	Yes	No		No	Yes	Yes			Yes	Yes

4.2 e-Invoicing implementation status

Many of APEC economies (8 out of 10 responding economies) already implemented e-Invoicing in different degree. All APEC economies who have not implemented e-Invoicing yet plan to implement it in the future. While Peru plans to implement it in 2008, others plan to implement it in the year 2011 or later.

e-Invoicing is implemented in both public and private sectors in 4 APEC economies. 2 economies implemented e-Invoicing only in the private sector, while one economy implemented it only in the public sector. 5 APEC economies implemented e-Invoicing in B2B and 4 economies implemented in B2C, while 4 economies implemented e-Invoicing in both B2B and B2C. In the case of legal or regulatory basis to implement e-Invoicing, 8 economies have the basis in the form of law or regulation.

Law and regulation on e-Invoicing usually prescribe certain requirements for the implementation of e-Invoicing such as security mechanism, mandatory data and storage. Out of the five responding economies, all the five economies prescribe requirements on the use of electronic signature as a security measure, use of mandatory data and storage condition. 4 economies specifies the period of storage. For the exchange format, transmission mechanism and security mechanism, Table 4 shows the current practices of APEC economies.

Table 4. Practices of APEC Economies in e-Invoicing Mechanism

Category	Practices
Exchange format	The most commonly used exchange format is a proprietary XML format (6 economies), which clearly shows the current lack of common standard. Other used formats include EDI, ebXML and proprietary non-XML format.
Transmission Mechanism	The way to make a transmission allows variety in APEC economies to meet domestic market requirement. The most popular ones are intermediaries in the form of VAN and ASP as well as in-house total solution. Other options include off-the-shelf software and e-Marketplace.
Security Mechanism	The most common security mechanism is the use of digital signature (7 economies), which is consistent with global trend. However, some APEC economies used also weaker form of security measures such as electronic signature and ID/PWD log-in.

Most APEC economies share similar implementation obstacles such as insufficient legal & regulatory environment, technological availability such as common

standard and business practices. The issue of SME was also commonly shared among APEC economies in the proper implementation and use of e-Invoicing.

The implementation experiences reveal multiple success factors in the development of e-Invoicing as follows;

• Public-private partnership,

• Strong commitment from the management in both government authority and private sector,

• Use of standard to increase reusability and interoperability,

• Integration of e-Invoicing with other processes in a supply chain

• Importance of going through pilot implementation,

• Awareness program on the value and benefit of e-Invoicing for companies, and

• Step by step implementation allowing phased development

4.3 Issues in e-Invoicing implementation

Implementing e-Invoicing requires implementers to take specific approach and make some technology choices. Table 5 shows the approaches of APEC economies in some implementation issues.

Table 5. Issues in e-Invoicing and APEC Economies' approach

Category	Status
EDI Format	Many of APEC economies do not use EDI format at all because they directly introduced e-Invoicing after XML becomes popular choice. Two economies use UNEDIFACT while only one economy uses ANSI X12.
XML Format	In the case of XML format, the most preferred one is a self-defined format because there is no commonly available standard. In the case of OASIS UBL, one economy aleady implemented it and another one plans to implement it.
Standard Consideration	The consideration basically centers on data fomat and certificate for interoperability.

Another important issue in the context of APEC is cross-border e-Invoicing since APEC is the congregation of 21 economies in the region. The issues identified in the implementation of cross-border e-Invoicing are as follows;

• Common identification system for Invoice itself (number)

• Common standard for e-Invoice data element

• Common identification system for trading partners

- Common Identification scheme for cross reference of the related documents such as UCR (Unique Consignment Reference)
- Mutual recognition of Tax regimes among the APEC member economies

For the storage of e-Invoice, common storage period spans from 5 years to 7 years. Storage format is required in some economies, but does show consistency in approaches. In the case of storage medium, most economies do not prescribe the medium for content integrity, also lacking consistency in approaches.

Due to low responses, it is not possible to draw consistency in the tax regime requirements for e-Invoicing implementation, though a few economies specify it. In the case of e-Invoice recognition and acceptance by customs authority, five economies responded with positive answers, which can be a facilitating factor in implementing cross-border e-Invoicing.

Chapter 5 APEC e-Invoicing Framework

This document proposes a framework to be referred in implementing e-Invoicing at conceptual level. The framework is called the APEC e-Invoicing Framework or AeIF. What it means by conceptual level is that it provides an outline for desirable approach and reasonable course of action in implementing e-Invoicing. As specified in the scope of this document, this document does not provide detailed implementation specificities. Consequently, complying with the AeIF itself does not guarantee the interoperability among AeIF-compliant e-Invoicing implementations. However, because the AeIF integrates international open standards and global approach as much as possible, it can facilitate interoperability among individual e-Invoicing implementations.

The conceptual AeIF is composed of two parts - conceptual model and functional units. The conceptual model shows overall structure of AeIF to provide basic understanding of the framework. The functional units are necessary minimum components that should be taken into consideration in implementing AeIF.

5.1 Conceptual model

The conceptual model illustrates how an organization can implement e-Invoicing in a simplified way by combining all the necessary basic components. The conceptual model is shown in Figure 9. There are five basic components to be taken into consideration in implementing e-Invoicing whether it is implemented by a trading partner or a third-party service provider.

The first component is the legal and regulatory environment that accommodates e-Invoicing. The second component is the standard for exchanging e-Invoice message bilaterally or multilaterally. The third one is the security measure for ensuring data integrity and authenticity. The fourth one is the transmission mechanism over the network for message transfer. The last one is the storage mechanism to meet necessary requirements from government authorities. These five components will be elaborated in details in the next part of functional units.
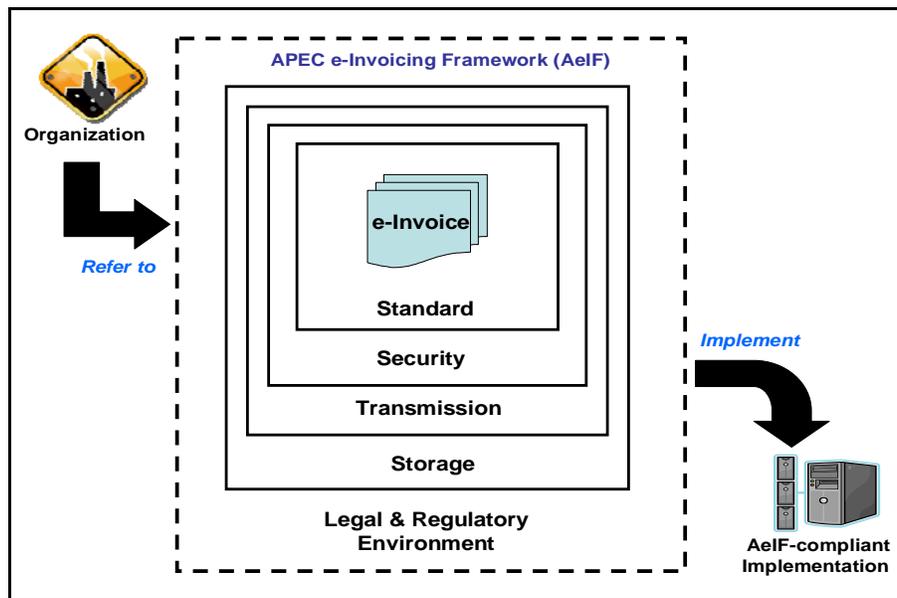
Figure 9. Conceptual Model of AeIF

5.2 Functional units

5.2.1 Legal and Regulatory Environment

Because invoice is an important business document, every economy imposes certain legal and regulatory requirements. In the case of e-Invoice, further requirement can be imposed to ensure its validity. More than anything else, there should be a basis to provide legal force to electronic document (e-Invoice) just like paper invoice document. This point is important in that trading partners will only use e-Invoice if it can be used as an evidence when there occurs a dispute between trading partners. If that is not the case, trading partners will stick to use paper invoices. In addition, the legal basis should clearly prescribe any regulatory requirements that an e-Invoice should meet to serve its purpose. This kind of regulatory requirements can include certain level of security measure, proper transmission method, appropriate storage mechanism and inclusion of specific data such as tax information.

5.2.2 Standard

When we say about standard, it can be also applied to other components such as security, transmission and storage. However, in the context of this framework, standard means a standard for message. It is especially important to have a standard message format for e-Invoicing implementations to interoperate and interchange e-Invoice message one another. When there is no standard message format and multiple message formats are used, the need for mapping among the

various formats increases exponentially. The mapping approach can be only a temporary solution and will create a severe problem of economic disadvantage. This problem can affect SMEs more with heavy burden since they are in a position to meet the demand of multiple large customers to conduct business. The problem of having multiple message formats instead of a common standard is illustrated in Figure 10.
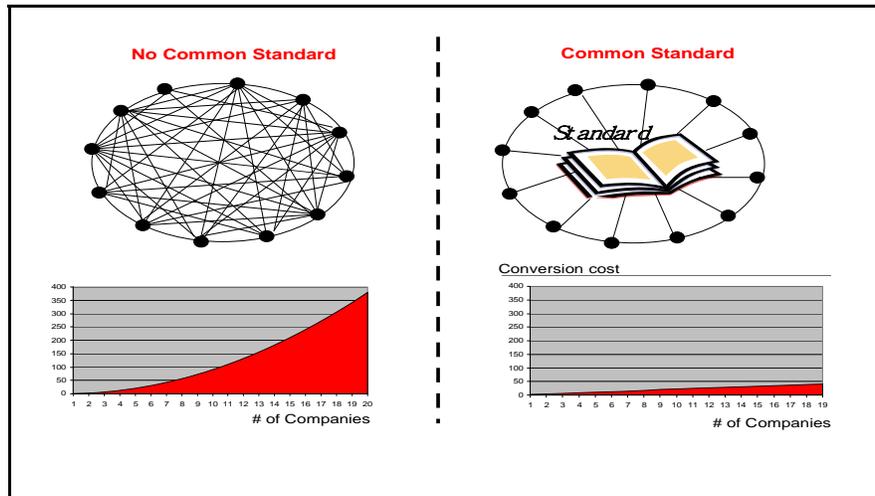
Figure 10. Economic Impact of Lacking Standard

The most desirable situation is that there exists one dominant open standard available for e-Invoice message. However, at this point of time, such a standard dos not exist. A cohesive alternative solution can be using UBL since it is already available for implementation; however, caution should be given that UBL is not yet harmonized with the global data library called the Core Component Library of UN/CEFACT. Therefore, in implementing the UBL, future transition path should be taken into account.

