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Data Simplification and Standardization for International Trade

Recommendation No. 34

United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT)

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Recommendation 34

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Simple, Transparent and Effective Processes for Global Commerce

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Foreword

UNCEC recommended in July 2005 that Governments establish a Single Window facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfill all import, export, and transit-related regulatory requirements (UNECE Recommendation 33). Since that time, Single Window facilities have been established in over 70 countries and have been a major catalyst in implementing trade facilitation reforms.

Recommendation Number 34 was developed in response to a particular set of requests from Single Window implementers who were faced with the task of harmonizing and standardizing government information requirements. Recommendation 34 responds to these requests by providing guidance on creating the minimum requirements for the exchange of data between governments and traders. It aims to help Governments and traders by recommending a simple, easy-to-use and cost effective 4-stage process to achieve the objective of a national simplified and standardized dataset.

The publication of Recommendation 34 adds to the suite of products offered by UNECE to assist with the establishment of a Single Window. There is no particular or special sequence in which UNECE Recommendations on Establishing a Single Window should be used or applied. Implementers should take the suite of available Recommendations and work on the strategy, policy, technical, data harmonization and legal frameworks simultaneously.

I am convinced that this Recommendation will be immensely useful to those engaged in the establishment of Single Window facilities and I therefore invite all concerned actors, both public and private, to make effective use of this Recommendation.

Sven Alkalaj
Executive Secretary
United Nations Economic Commission for Europe

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Introduction

Since publication in July 2005, Recommendation 33 – Establishing a Single Window has assisted Governments and the business sector to enhance the efficient exchange of trade related information to meet the regulatory and administrative requirements of international trade. The Recommendation and its Guidelines provide practical advice for planning and implementing a Single Window facility and offer guidance on its sustainable operation and future development. Further the Recommendation identifies the available international standards to help effective introduction of a Single Window and to realise optimum benefits to Government and significant gains for the trading community.

Over 30 countries from all regions of the world have introduced a Single window facility and have achieved considerable advantage through the reduction of time and resources in preparing, presenting and processing official information requirements. Equally, Single Window facilities often result in a decrease in trade transaction costs, improved trader compliance through more accurate and timely data submission with an associated increase in government revenues, and more efficient and effective border management and controls. A Repository of Case Studies complements Recommendation 33 and offers examples of the business models adopted for existing or planned Single Window facilities. The Case Studies provide an insight into the planning and implementation of a Single Window and share experiences on a wide range of topics from initial concept and identification of benefits, through services provision and technology options to promotion and communication and future plans.

Establishing a Single Window is nonetheless a challenging process. Frequently it entails changes to established institutional, financial, legal and social systems as well as the relationship between Government and the business sector. Many of these issues were identified by users of Recommendation 33 and stakeholders attending the UN Economic Commission for Europe (UNECE) Symposium on Single Window Standards and Interoperability held in May 2006. The Symposium delegates requested UN/CEFACT to provide supplementary Recommendations with guidelines on the way government information requirements could be harmonised and standardised, and the legal issued to be considered when planning and implementing a Single Window facility.

Recommendation 34 – Data Simplification and Standardisation for International Trade answers the first of these requests by recommending a simple, easy-to-use and cost effective 4 stage process to achieve the objective of a national simplified and standardised dataset. Following the simplification and standardisation process described in the Recommendation guidelines, a government should be able to reduce the regulatory and official information requirements through the elimination or duplication of submissions and the removal of redundant data elements. The outcome of the process should be a more efficient and effective exchange of information between Trade and Government. The Recommendation and guidelines acknowledge the valuable part the trading community can play in helping reduce the data requirement by recognising business needs and realities and the ability of commercial systems and records to provide the government demanded information.

The production of the national data set (NDS) cannot be undertaken in isolation from other trade and economic development policy decisions about the manner in which government requires and uses official and regulatory information, and the way the business community will submit the data. When undertaking the simplification and standardisation exercise, Government should have a clear objective for the way in which the National Data Set will

be used, whether to meet purely domestic trade needs or for incorporation into a national Single Window facility or utilisation in any regional trade agreements, bilateral arrangements or other trade protocols.