It is expected that UN/CEFACT will deliver globally common cross industry invoice that multiple industries can share among one another. However, because UN/CEFACT has not produced a consistent e-Invoice solution for immediate use yet, a generic approach should be taken in using UN/CEFACT standard to produce a self-generated solution.

5.2.3 Security

Security is the freedom from danger the information exchanged over a network. PKI and digital certificates enables users of a basically unsecured public network to securely and privately exchange data through the use of a public and a private cryptographic key pair that is obtained and shared through a trusted authority. APEC through APEC Telecommunications and information working group defined a

set of guidelines to issue certificates capable of being used in cross jurisdiction e-commerce. Therefore, APEC economies are advised to follow the "APEC Public Key Infrastructure Guidelines: Guidelines for Schemes to Issue Certificates capable of Being Used in Cross-Jurisdiction eCommerce" in order to harmonize and facilitate interoperability.

5.2.4 Transmission

Transmission is defined as a communication language in which two systems will get connected. Considering the fact that transmission is essential for interconnection, transmission protocol and relevant technology should be based on open standards. As there is a common agreement that XML is the standard format for exchange over the Internet, the transmission protocol should be one that supports that format.

According to W3C, data can be transmitted through HTTP, SMTP and other protocols over the Internet. The Framework recommends HTTP as the primary transfer protocol, while leaving a room for the use of SMTP as an alternative to accommodate certain cases where circumstances favour SMTP. In addition, SOAP is the general method to send XML data around. Therefore, SOAP is the preferred protocol, but other Web Services protocols such as ebXML Messaging Service can be used if reliable messaging is a prerequisite.

5.2.5 Storage

Storage is the mechanism to keep the exchanged e-Invoice messages according to certain requirements. The requirements include storage period, format and medium. For the period, the Research shows that the time of storage varies from 5 to 7 years for most APEC member economies. However, depending on specific legislation this time can be extended and some APEC economies need to make transactions with non-APEC member economies having longer storage period requirement. Therefore, considering the fact that storage cost is fast reduced over the years, APEC economies are recommend to set the electronic storage time up to 10 years.

Regarding the storage format and medium, no specific measure is recommended at this point of time. However, it is advised that the storage format is preferably in the format that the message is being exchanged. The preferred storage medium is database, while allowing other medium such as CD, magnetic tape, etc.

Chapter 6 Issues for the Development of Cross-Border e-Invoicing

Cross-border e-Invoicing, which occurs across different jurisdictional domains, requires additional issues to take care of in addition to the issues pertinent to the domestic e-Invoicing. Just like domestic e-invoicing, cross-border e-Invoicing needs the functional units defined in this Framework – legal & regulatory environment, standard, security, transmission and storage. However, cross-border e-Invoicing asks for more enhanced efforts on these five functional units and impose additional tasks. More than anything else, cross-border e-Invoicing needs alliance of different legal and regulatory requirement since it is most likely that different jurisdictions have different legal and regulatory framework.

In such regional bodies as EU and ASEAN, economic integration can be imposed in the form of directive or agreement among the members. However, APEC is voluntary alliance of the members and such a compulsory measure cannot be imposed. Therefore, in the current APEC environment, the most feasible way of implementing e-Invoicing in legal and regulatory aspects may be the creation of FTA at the bilateral level or RTA at the multi-lateral level. There should be further work on identifying practical ways to realize such paperless trading measure as e-Invoicing, e-certificate under APEC environment.

Having common identification scheme is another important issue in cross-border e-Invoicing. e-Invoice should have unique identifier for the identification of document itself (invoice number) as well as identifiers for unique identification of trading partners. Unless trading partners of e-Invoicing have common identification scheme for invoice number and trading partners, the e-Invoicing solutions cannot interoperate one another when information is exchanged.

There is no globally or regionally agreed available identification scheme for invoice number and trading partners. In the case of invoice number, the scheme is mostly at national level. In the case of trading partners, DUNS number can be an option, but surely it is also limited to serve the purpose at the global level. APEC should conduct further study on finding global identification scheme that APEC members can commonly use one another by seeking cooperative work with relevant international bodies such as ISO, UN, etc. In the meantime, the role of mapping among the different identification scheme can be conducted by e-Invoicing service providers.

The issue of mutual recognition among tax regimes of different jurisdictions is also important point. Because an invoice plays the role of financial document, national tax regime can be directly involved in the process. When a tax regime does not recognize the e-Invoicing scheme of another regime, a cross-border e-Invoicing transaction cannot be made. The practical way to resolve this issue is having mutual recognition among tax regimes, such as customs, at the bilateral or multilateral level. Unless mutual recognition is reached, trading partners need to use the mapping or translation services provided by relevant service providers.

Standard can also be an important issue in cross-border e-Invoicing. However, because standard still matters also in the case of domestic e-Invoicing, it is not an inherent cross-border issue. The best way is to develop national e-Invoicing in accordance to the open global standard so that it can be easily interconnected each other. Other option will be using standard conversion services provided by service providers.

Chapter 7 Conclusion

The result of survey and seminar discussion confirm that e-Invoicing is a valuable paperless trading instrument that adds values, improves work efficiency and reduces business cost. The result of survey and seminar discussion also reveals that APEC member economies are at different e-Invoicing implementation level and take different approaches one another. Consequently, APEC needs to further embark on collective e-Invoicing action by initiating more tasks. Based on the survey result and seminar discussion, the project may draw the following conclusions and recommendations.

7.1 Conclusions

• The review of main commercial processes is crucial in introducing e-invoice.

• In the successful implementation of e-Invoicing, whether domestic or cross-border, public private partnership is important and government commitment as well as support is crucial.

• The exportation invoice is the importation bill of the country of Goods destination; therefore the information contained in the bill should be necessary for the purposes of release of goods in customs in order to facilitate foreign trade.

• Experiences illustrate the necessity of taking practical approach in e-Invoicing implementation by taking into account stakeholder requirements. For example, getting rid of paper process completely from the very initial implementation may not be feasible approach for some economies. Therefore, it may be necessary to provide necessary regulation to allow e-invoice and paper invoice coexist. Especially, e-inclusion should be fully taken into consideration and some measure to facilitate SME access to the e-Invoicing implementation should be exercised.

• Though standard is a critical factor in implementing e-Invoicing, certain level of flexibility is required in selecting the proper standard on an as-is basis. Also, future transition path for standard should be considered.

7.2 Recommendations

• APEC ECSG and other relevant fora should take further collective measure to advance e-Invoicing in APEC.

• APEC economies are encouraged to establish national e-Invoice forum to support the adoption of electronic invoicing.

• APEC economies and fora should actively use pathfinder approach in implementing e-Invoicing at individual or collective level.

• International bodies working on e-Invoicing standard such as UN/CEFACT, OASIS, WCO and others should make more coordinated effort in the development of standard for the benefits of stakeholders.

Annex 1 Summary of Responses to the Questionnaire

Background

Invoice is an important trade document in international trade as well as in domestic trade. It is primarily exchanged between trading partners (suppliers and customers), also having implications for other stakeholders such as tax administration, and customs administration in the case of international trade. In full recognition of value for applying ICT to trade procedures, there is an increasing trend of adopting e-Invoicing, exchanging an invoice using electronic means for trade efficiency and transparency, in many economies.

In APEC, paperless trading is one of main agenda items to promote electronic commerce among its member economies. In an effort to facilitate paperless trading environment in APEC, Peru proposed a 2008 APEC project titled "APEC Seminar to Advance & Promote APEC Work on e-Invoicing Framework." As part of the project, this survey was designed to assess current status of and collect e-Invoicing requirements of the APEC member economies. The survey result will be used to develop an e-Invoicing framework to be shared by the APEC member economies for regional and global interoperability.

Following it is the summary of questionnaire responses provided by the following member economies:

Chile	Philippines
Chinese Taipei	Peru
Korea	Russia
Malaysia	Thailand
Mexico	USA

The format of this draft document provides the question posed in the E-Invoicing questionnaire, followed by the economies' answers, which are repeated in their entirety except for minor editorial amendments necessary for compliance with APEC publication guidelines as outlined in the *APEC Publication Guidelines* (APEC Secretariat, April 2007).

In some cases statistics and diagrams have been provided in order to show graphically the responses to the question. For a correct comprehension of these diagrams and statistics we must say that they include the Peru's responses which are based on its project to implement the e-Invoicing in the near future.

PART A: USE OF INVOICE ON TRADE

QUESTION 1

What type of invoicing process is used in your economy?