The publication of Recommendations 34 adds to the suite of products offered by UN/CEFACT to assist with establishment of a Single Window. There is no particular or special sequence in which UN/CEFACT Recommendations on Establishing a Single Window should be used or applied The planners, especially the Lead Agency, and implementer together with any chosen or identified operators should take the set of available Recommendations and work on the strategy, policy, technical, data harmonization and legal frameworks simultaneously.

I. Recommendation

The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) recommends that governments and those engaged in international trade and the movement of goods should:

- **Capture -** prepare a national trade data inventory of current government agency data and information requirements from automated systems and documents to cover all requirements for the international trade procedures related to import, export and transit.
- **Define** – prepare a record giving the name, definition and representation (text, format or code) of each data element[1]; also when the information is required (for release, declaration, pre or post control) and the legal base allowing the relevant agency to demand, collect, view and retain (archive) the information.
- **Analyse** – prepare an analysis of the information requirement and data element, establishing whether its need is essential and its use can be demonstrated. While information is identified by name, the meaning (what information is communicated by the data element) and context are more important. The process of analysing the information consists of gathering together similar data element names and having a full understanding of the definition of each data element and the information requirements.
- **Reconcile** – prepare a consolidation of the defined and analysed trade data listing through the process of reconciliation. This involves the agreement to use one data element name with a common definition and (or) common coding, and reconciled primarily with the international standards of the United Nations Trade Data Elements Directory (UNTDED)[2] and the UN/CEFACT Recommended Code List. Should the team identified other reference data models for the Single Window development, the data elements could be further mapped to other standards such as UN/EDIFACT set of Directories (Electronic Data Interchange for Administration, Commerce and Transport)[3], World Customs Organization (WCO) Data Model and UN/CEFACT Core Component Library (CCL).

The result is a **simplified, standardized national dataset** that can be used to provide information requirements in various syntax formats using a range of technologies. Two or more countries could decide to combine their **national datasets** into a bilateral or multilateral dataset for use in providing data exchange in trading agreements.

[1] In the context of the Core Component Library, data elements should follow the rules of the Core Components Technical Specification. http://www.unece.org/cefact/codesfortrade/CCTS/CCTS-Version3.pdf

[2] United Nations Trade Data Element Directory (UNTDED): http://www.unece.org/trade/untdid/UNTDED2005.pdf

[3] UN/EDIFACT Directories: http://www.unece.org/trade/untdid/welcome.htm

Further, UN/CEFACT recommends that when creating a simplified, standardized national dataset, Governments should involve the trading community and other relevant stakeholders from the earliest possible moment within the data harmonisation initiative.

The rationale for this recommendation is the need for an internationally agreed, simplified and standardized dataset to be used for submission of trade-related information to government and governmental agencies. The lack of standardized datasets risks duplication of data and consequent redundancy, leading to increased costs and inefficiencies in the international trade transaction. In fact the implementation of a Single Window for International Trade is critically dependent on simplified and standardized data sets.

II. Purpose

The purpose of this Recommendation is to assist governments in simplifying and standardizing international trade data required to fulfil all import, export, and transit related regulatory requirements, and to encourage the use of international data exchange standards in this process. This Recommendation responds to a stakeholder request at the UNECE Symposium on Single Window Standards and Interoperability (May 2006) from users of Recommendations 33 (establishing a Single Window) and the implementers, operators and end-users of Single Windows for guidance on creating the minimum requirement for the exchange of data between government and the trading sector.

The Recommendation explains the step-by-step process through which national data elements can be simplified, standardized and linked to a reference data model. It further shows how the reference data model can be used to achieve regional and international agreements on simplification, standardization and automation of cross border data exchange.