Types of invoicing used in economies

Pie chart: 50% Traditional invoice (supplier initiated), 50% Both (Traditional invoice and Self-billing)
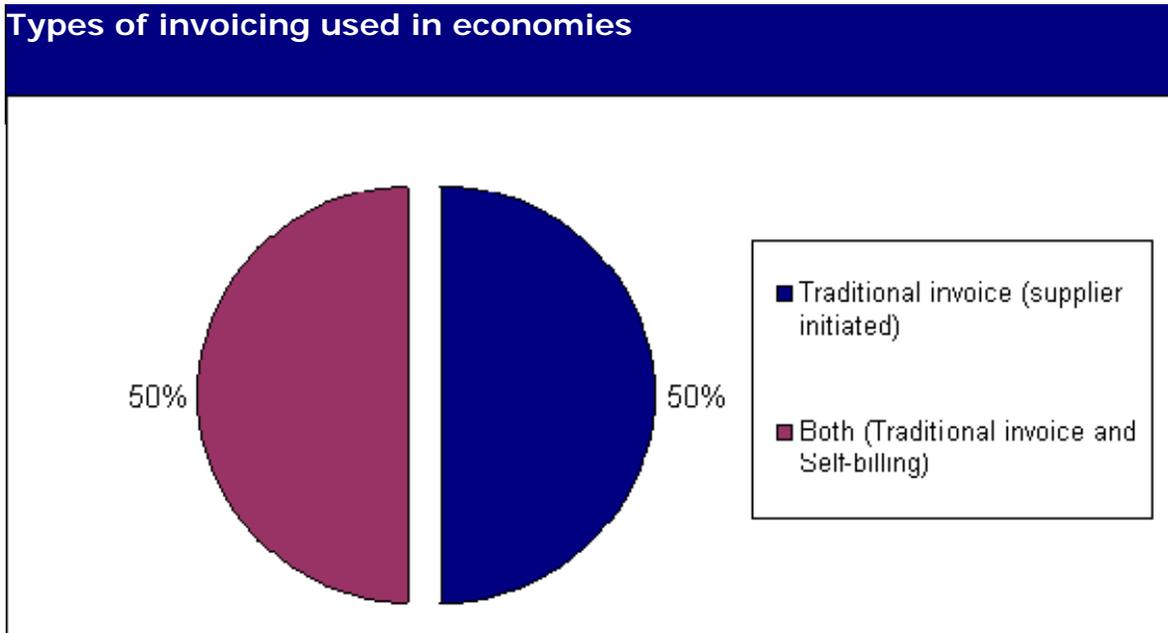
Chile	Both, traditional invoice (supplier initiated) and self-billing (customer initiated)
Chinese Taipei	Traditional invoice (Supplier initiated)
Korea	Both, traditional invoice (supplier initiated) and self-billing (customer initiated)
Malaysia	Both, traditional invoice (supplier initiated) and self-billing (customer initiated)
Mexico	Both, traditional invoice (supplier initiated) 98% and self-billing (customer initiated) 2%

Peru	Both, traditional invoice (supplier initiated) and self-billing (customer initiated)
Philippines	Traditional invoice (supplier initiated)
Russia	Traditional invoice (supplier initiated)
Thailand	Traditional invoice (supplier initiated)
USA	Traditional invoice (supplier initiated)

QUESTION 2

What types of invoices are used in your economy in domestic and international trade?

Chile	• Invoice • Tax Invoice • Commercial Invoice
Chinese Taipei	• Invoice • Tax Invoice • Commercial Invoice • Pro-forma Invoice
Korea	• Invoice • Tax Invoice • Commercial Invoice • Pro-forma Invoice
Malaysia	• Invoice • Tax Invoice • Commercial Invoice • Consular Invoice • Pro-forma Invoice
Mexico	• Invoice • Tax Invoice
Peru	• Invoice • Tax Invoice
Philippines	• Invoice • Commercial Invoice • Consular Invoice • Pro-forma Invoice
Russia	• Invoice • Tax Invoice • Commercial Invoice • Pro-forma Invoice

Thailand	• Invoice • Tax Invoice • Commercial Invoice
USA	• Commercial Invoice • Pro-forma Invoice

Which information is included in invoices used in your economy? What type of invoicing process is used in your economy?

Table 3.1: Information included in invoices used in each economy.

| Data Element Name	Chile Included	Chile Mandatory	Chinese Taipei Included	Chinese Taipei Mandatory	Korea Included	Korea Mandatory	Malaysia Included	Malaysia Mandatory	México Included	México Mandatory	Peru Included	Peru Mandatory	Philippines Included	Philippines Mandatory	Russia Included	Russia Mandatory	Thailand Included	Thailand Mandatory	USA Included	USA Mandatory
Invoice Number	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Invoice Date	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Invoice type	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Name of Supplier	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Address of Supplier	Yes	Yes	Yes	Yes/No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Name of Customer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Address of Customer	Yes	Yes	Yes	Yes/No	Yes	Yes	No	No	No	No	No	No	Yes	No	Yes	Yes	Yes		Yes	Yes
Name of Tax Representative	No	No	No		No	No	No	No	No	No	No	No	No	No	No	No	Yes			
Address of Tax Representative	No	No	No		No	No	No	No	No	No	No	No	No	No	No	No	Yes			
Supplier Identifier (VAT registration number, etc.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Customer Identifier (VAT registration number, etc.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Currency	Yes	No	No		Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Total Invoice Amount	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Amount of Charges & Allowances	Yes	No	Yes	Yes/No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Payment Information & Terms	Yes	No	No		Yes	Yes	Yes	No	No	No	No	No	Yes	Yes	No	No			Yes	Yes
Delivery Period	Yes	No	No		Yes	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes	No			No	No
Delivery Terms	Yes	No	No		Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No			Yes	Yes
Invoice Line Number	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes			Yes	Yes
Dates for goods/services sold/rendered	No	No	No		Yes	Yes	Yes	No	Yes	No	No	No	Yes	Yes	Yes	No	Yes		Yes	Yes
Description of Goods or Services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Unit of Measurement	Yes	No	Yes	Yes/No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Unit Sold (Quantity)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Line Item Unit Price	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Total Line Amount	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Tax Information	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes		No	No
Shipping Marks & Numbers	Yes	No	No	Yes/No	Yes	Yes	Yes	No	Yes	No	No	No		No	Yes	No			Yes	Yes
Country of Origin	Yes	No	No		Yes	Yes	Yes	No	Yes	No	No	No		No	Yes	Yes			Yes	Yes
Reference to Other Documents	Yes	No	Yes	Yes (PO)	Yes	Yes	Yes	No	Yes	Yes	Yes	No		No	Yes	Yes			Yes	Yes

PART B: e-INVOICING IMPLEMENTATION

QUESTION 4

Is e-Invoicing implemented in your economy? (Please specify the year when it was implemented)

Economies that use e-Invoicing
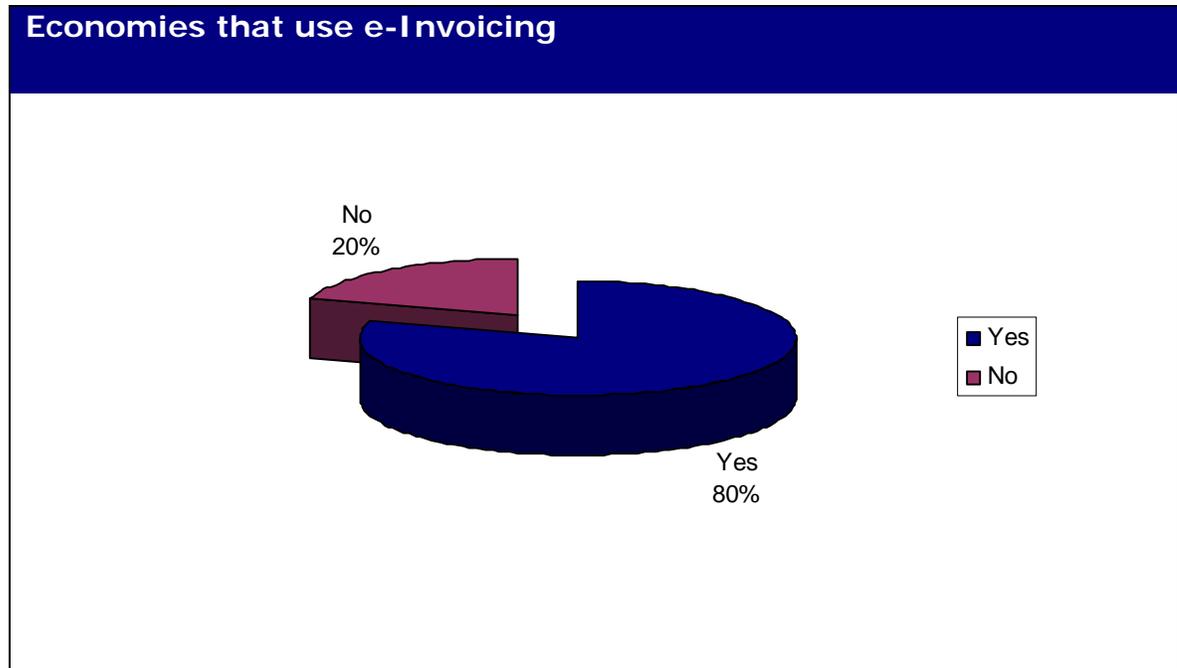
Chile	Yes (2003)
Chinese Taipei	Yes
Korea	Yes. (2001)
Malaysia	Yes (more than 10 years)

Mexico	Yes (since 2005)
Peru	No.
Philippines	Yes (some from private sector; under e Commerce Law)
Russia	Yes (2006)
Thailand	No.
USA	No. (The U.S. has it, but no one uses it yet).

QUESTION 5

Does your economy plan to implement e-Invoicing in the future?

(Applicable only if your answer for the question 4 is No)

Chile	No response provided.
Chinese Taipei	No response provided.
Korea	No response provided.
Malaysia	No response provided.
Mexico	No response provided.
Peru	Yes. Peru is in the implementation process the questionnaire responses are based on the project to be implemented.
Philippines	Yes
Russia	No response provided.

Thailand	Yes
USA	Yes

QUESTION 6

When do you plan to implement it?

(Applicable only if your answer for the question 4 is No)

Chile	No response provided.
Chinese Taipei	No response provided.
Korea	No response provided.
Malaysia	No response provided.
Mexico	No response provided.
Peru	2008
Philippines	2011 or later
Russia	No response provided.

Thailand	2011 or later
USA	2011 or later

From this part, the questions are applicable only for those who answered Yes for the question 4.

QUESTION 7

If e-Invoicing is implemented, which sector is using it?

Sectors that use e-Invoicing
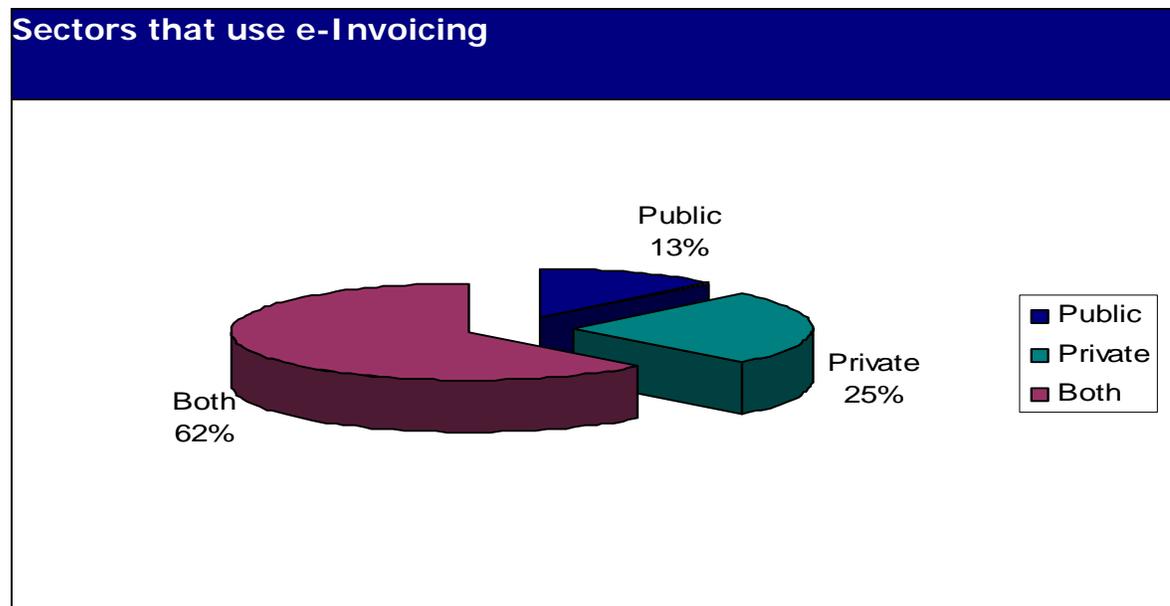
Chile	Both, Public and Private sector
Chinese Taipei	Private sector but authorized by the government
Korea	Both, Public and Private sector
Malaysia	Both, Public and Private sector

Mexico	Both, Public and Private sector
Peru	E-Invoicing is not implemented yet.
Philippines	Private sector
Russia	Public Sector
Thailand	No response provided.
USA	No response provided.

QUESTION 8

Currently, how many taxpayers are participating in e-invoicing?

Chile	**For B2B implementations:** Number of Taxpayers: 8.854 Number or e-invoices: 9.000.000 monthly **For B2C implementations:** Number of Taxpayers: 55 Number or e-invoices:
Chinese Taipei	**For B2B implementations:** Number of Taxpayers: 3,000 Number or e-invoices: 2.5M/annual **For B2C implementations:** Number of Taxpayers: 3,000 Number or e-invoices: 17M/annual
Korea	**For B2B implementations:** Number of Taxpayers: about 4 million Number or e-invoices: about 25 million/year
Malaysia	No response provided.
Mexico	**For B2B and B2C implementations:** Number of Taxpayers: 11,926 Number or e-invoices: 25,565,305 (At March 31st.)

Peru	No response provided.
Philippines	No response provided.
Russia	**For B2B implementations:** Number of Taxpayers: about 10 000 taxpayer Number or e-invoices: about 700 000 invoices per year **For B2C implementations:** Number of Taxpayers: practically NO Number or e-invoices: practically NO
Thailand	No response provided.
USA	No response provided.

QUESTION 9

What is the legal basis for enabling the implementation of e-Invoice?

Chile	• Internal Revenue Service (SII) Resolution (SII) N° 45, 2003. • Specifies the taxpayer regulation upon authorization by the taxpayer, the authorization of the validation of numbered documents from the SII Website, the issue process of the document and the exchange between stakeholders and stakeholders and the SII.
Chinese Taipei	• Special administrative law under Ministry of Finance
Korea	• National Tax Service Notice 2001-4 It is a notice from the government on how to issue and store tax invoice or invoice electronically.
Malaysia	• Communications and Multimedia Act 1998 • Digital Signature Act 1997 and Regulations 1998 • Evidence Act • E-Commerce Act 2006 • E-Government Activities Act 2007
Mexico	• Fiscal Law • Fiscal Operation Rules • Technical Standards Rules Mexican fiscal regulations establish the proper use of e-Invoices, filing and supporting standards. Such regulations recognize both self-generated invoices and those issued through Tax Authority authorized service providers.

Peru	Have not yet been issued specific rules, however there is a regulatory framework that will facilitate: • Law and regulation of digital certificates and signatures • Law framework of Invoice • Tax Code
Philippines	e-Invoicing is being allowed. However, there is no existing sufficient legal basis for implementation for tax purposes. Currently, efforts are being undertaken to provide policies and regulations to strengthen the e-Commerce law.
Russia	• Federal law dated 10.01.2002 N 1-FZ "Law on electronic digital signature" • Order of Federal tax agency of RF dated 06.02.2008 N MM-3-6/50 "Temporary regulations for electronic documents exchange …..» • Order of Federal financial markets agency dated 10.11.2004 N 04-910/pz "Digital signature certification centers" • Federal law dated 27.07.2006 N 149-FZ "Law on information, information technologies and information protection" • Federal law dated 27.07.2006 N 152-FZ "Law on private data" • Order of Federal tax agency of RF dated 13.06.2006 N SAE-3-27/346 "Organization of network of digital signature certification centers"
Thailand	No response provided
USA	No response provided

QUESTION 10

What are the requirements prescribed in the law or regulation for e-Invoicing?

Requirements prescribed in the law or regulation for e-Invoicing

Chile	• Be authorized to participate of the system • Obtain the validation of numbered documents from the SII website • Emit the documents in the SII authorized XML format • Send B2B electronic invoices to the Tax Administration • Send B2B electronic invoices to stakeholders that participate of the system • Print electronic invoice representation in the format specified by the SII • Send printed representation on the e-invoice to the stakeholders that don't participate of the system or if it is used to accompany goods • Send monthly sales and purchase summaries to the Tax Administration • Print the e-invoice (if needed) with and electronic stamp" in PDF417 format
Chinese Taipei	• Use of electronic signature to ensure authenticity of origin and data integrity • Specific mandatory Information to be included • Storage of Invoice in certain conditions • Storage of Invoice for a certain period of time
Korea	• Use of electronic signature to ensure authenticity of origin and data integrity • Specific mandatory Information to be included • Storage of Invoice in certain conditions

|	
Malaysia	Not specific but may be required under contract
Mexico	• Use of electronic signature to ensure authenticity of origin and data integrity • Specific mandatory Information to be included • Storage of Invoice in certain conditions • Storage of Invoice for a certain period of time • Others (Specify: Schema in XML)
Peru	The project envisages: • Use of electronic signature to ensure authenticity of origin and data integrity • Specific mandatory Information to be included • Storage of Invoice in certain conditions • Storage of Invoice for a certain period of time
Philippines	None yet
Russia	No response provided
Thailand	No response provided
USA	No response provided

QUESTION 11

What is the content of an e-Invoice?

Usually, the content of electronic invoice is identical to the content of paper invoice. Therefore, please exclude the data elements covered in Question 3 and specify only additional data elements added to meet regulatory or technological requirement of e-Invoicing.