Government and all governmental agencies should see significant advantages through the removal of redundant data and the elimination of duplication in receiving and recording information. These advantages should be realized quickly allowing Government to enhance risk management techniques and deploy more effectively scarce resources for combating illegal trade. The overall improvement in official controls will promote trader compliance and secure government revenues.

Government is not the only beneficiary of a simple, standard set of data. A simplified, consistent and predictable official information requirement for trade will also provide the business community with major benefits. A simplified and standardized set of trade-related data will make it easier for legitimate traders to meet legal, regulatory and administrative requirements by reducing the amount of time, effort and money needed to gather, collate and submit data to meet official obligations. To realize the proven and potential benefits, the business community should be involved in any Government approach to simplify and standardize data for official purposes. Equally the private sector should actively engage in the consultation process to ensure the simpler, standard dataset recognizes commercial realities and the business drivers in the trade transaction.

III. Background

In many countries, companies are required to submit to government vast amounts of data and documents to comply with national and international trade regulations. They must also exchange information with suppliers, customers, support agencies, financial institutions and third party trade intermediaries. The definitions of the data elements required for these processes are often made with little or no coordination among the various government

agencies, or indeed among commercial organizations. As a result, companies[4] involved in trade and transport must comply with a variety of data requirements, documents and special forms, requiring the repetitive submission of similar or identical information.

In international trade, the use of non-standard, i.e country specific and/or agency specific data, is highly inefficient in terms of cost and accuracy. This is also true in the case paper-based systems, where traders are required to provide multiple and redundant forms.

The solution to this problem is the simplification and standardization of data elements required for international trade. This is an iterative process of **capturing, defining, analysing, and reconciling** government information requirements, and then mapping this simplified data to international standards. The objective is to eliminate redundancies and duplication with the ultimate goal of defining one standard set of data and messages that traders and transport operators will provide to meet all governmental information requirements related to import, export, and transit. This use of international standards in trade data exchange supports the principles of standardization and transparency set out in Articles VIII and X of the GATT.

IV. Scope

This Recommendation applies to the national, regional and international simplification and standardization of data requirements to facilitate the automated exchange of data between government agencies and between trade and government. It is especially relevant for the establishment of a Single Window, where coordination amongst government agencies and between government and trade is essential (see UN/CEFACT Recommendation Number 33, Recommendation and Guidelines on Establishing a Single Window to enhance the efficient exchange of information between trade and government[5]).

The international standards fundamental to this Recommendation are the data element names, definitions, and codes detailed in the United Nations Trade Data Elements Directory (UNTDED)[6], the respective UN/CEFACT Recommendations[7] Code List (such as Recommendation 16 UN/LOCODE – Codes for Ports and other Locations).

This Recommendation defines the necessary tools, processes, and procedures based on best practices in countries where data simplification and standardization have been successfully undertaken.

V. Benefits

The use of international data and messaging standards in the provision of necessary information to governmental agencies for import, export, and transit transactions will be a major benefit to international trade. It will ensure data compatibility among government reporting requirements and will enable governments to exchange and share information with each other, resulting in further facilitation of trade and transport procedures.

Further, the process of data simplification generally leads to the discovery of redundancy and duplication of information. As a consequence, the standardization process often results

[4] Companies include importers, exporters, customs brokers, shipping agents, transport and logistics operators, carriers, freight forwarders, and other parties directly involved in the movement of goods.

[5] UN/CEFACT Recommendation Number 33, www.unece.org/cefact/recommendations/rec33/rec33_trd352e.pdf

[6] United Nations Trade Data Element Directory (UNTDED): http://www.unece.org/trade/untdid/UNTDED2005.pdf

[7] UN/CEFACT list of Trade Facilitation Recommendations: www.unece.org/cefact/recommendations/rec_index.htm

in reduction of overall data requirements. Another benefit is the stability, consistency and predictability that a standard data set would provide.