Chile	• Further voluntary information above covered in Question 3:
	  o Information on transportation
	  o Information of possible discounts or surcharges
	  o Reference Area (link to previous documents such as purchase orders, other invoices, dispatch guides, etc.)
	  o Customs information (for export e-invoice)
	• It's mandatory to include in the XML file:
	  o The electronic digital signature (XMLDSIGN)
	  o The electronic invoice stamp (printed in pdf417)

Chinese Taipei	• Purchase Order Number • Information for technical communication
Korea	Identical to the data elements covered in question 3
Malaysia	• Digital signature, • IP/routing addresses, • Electronic User ID, • Product codes, • Forwarding Agent information
Mexico	<table><tr><td>**Data Element Name**</td><td>**Included**</td><td>**Mandatory**</td></tr><tr><td>Invoice Number</td><td>Yes</td><td>Yes</td></tr><tr><td>Invoice Serial Letter</td><td>Yes</td><td>No</td></tr><tr><td>Approbation Number</td><td>Yes</td><td>Yes</td></tr><tr><td>Approbation Year</td><td>Yes</td><td>Yes</td></tr><tr><td>Addenda (Free Data Element)</td><td>Yes</td><td>No</td></tr><tr><td>Original Chain</td><td>Yes</td><td>No</td></tr><tr><td>Seal in Base 64</td><td>Yes</td><td>Yes</td></tr><tr><td>Digital Certificate Seal in Base 64 (Public Key x509v3)</td><td>Yes</td><td>No</td></tr><tr><td>Certificate Serial Number</td><td>Yes</td><td>Yes</td></tr><tr><td>e-Invoice Standard Version</td><td>Yes</td><td>Yes</td></tr><tr><td>Discount Amount</td><td>Yes</td><td>No</td></tr><tr><td>Discount Description</td><td>Yes</td><td>No</td></tr><tr><td>*Complements</td><td>Yes</td><td>No</td></tr></table>

Peru	Response no provided
Philippines	Response no provided
Russia	Identical to the data elements covered in question 3
Thailand	Response no provided
USA	Response no provided

QUESTION 12

What exchange format is used for e-Invoicing?

Economies' exchange format used for e-Invoice
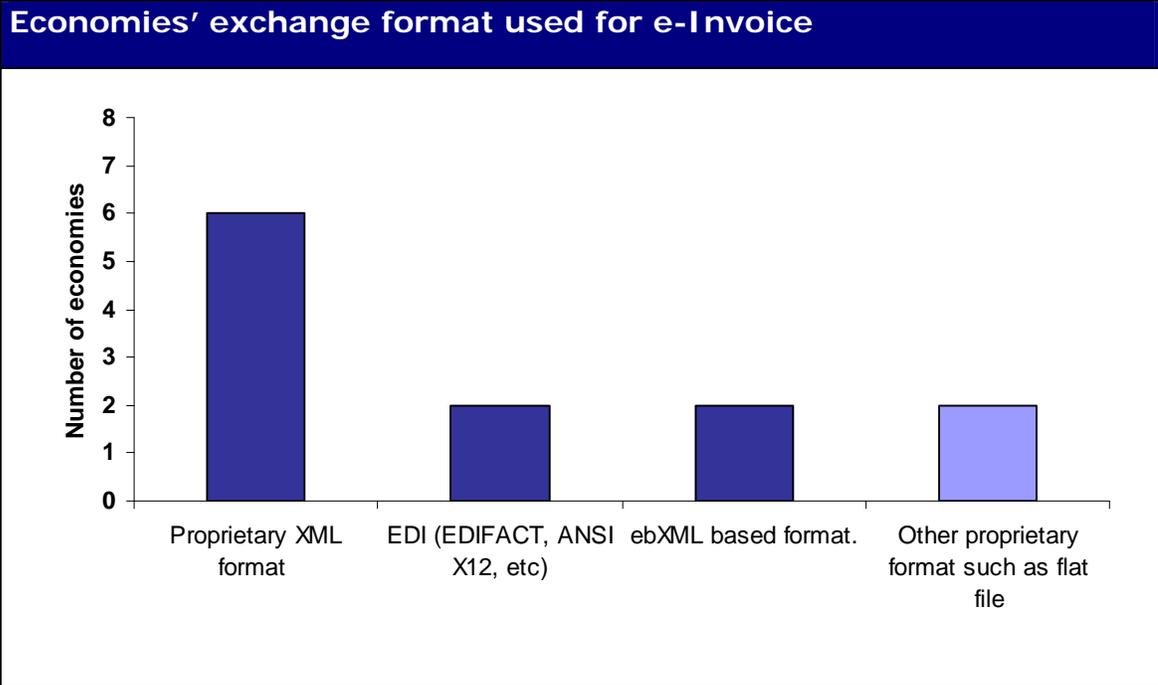
Chile	Proprietary XML format
Chinese Taipei	Proprietary XML format
Korea	• Proprietary XML format • EDI (EDIFACT, ANSI X12, etc) • Other proprietary format such as flat file
Malaysia	• Proprietary XML format • EDI (EDIFACT, ANSI X12, etc) • Other proprietary format such as flat file
Mexico	Proprietary XML format

Peru	The project envisages: EbXML standard for data transmission to SUNAT
Philippines	EbXML based format using Core Component and United Nations Naming & Design Rules (such as UN/CEFACT CII, UNeDocs, OASIS UBL, etc.). (PDF format – downloadable)
Russia	Proprietary XML format
Thailand	Response no provided
USA	Response no provided

QUESTION 13

What is the transmission mechanism used for e-Invoicing?

Economies' transmission mechanism used for e-Invoice
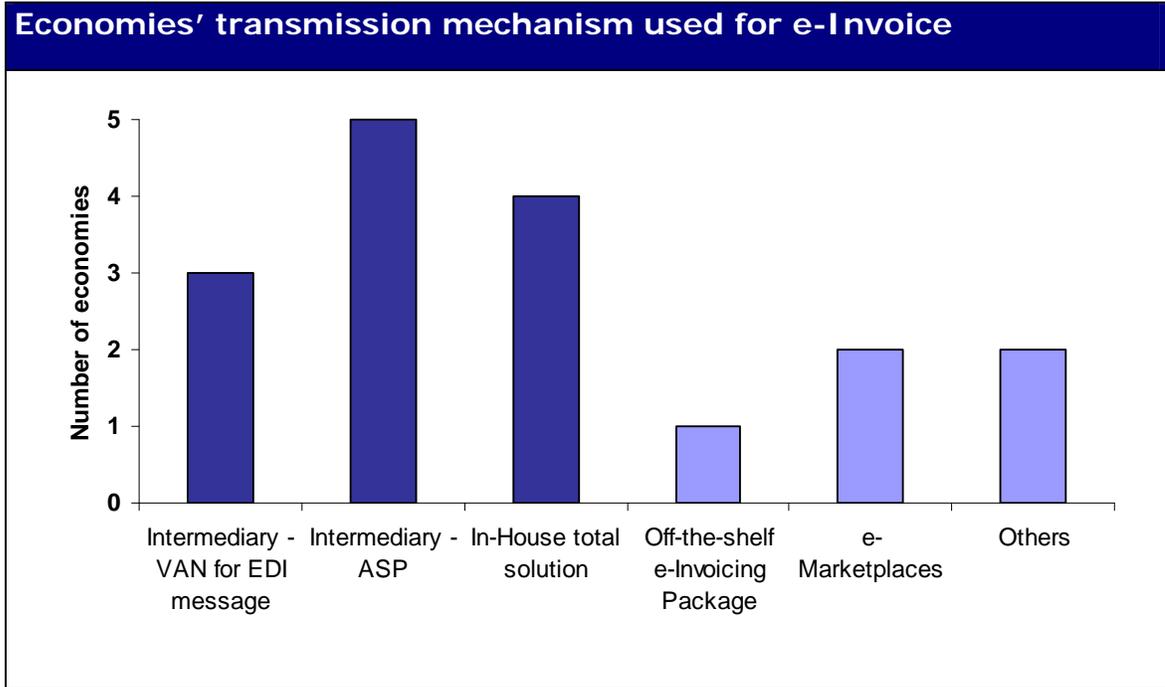
Chile	• Internet Upload to the Tax Administration • Electronic mail (minimum) or other between suppliers and clients by common agreement
Chinese Taipei	• Intermediary - VAN (Value Added Network) for EDI message. (for hub) • Intermediary - ASP (Application Service Provider). (for suppliers)
Korea	• Intermediary - VAN (Value Added Network) for EDI message • Intermediary - ASP (Application Service Provider) • In-House total solution
Malaysia	• Intermediary - VAN (Value Added Network) for EDI message • Intermediary - ASP (Application Service Provider) • In-House total solution • Off-the-shelf e-Invoicing Package • e-Marketplaces

Mexico	• Others (Specify: Not regulated)
Peru	The project envisages: • Intermediary - ASP (Application Service Provider) In the case of small businesses SUNAT act as ASP and in the case of large companies would be services provided by third part.
Philippines	• Intermediary - ASP (Application Service Provider) • In-House total solution
Russia	• Off-the-shelf e-Invoicing Package • e-Marketplaces
Thailand	Response no provided
USA	Response no provided

QUESTION 14

What is the security mechanisms used for e-Invoicing?

Economies' security mechanisms used for e-Invoice
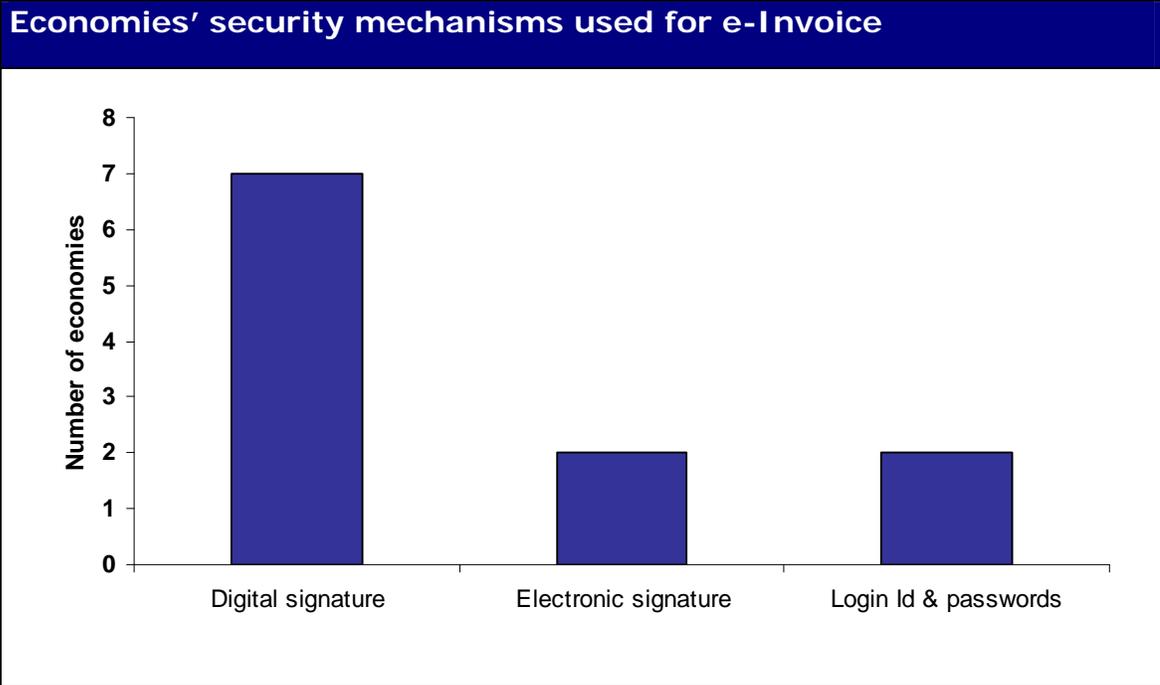
Chile	Digital signature (based on X.509v3 certificate)
Chinese Taipei	Digital signature (based on X.509v3 certificate)
Korea	Digital signature (based on X.509v3 certificate)
Malaysia	• Electronic signature • Digital signature (based on X.509v3 certificate) • Login ID and passwords
Mexico	Digital signature (based on X.509v3 certificate)

Peru	The project envisages: • Digital signature in the case of large companies • Electronic signature in case of small businesses
Philippines	None. All users are pre-enrolled and required to log-in with a password
Russia	Digital signature (based on X.509v3 certificate)
Thailand	Response no provided
USA	Response no provided

QUESTION 15

What were the major obstacles you faced in implementing e-Invoicing?

Major obstacles faced by economies in implementing e-Invoicing

- Legal and regulatory obstacles — 32%
- Technological obstacles — 23%
- Obstacles arising from business practices — 27%
- Others — 18%

Chile	**Legal and regulatory obstacles** As there was no law about digital signature when the project started, the tax administration issued a resolution that allows digital signatures using electronic certificates (X509 v3) that are supplied by an issuer authorized by the Tax Administration, for tributary proceedings like identifying on the Tax Administration website, or to digitally sign invoices. **Technological obstacles** In 2001 and 2002, when the project started in Chile, XML schemas and digital signatures were quite unknown. Information suppliers had to adopt these new technologies. **Obstacles arising from business practices**. There where some small taxpayers that where not willing to spend money on a software or an adviser to implement the electronic invoice software, so the Tax Administration implemented a free application service provider where they can emit their invoices directly to the Tax Administration. **Others** Some taxpayers are reticent about making all their accounting available to the Tax Administration.
Chinese Taipei	**Obstacles arising from business practices** E-invoice system will only bring value to the business if it's integrated tightly with the enterprises' supply chain or order management system. While the system differs from business to business, the effort of customization may be huge.

Korea	**Legal and regulatory obstacles** • no specification on the storage period for e-invoice • no specification on file format for exchange and storage • no specification on single certification system **Technological obstacles** • no common standard (for cross-border exchange) • no certificate that can ensure the storage of e-invoice in a long-term
Malaysia	**Legal and regulatory obstacles** • Business entity is not aware/unsure about the legal/regulatory requirement for the electronic document. As such, they chose to stick with paper document. **Technological obstacles** • Many small companies don't have sufficient infrastructure and skilled personnel in e-Invoice implementation • Interfaces to other e-Invoice systems is complex and difficult. • Often encounter systems incompatibility issues due to different ICT standards used in various e-Invoice systems **Obstacles arising from business practices** • Most companies still want the paper invoice to be produced and delivered. This results in double work • Due to many small companies still using manual invoice, therefore the manual process still required even though they already have a comprehensive e-Invoice system. **Others** • Lack of awareness to the Small and Medium Enterprises (SME) about the benefits of e-Invoice implementation. E-Invoice implementation mostly driven by Multi-National Corporations (MNC) or large corporations.
Mexico	**Legal and regulatory obstacles** • Storage specifications for trade recognition. **Technological obstacles** • To establish a single standard (XML). **Obstacles arising from business practices** • Use EDIFACT and ANSI X.12 standards in some segments of taxpayers. • Paper culture. • Accounting Registration. **Others** • Low technological penetration in small sized enterprises.

Peru	**Legal and regulatory obstacles** • The implementation of the infrastructure for digital certificates. **Obstacles arising from business practices** • Culture Paper • Difficulties in the courts for accept the e-Invoicing as evidence, due to ignorance of technology **Others** • Digital Divide
Philippines	**Legal and regulatory obstacles** • There are existing rules and regulations defined by the Bureau of Internal Revenue.
Russia	**Legal and regulatory obstacles** • Too long period for adoption of Federal laws on electronic documents exchange and digital signature • Absence of agreements of Russia with other countries on mutual electronic/digital certification. This is important in international trade • Language barriers. This is important in international trade • Difference in goods classification. This is important in international trade **Technological obstacles** Lack of electronic/digital signature certification centers in Russian Federation **Obstacles arising from business practices** • Lack of trust to electronic form of documents • Difficulties in tax declaration required by regulatory • 3. Business culture issues
Thailand	No response provided.
USA	No response provided.

PART C: EXPERIENCES AND LESSONS LEARNED

QUESTION 16

Please state the lessons learnt in domestic implementation of e-Invoicing, considering advantages and benefits.

Chile	• Design the system and the e-invoice format with some companies involved in the project. • High commitment of the direction of the Tax Administration. • Also implement a pilot project amongst different companies that where interested. • Involve the senior managers of the companies that participate in the design and the pilot project. • Take advantage of the pilot project to fit some details in models and formats.
Chinese Taipei	• Integration with order management system • Integration with RMA process • Integration with payment reconciliation process
Korea	• Use common standards • Provide a mechanism for long-term storage of the e-invoices • Ensure certificate consistency • Support for the businesses in adopting e-invoices

Malaysia	• e-Invoice implementation will gain popularity if the data exchanged can be reused for other processes such as population of data into Customs Declaration and Import/export Permits
	• Awareness program is crucial to educate companies (particularly SMEs) on the following:
	    a. Benefits of e-Invoice
	    b. How to maximize data reusability
	    c. How to save cost and gain business opportunity
	    d. Legal and regulatory requirement for such implementation
	
	• Regulatory bodies to look into accepting e-Invoice and elimination of paper invoice for cargo clearance process

Mexico	• All Governmental initiatives require partnerships with private enterprises. We established partnerships, invite them to participate in the supply chain management for related processes and exchange ideas about regulations and definitions. This strategy helps to promote and persuade taxpayers to take this option. • Implementation must be gradually, step by step, measure results of all processes and redesign if it is necessary.

Peru	• For taxpayers:
	  ○ Issuing, distribution and storage costs reduced
	  ○ Integration with ERP and others
	  ○ Efficient and fast process
	
	• For the Tax Administration:
	  ○ Tax control improved
	  ○ Audit costs reduced
	  ○ It enables a picture of simplification in procedures and hence a better perception of services.
	  ○ Contributes to the implementation of the e-government in Peru.

Philippines	No implementation effort undertaken yet
Russia	• Availability of carefully designed and agreed documentary scheme. Development of new regulations and changing existing ones. • Availability of standard templates of electronic documents. • The use of "transition" period, when deploying an electronic document management system (EDMS). In this period the use of EDMS is already possible, but still is not compulsory. It is important that by the time of the mandatory use of EDMS, critical mass of its users was formed.
Thailand	Response no provided
USA	Response no provided

PART D: IMPLEMENTATION ISSUES FOR FURTHER DEVELOPMENT

STANDARD

QUESTION 17

In the case of EDI message format, there exist multiple international and national standards. If you implemented e-Invoicing message format using standard EDI format, which one did you use?

Economies' EDI message format implemented for e-Invoice
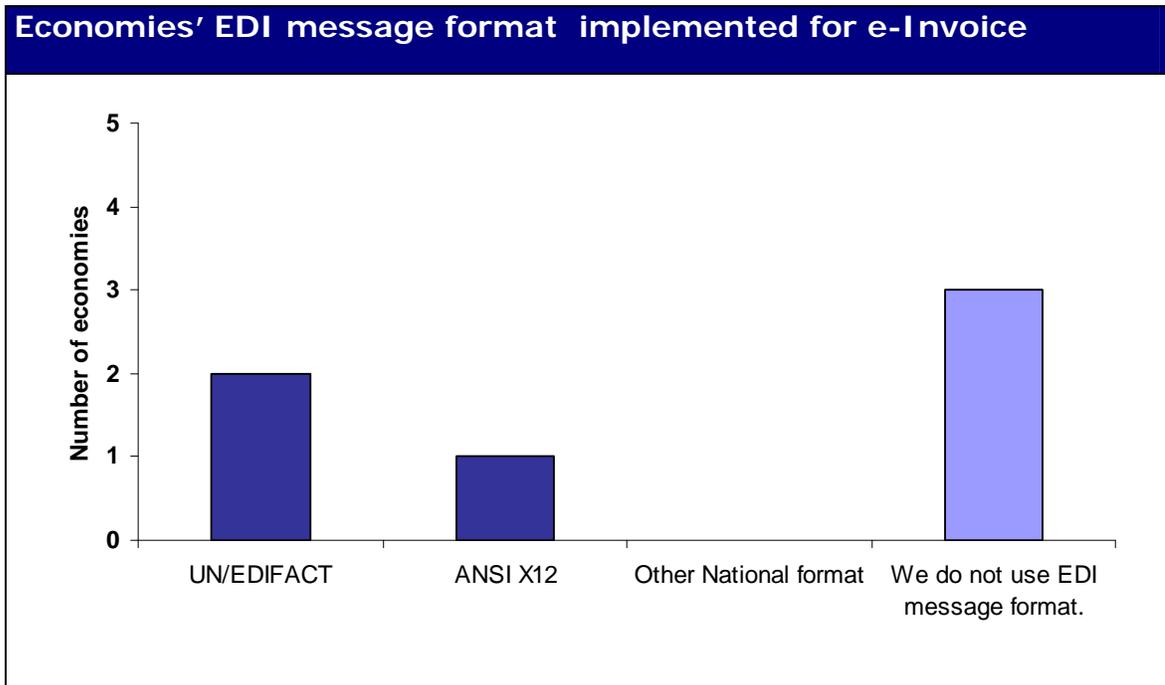
Chile	We do not use EDI message format.
Chinese Taipei	ANSI X12
Korea	UN/EDIFACT