The intent of the data simplification and standardization process is to identify and define the known maximum set of data that a trader may have to provide to meet official requirement for international trade. Initially, governments should not require any information outside of the standard data set. Where special control, commodity or product requirements emerge government should consider carefully the need for additional information beyond the national data set. It is important to note that most of the data presently required is conditional, based on the mode of transport, type of transaction, and type of cargo. Traders will never be required to submit the entire data set.

VI. Environment

While the focus of this Recommendation is the automated exchange of trade data, the use of internationally simplified, standardized data is not limited to advanced, electronic systems. The data standards are neutral in their application and use, either electronically or paper.

Annex

Guidelines on data simplification and standardization

Issued as a complement to UN/CEFACT Recommendation No. 34.

1. Introduction

These guidelines complement UN/CEFACT Recommendation 34 on Data Simplification and Standardization. They are designed to assist governments and trade in simplifying and standardizing international trade information and data requirements for all import, export and transit related procedures. The guidelines are based upon best practices in the United States and the Republic of Korea, details of which are found in the accompanying Case Studies.

Data simplification in these guidelines should be understood as an iterative process of capturing, defining, analysing, and reconciling government information requirements to produce a standard set of data and messages to meet all legal, regulatory and official obligations for the submission of data related to import, export, and transit procedures.

The simplified, standardized national dataset that can be used to provide documents aligned to the UN Layout Key for International Trade Documents and message specifications for electronic data interchange in UN/EDIFACT or CCL based format. Two or more countries could decide to combine their national datasets into regional or international dataset similarly to provide documents and message specifications for cross border trade.

The guidelines provide details on the organizational and procedural process necessary to achieve data simplification, the tools that governments can employ to facilitate the exercise, details on domestic simplification implementations already undertaken, and the potential for alignment of domestic requirements to international standards.

2. Objective

The objective of data simplification is to eliminate redundancies and duplication in the submission of international trade and transport data to government authorities. The ultimate goal is to define one standard set of data and messages to meet all governmental information requirements related to import, export, and transit procedures. Such a standard set of data reduces cost and complexity for both government and business, supports the provision of more timely and accurate information and, in this way, promotes better risk management, improved levels of security and increased revenue yields with enhanced trader compliance.

3. Organizing the simplification process

A key factor in a data simplification process is the selection of a strong lead agency. The lead agency will be responsible for promoting the concept, gaining initial approval to proceed through a robust business case based on a feasibility study, and organizing, planning and committing the resources necessary for the approved exercise.

Once the lead agency has been selected, it is then necessary to select the other government agencies that will be involved in the project. It is highly unlikely that any government will

be able to simplify the relevant trade data of all agencies and departments at one time. Governments should, therefore, consider prioritizing agencies based on volume of data requirements or other government priorities such as revenue yield, the need for official controls in specific trade sectors, or areas with unnecessary compliance costs. For example, every international trade transaction requires information for Customs, transportation and statistics. Data Simplification and Standardisation projects may wish to consider these governmental agencies in the first tier of the exercise. Another factor for selecting an agency is its willingness and desire to participate in the process. The important point is that after completing the first tier of agencies, the process is repeated as additional agencies see the undoubted benefits and agree to participate, and as additional information requirements are identified.

Simplification and Standardisation Team

The best way to start the simplification and standardisation process is to form a team dedicated to the task. Appointment of Team members should include a person to serve as a liaison with the Governmental authorities and border agencies, serving as a conduit for information to and from the lead agency. In turn, each Governmental agency must identify a primary contact for organizing the data inventory and the simplification and standardisation process.

The involvement of the trading and transport community and other relevant stakeholders in the earliest possible moment within the data harmonisation initiative is crucial to recognise business needs and realities, and the ability of commercial systems and record to provide the government demanded information. Therefore it is essential to include representatives of trade and transport community in the Simplification and Standardisation team.

Knowledge and Competence

An important aspect of Team selection is to ensure members have the skills set to undertake the tasks of simplification and standardisation. The Team must have extensive and practical knowledge of international trade, business practices, commercial procedures and information requirements. The team should also include data architects and modellers who understand data coding, structure, and modelling. This approach should eliminate the risk of errors that would later have to be reviewed and corrected, particularly when modelling the data set to achieve optimum re-usability, and ensure a high degree of interoperability in bilateral and multilateral cross border data exchange projects or operations.