Malaysia	UN/EDIFACT
Mexico	We do not use EDI message format.
Peru	Response no provided
Philippines	Response no provided
Russia	We do not use EDI message format.
Thailand	Response no provided
USA	Response no provided

QUESTION 18

In the case of using XML as a message format, there is no globally agreed available standard format. If you implemented e-Invoicing using XML, which one did you use?

Economies' XML message format implemented for e-Invoice
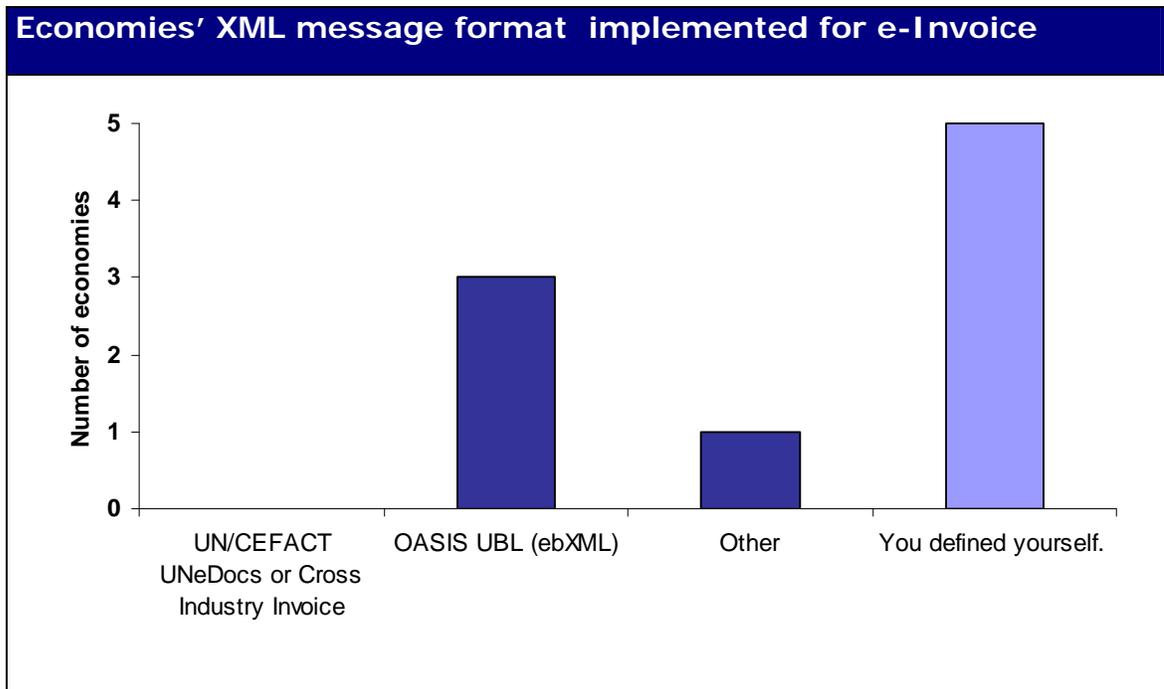
Chile	You defined yourself.
Chinese Taipei	You defined yourself.
Korea	You defined yourself
Malaysia	• OASIS UBL (ebXML) • Other (Please specify: RosettaNet PIPs) • You defined yourself. Proprietary

Mexico	You defined yourself (We define a XML format based in W3C standard)
Peru	The project envisages : OASIS UBL (ebXML)
Philippines	Response no provided
Russia	You defined yourself.
Thailand	Response no provided
USA	Response no provided

QUESTION 19

Please describe standard issues that have to be addressed for the wider adoption of e-Invoicing in APEC based on your implementation experience.

Chile	XML Schema Digital Signature, based on X.509v3 certificate; (XMLDSIG) PDF417 in printed e-invoices
Chinese Taipei	No issue
Korea	In the case of Korea, e-invoice is implemented in tax invoice. Because there is no requirement on e-invoice standard, multiple formats are used and cause more costs and non-interoperability among the various services/systems. For the cross-border implementation of e-invoicing among APEC members, a standard format will be more important than domestic implementation to ensure interoperability.
Malaysia	• Standardization of ICT standards for data exchange • Driving force Government bodies would help in expediting the implementation • Linkage of e-Invoice implementation with other TF processes • Create of successful pathfinder projects to attract participation from other members
Mexico	Each country has its own initiatives, laws and e-invoicing rules which make difficult to standardize some elements or requirements of the process. May be considered: • XML Open Standard recognition. • PKI certificates recognition. • Do not regulate e-invoice communications standards. • Offer low cost services for SME's trough Service Providers.

Peru	Response no provided
Philippines	Response no provided
Russia	• Legislation on electronic documents and digital signatures is different in different APEC economies. So, contracts must have paragraph specifying the territory and jurisdiction of the economy to resolve disputes. • For the transborder trade there may be following approaches: • Indoor, where all trade participants are working according to the laws of one agreed economy (say, Russian Federation), receive certificates and keys from Russian certifying centers, use software, adopted in Russia, and within the laws of this country are solving all controversial issues; • Open, when the united certification system is build, in which certificates issued in different economies can be used and these certificates meet the agreed requirements. "Standard" embedded software can be used. In this case, additional work may be required in certifying centers of various economies on cross-certification and acceptation of certificates issued by foreign certifying centers.
Thailand	Response no provided
USA	Response no provided

CROSS BORDER TRADE

QUESTION 20

The trade among APEC member economies as well as global trade is expanding with the increasing FTA s and RTAs. Though e-Invoicing is primarily implemented for domestic trade at the current stage, future development has to address the issues for cross border trade. What are the issues to be tackled to realize the implementation of cross border e-Invoicing among APEC member economies?

Chile	• Common identification system for Invoice number • Common identification system for trading partners • Common Identification scheme for cross reference among the related documents such as UCR (Unique Consignment Reference) • Mutual recognition of Tax regimes among the APEC member economies
Chinese Taipei	• Common identification system for trading partners • Common standard for e-Invoice data element • Common Identification scheme for cross reference among the related documents such as UCR (Unique Consignment Reference)
Korea	• Common identification system for Invoice number • Common identification system for trading partners • Common standard for e-Invoice data element • Common Identification scheme for cross reference among the related documents such as UCR (Unique Consignment Reference) • Mutual recognition of Tax regimes among the APEC member economies
Malaysia	• Common identification system for trading partners • Common standard for e-Invoice data element • Other (Certification Authority Mutual Recognition and user mutual recognition)
Mexico	▪ Mutual recognition of Tax regimes among the APEC member economies

Peru	- Common identification system for Invoice number - Common identification system for trading partners - Mutual recognition of Tax regimes among the APEC member economies
Philippines	- Common standard for e-Invoice data element - Common Identification scheme for cross reference among the related documents such as UCR (Unique Consignment Reference)
Russia	- Common identification system for trading partners - Common standard for e-Invoice data element
Thailand	No response provided.
USA	No response provided.

STORAGE OF E-INVOICING

QUESTION 21

What is the mandatory duration of storage for e-Invoice in your jurisdiction?