Communication

Communication of the simplification objectives, procedures, and steps is critical. After organizing the simplification team, the next step is to hold a series of meeting and briefings for the Governmental agencies to clearly define the roles and responsibilities of the simplification group. After the “kick-off” briefing the agency participants should understand the overall process by which data simplification will be accomplished, the purpose of one-on-one meetings with data architects, the work sessions the agency should participate in, and the approach planned for the work sessions, including the role and responsibilities of the agency.

4. Data simplification and standardization steps

a) Capture. The start of the exercise is the preparation of a National Trade Data Inventory. This involves capturing individual Governmental agency information requirements through identifying and listing the data elements. This is accomplished in a number of ways such as a review of agency forms, automated systems requirements, regulations and administrative processes, and an examination of the documents used by the business community to conduct trade transaction with a review of the commercial records and business systems operated to initiate, reconcile and fulfil the sales contract, domestic or cross-border. This information can be organized in a spreadsheet or other software tool.

b) Define. This step includes recording the data element name, definition, representation (format or code), when the information is required (release, declaration, inspection, pre or post control) and the citation (legal base) of the relevant agency to demand, collect, view and retain (archive) the information.

c) Analyse. The next step is the analysis of the information requirement for each data element. Establishing the need and use of the information requirement is essential. While information is identified by name, the meaning, what information is conveyed by the element, and its context is more important. The process of analysing the information consists of gathering similar data element names and having a full understanding of the definition and the information required. The use of process models for the national supply chain is recommended. The models for the export and import of key national goods and services, and the main modes of transport should be based on approved modelling techniques such as such as the UN/CEFACT Modelling Methodology[8] that is based on the Unified Modelling Language (UML).

d) Reconcile. The final step is the consolidation of the defined and analysed trade data inventory into a rationalised data set through the process of reconciliation. This involves the agreement to use one data element name with a common definition and (or) common coding, and reconciled with the United Nations Trade Data Elements Directory (UNTDED). It could be further mapped to other international standards such as UN/EDIFACT Directories (Electronic Data Interchange for Administration, Commerce and Transport) and similar instruments, for example, the UN/CEFACT Core Component Library (CCL). Equally the reconciliation should consider other standards defined such as the World Customs Organization Data Model (WCO DM). This approach provides a range of options for the development of data models and syntax implementation

5. Illustrations of data simplification and standardization steps

a) Capture

In order to prepare the National Trade Data Inventory, developers can begin by reviewing existing trade forms demanded by government legislation or regulation and commercial documents used by the business community to conduct trade transactions.

If the country has an automated trade processing system, information requirements can also be found by using the logical data model. Initially, the information requirements can be arranged on a spreadsheet, or similar software application such as a database. The layout of the spreadsheet is important and care should be taken to ensure it will be sufficiently flexible yet robust enough to list data fields and transactions. The use of a database could

[8] http://www.unece.org/cefact/umm/umm_index.htm

add greater flexibility by allowing links to multiple tables with the enhanced ability to cross reference the information requirements.

b) Define

The record of the captured information requirements should contain the following details: data element name, data element description (definition), data element domain (format, alpha, numeric, or alpha-numeric), information domain (code list), transport mode (maritime, air, rail, road, inland water), process (import, export, transit), use for cargo, means of transport or crew, and the data source (importer, exporter, customs broker, carrier, agent, consignor, consignee, freight forwarder), international standard identifier.

Another key element is the legal authority to collect the data. Developers may also wish to capture whether the agency is authorized to collect and (or) view the data, the jurisdiction or source of the legal authority (law, regulation, executive order, administrative procedure) and the expiry date of such authority. This list of details is indicative, not exhaustive and offers examples of the features that should be recorded to permit an accurate assessment of the information requirements. Equally, some fields might be variously defined or described (from the list offered) but the essential feature of the define exercise is to record the data elements and their individual characteristics.