Economies' mandatory duration of storage for e-Invoice
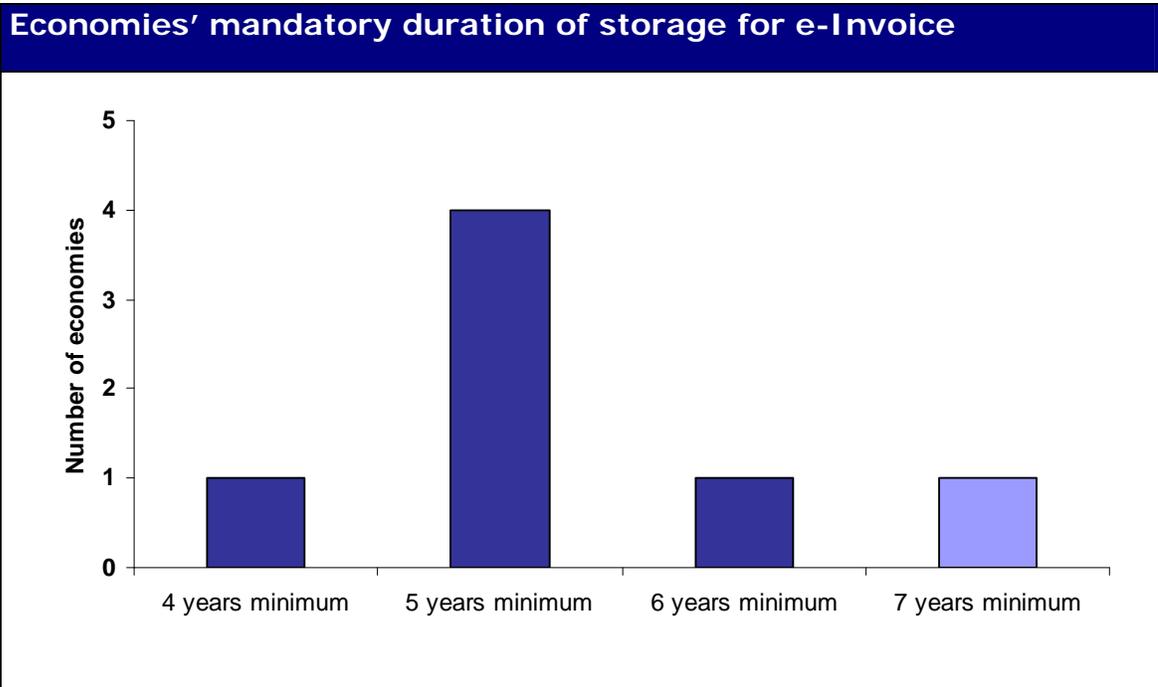
Chile	6 years
Chinese Taipei	5 years
Korea	Not specified, but usual business document is 5 years
Malaysia	7 years – as prescribed in Evidence Act

Mexico	5 years
Peru	The project envisages: 4 years
Philippines	There is no specific duration of storage/safe keeping.
Russia	5 years
Thailand	Response no provided
USA	Response no provided

QUESTION 22

Is there any specific requirement for storage format of e-Invoice data?

Percent of economies that have requirements for storage format of e-Invoice
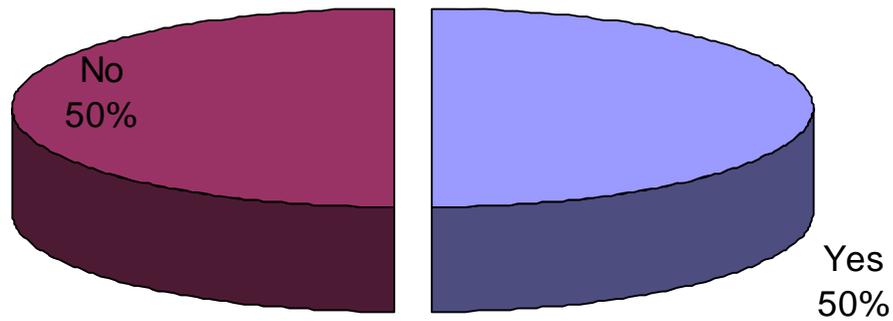
Chile	No
Chinese Taipei	Yes, XML Format
Korea	No

Malaysia	No
Mexico	Yes, • Storage in updated electronic media • Keep e-invoice accessibility for the authority minimum five years • Maintain original XML format • Taxpayer may opt to use storage standards issued by Ministry of Economy (Secretaría de Economía) which include time stamping and a Trust third party authority entity.
Peru	The project envisages: The e-Invoicing must be stored with their corresponding electronic signature
Philippines	Yes, Database – convertible to pdf or excel
Russia	No
Thailand	Response no provided
USA	Response no provided

QUESTION 23

Is there a requirement for storage medium of e-Invoice to guarantee authenticity, integrity and readability of the content?

Percent of economies that have requirements for storage medium of e-Invoice to guarantee authenticity, integrity and readability of the content

No
71%

Yes
29%
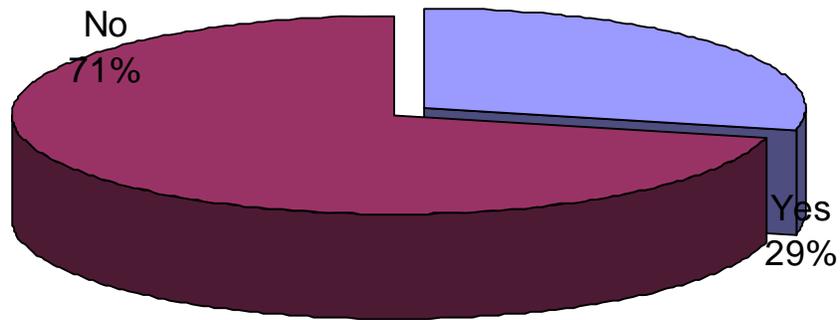
Chile	No
Chinese Taipei	Yes, Database
Korea	Yes
Malaysia	No

Mexico	No
Peru	Response no provided
Philippines	No
Russia	No
Thailand	Response no provided
USA	Response no provided

TAXATION

QUESTION 24

Is there any requirement imposed for the validity of e-Invoice by tax administration for taxation purposes in your jurisdiction?

Percent of economies that have requirements imposed for the validity of e-Invoicing of tax administration.

No
33%

Yes
67%

Chile	The e-invoice is only valid and has the same legal status as a traditional one (in paper) if it is generated by an Tax Administration's (SII) authorized user in an electronic process, in the format specified by the SII, and digitally signed.
	The printed issuing of documents must also have an "electronic stamp" in PDF417 format to verify its validity. This electronic stamp allows tax compliance inspectors to verify the validity of the printed documents that accompany goods off line.
Chinese Taipei	Response no provided
Korea	Yes (unspecified)

Malaysia	Yes (For auditing purposes)
Mexico	No (There is an optional electronic service for taxpayers)
Peru	Response no provided
Philippines	No
Russia	Proper form of invoice.
Thailand	Response no provided
USA	Response no provided

QUESTION 25

Is e-Invoice recognized and accepted by your Customs administration?

Chile	Yes
Chinese Taipei	No
Korea	Yes
Malaysia	No
Mexico	Yes
Peru	Yes
Philippines	Response no provided
Russia	Yes

Thailand	Response no provided
USA	Response no provided

OTHER ISSUES AND COMMENTS

Chile	The advantage of defining a standard format, defined by the SII, is that stakeholders have a common and standard language for commercial trade. In this way, they can process electronic invoices automatically with all the advantages this represents. This fosters the development of electronic trade, strongly lowers invoicing costs for taxpayers, and allows great improvements in the operations and services offered to their clients, while at the same time simplifying tax compliance. Receiving the documents at the SII allows to better control credits and debits, improve control on the transfer of goods with documents valid for tax compliance and to grant taxpayers better services, with information of better quality.
Chinese Taipei	Response no provided
Korea	Response no provided
Malaysia	Response no provided

Mexico	• The Mexican e-Invoice fiscal regulations include generation digital messages used for:
	   o Standard invoicing (proof of purchase)
	   o Credit and debit notes
	   o Fiscal bills of lading
	• Though this regulations and supporting standards, Tax Authority aimed to allow a 100% digital cycle of generation, transmission and storage of invoices.
	   o Design Guidelines
	   o Ease of automation
	   o Structured
	   o Secure
	   o Open standard
	   o Should be equally accessible to large and small taxpayers
	   o Should be technologically neutral
	• Characteristics
	   o Integrity: The information contained within the e-Invoice is protected and can't be manipulated or modified without its detection.
	   o Authenticity: The identity of the issuer can be verified and tracked.
	   o Non repudiation: By law, any person or entity that generates a valid e-Invoice will not be able to deny its generation.

Peru	Response no provided
Philippines	The Bureau of Internal Revenue has no specific regulations with regard to e-invoicing, but has made initial effort on this matter through Revenue Memorandum Order No. 29-2002 – Revised Procedures in the Processing and Approval of Applications for Permit to Adopt Computerized Accounting System (CAS) of Components Thereof Amending RMO 21-2000 (copy attached, including its annexes).
Russia	Response no provided
Thailand	Response no provided

USA	Response no provided

References

The following list of documents, publications and web resources were referenced in the development of this framework document.

Documents and Publications
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2. APEC, "APEC E-Invoicing Development Report," 2008.
3. APEC, "APEC Public Key Infrastructure Guidelines: Guidelines for Schemes to Issue Certificates capable of Being Used in Cross-Jurisdiction eCommerce," May 2005.
4. CEN/ISSS, "Report and Recommendations of CEN/ISSS e-Invoicing Focus Group on Standards and Developments on electronic invoicing relating to VAT Directive 2001/115/EC," CEN, September 2003.
5. European Commission Informal Task Force on e-Invoicing, "European Electronic Invoicing (EEI) Final Report," Version 3.2 Final, July 2007.
6. OASIS, "Universal Business Language v2.0," December 2006.
7. UN/CEFACT TBG15, "Annex to Recommendation 6 (to accommodate e-Invoicing)," UN/CEFACT, Mexico Version, May 21 2008.
8. UN/CEFACT TBG1, "Business Requirements Specification: Cross Industry Invoicing Process," UN/CEFACT, Version 1.1, February 2006.

Web Resources
1. APEC, www.apec.org
2. APEC Seminar to Advance and Promote APEC Work on e-Invoicing Framework, http://e-invoicingseminar.comunidades-peru.org/
3. CEN/ISSS, http://www.cen.eu/cenorm/sectors/sectors/isss/index.asp
4. EU, http://ec.europa.eu/enterprise/ict/policy/einvoicing/einvoicing_en.htm
5. OASIS, www.oasis-open,org
6. UBL Northern European Subset(NES), http://www.nesubl.eu/
7. UN/CEFACT, www.unece.org/cefact
8. Wikipedia, www.wikipedia.org