The Recommendation recommends, as a minimum, the following fields to ensure the captured data elements are properly defined:

- Agency element number - A reference number for the data element.
- Data element name - The name of the data element being defined. The naming of the data element should reflect the common business terminology used by the agency, not a computer related name
- Data element description - A detailed description of the data element.
- Data type - The data type can be N (Numeric), A (Alpha) or AN (Alphanumeric).
- Data domain - If the data element has a discrete list of values or a range of values, provide the list, range or a reference to the list or range. For example, the data element *country* could be restricted to the values in the ISO country code table.
- International Standard Identifier – The identifier of data element in International Standards being made referenced to i.e. TDED and, UN/EDIFACT, WCO DM, or CCL.
- Mode of transport - Indicate the mode of transport (maritime, rail, road, air, inland water, other) for which the element is used.
- Process - Indicate if required for export, import or in-transit processes.
- Category of use - Indicate if required for cargo, means of transport, crew, or equipment.
- Legal permission to collect or view - This data attribute identifies whether the agency is legally permitted or competent to collect or view this element. If authority allows collections, enter the word COLLECT, otherwise please enter VIEW
- Source of legal authority - Cite the source of legal authority or jurisdiction to collect or view. The authority may be derived from a specific form, a regulation, legislative mandate, Memorandum of Understanding (MoU) or other. Quote all legal authorities that apply if there are multiple sources. Do not provide the text of the citation.

- Expiration date of legal authority - Provide the date of expiry of the legal permission for the agency to view or collect the data. Specify N/A where the authority does not expire.
- Data source - Indicate if the information is provided by trade, government, or derived. TRADE indicates that the data originates from and is filed by the trading partners, TRANSPORT indicates that the data originates from and is filed by the carrier or means of transport, and GOVERNMENT indicates the data is created by an agency of the government. An example of the latter would be the findings from an investigation. If unsure, enter a letter U here for unknown. DERIVED data is calculated by or extracted from a reference file, e.g. the rate of duty could be extracted from a Harmonized Tariff file, or derived by the computer system from a combination of one or more other data elements.
- Trade Source - Indicate the trading partner who is the usual source or provides the data. If the data source attribute is "TRADE" please identify which party in the transaction is responsible for filing the data element. Suggested values are T (trader - importer, exporter, broker, forwarder, etc.). C (carrier) or CARRIER AND TRADER. If unsure, enter a letter U here for unknown
- Timing, when data is required and provided - Identify the point of the transaction's lifecycle at which the agency expects to have access to the data element. Suggested values are: PRE-ARRIVAL, ARRIVAL, RELEASE, POST RELEASE or DATAWAREHOUSE etc.). If unsure, enter a letter U here for unknown.
- Agency flow source - If the DATA SOURCE is "GOVERNMENT", identify the agency that creates this element.
- Remarks/Comments - Free form text that can be used to annotate the data element.

Upon receipt of the survey from the Governmental agencies, the data simplification team must aggregate or merge the agency responses into a comprehensive spreadsheet. The following is an abbreviated representative sample of this aggregation using the recommended, described data fields.

Table 1
Sample aggregation of results of agency survey

Name	*Description*	*Type*	*Source*	*Mode*
Port of Unloading	Location where goods are removed from the ship	4 digit proprietary code	Carrier	Ship
Port of Unlading	Airport where consignment is taken off the airplane	4 digit proprietary code	Carrier	Air
Domestic Port of Unloading	Domestic port where merchandise is removed mode of transport	4 digit proprietary code UNLOCODE	Carrier Broker Importer	Air, Rail, Ship, Truck
Domestic Port of Unlading	Domestic airport where consignment is taken off the airplane	UNLOCODE	Carrier	Air
Foreign Port of Unloading	Foreign port where merchandise is unloaded from the conveyance	5 digit proprietary code	Carrier Exporter	Air, Rail, Ship, Truck
Foreign Port of Unlading	Foreign airport where consignment is taken off the airplane	5 digit proprietary code UNLOCODE	Carrier	Air, Ship

c) Analyse

The data simplification team is responsible for conducting the analysis of the data elements. In Illustration 1 (see above), an analysis of the six elements revealed a similarity of names (unlading or unloading) and while there were minor variations in the definitions, e.g. domestic or foreign, the essence of the definition is the location where the goods are removed from the transport conveyance. The terms "unlading" and "unloading" are synonyms. Further, the terms "foreign" and "domestic" could be defined by the type of transaction. An export would show a foreign location and an import would show a domestic location.

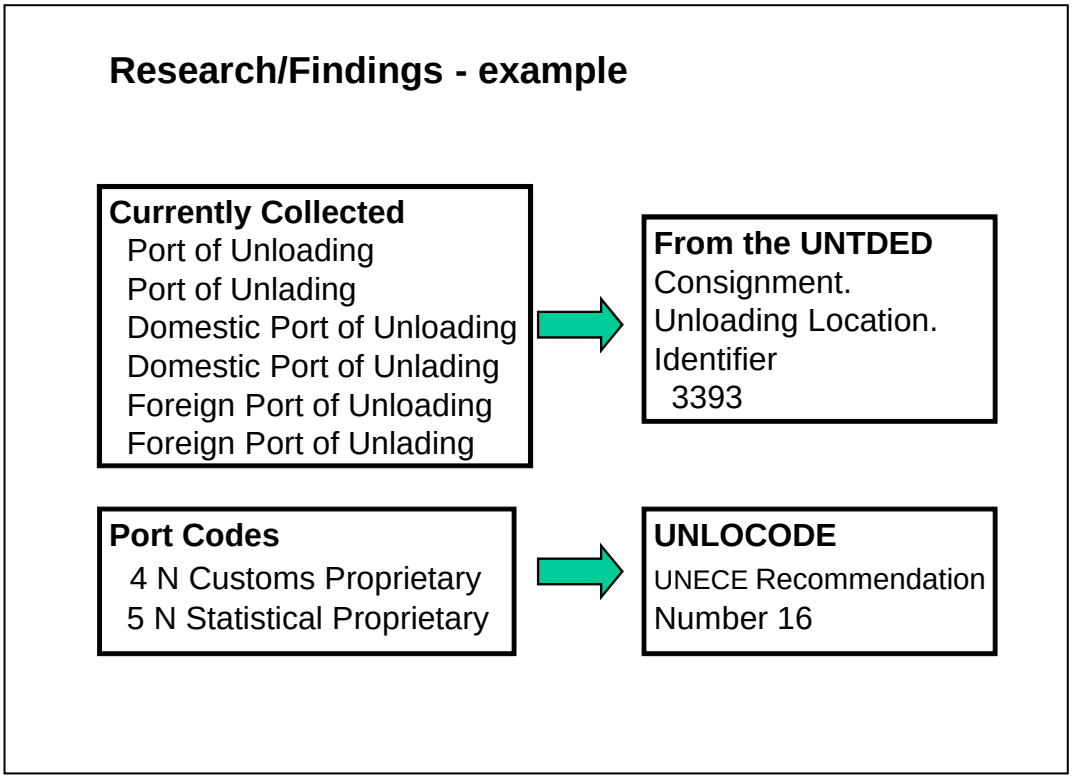
The analysis also revealed that there were three different coded representations of the element, a four-digit code, a five-digit code, and the United Nations Location Code (UNLOCODE), UN Recommendation 16.

d) Reconcile

The first step of reconciliation is to arrive at a single data name. The analysis step determined that unloading and unlading were synonyms, so simplification could determine to use the term "unlading." Since foreign or domestic can be determined by function (export or import transaction) these words could be eliminated. The reconciled name could become "port of unlading" and, if agreed, this data element is checked against the international

standard of the UNTDED. Port of unlading is not included in the UNTDED, instead the term that accurately reflects the meaning is "place of discharge." The issue of a coded representation was resolved by agreement to adopt the international standard of the UNLOCODE (Recommendation 16).

The simplification and standardization process



The data aggregation and reconciliation process represented graphically in Illustrations 1 and 2 above shows the way six individual information requirements were reduced into a single data element. Further the example illustrates how two proprietary and differently formatted codes could be simplified to a single, internationally agreed and standard code. The examples should be viewed as the research and findings of the capture and definition phase and the later reconciliation processes for actual information requirements demanded by Governmental agencies and notified in the survey results. The process does not attempt to redefine the information requirements or identify other uses or functions of the data elements, but to reduce their number and create a simplified, standardised data set.

The lead agency data simplification team can undertake much of this work, but the decisions must be verified and agreed by the stakeholder Governmental agencies. Given the broad range of data requirements it is more efficient to focus the meetings with Governmental agencies on specific ranges of data element. One way to establish these focus groups is using the data element categories of the UNTDED. The use of this categorization can also be included in the spreadsheet to list the data elements.

- Group 1: Documentation references (0001-1699)
- Group 2: Dates, times, periods of time (2000-2799)
- Group 3: Parties, addresses, places, countries (3000-3799)
- Group 4: Clauses, conditions, terms, instructions (4000-4799)

- Group 5: Amounts, charges, percentages (5000-5799)
- Group 6: Measures, identifiers, quantities (other than monetary) (6000-6799)
- Group 7: Goods and articles: descriptions and identifiers (7000-7799)
- Group 8: Transport modes and means, containers (8000-8799)
- Group 9: Other data elements (Customs, etc.) (9000-9799)

Continuing with the example of "place of discharge" a meeting of the agencies interested in Group 3 data elements: Parties, addresses, places, countries (3000-3799) would take place. The agencies would be asked to agree that the term "place of discharge" and the UNLOCODE coded representation would meet their requirements. Accordingly, one data element would replace six previous information requirements and one code would replace two separate, different coded representations.

In case of data element can not be found in the UNTDED or any UN/CEFACT Recommended Code List, the project team should make a data maintenance request to update the UNTDED or the relevant UN/CEFACT Code List following the available, valid change procedures.

6. The size of the standard data set

As governments and their business communities begin the data simplification process, there is an understandable concern about the size of the eventual standard data set. While it may well be large, it is intended to be the maximum set of data that a trader may have to provide to government. The important message to deliver to traders and transport operators is that the entire data set will never be required for any one trade transaction. The standard data set must cover all data used for information exchange for import, export, and transit, all modes of transport (air, maritime, road, rail, etc.), and the requirements of all governmental agencies. Logically and logistically it would be impossible to require all of the data for any one trade transaction.

As noted in the "place of discharge" example used in these Guidelines, the elimination of redundancy and duplication actually resulted in a net reduction. Six elements were reduced to one and similarly three coding schemes were reduced to one code.

7. Achieving greater definition of elements in the UNTDED

Initially, the simplification and standardization process may find it difficult to achieve a precise definition of data in the UNTDED. However, by combining codes, the UNTDED can provide a clear definition of data elements. The following examples demonstrate this capability. To define a date, use UNTDED Tag Number 2000 Date and combine this element with UNTDED Tag Number 2005, Date or time or period function code qualifier. Tag Number 2005 is a code list with over 700 qualifiers to define the activity of the given date.

Another example is the identification and function of a party. Using UNTDED Tag Number 3036 Party name (in text) or UNTDED Tag Number 3039 Party identifier (code) identifies the party in the transaction. Combining either of these two data elements with UNTDED Tag Number 3035, Party function code qualifier, defines the role of the party. There area several hundred different function code qualifiers in Tag Number 3035 such as: MF. Manufacturer of goods; CB. Customs broker; CZ. Consignor; and IM. Importer.

8. Consultation with the trade and transport community

Recommendation 33, paragraph 8.3 notes the importance of partnerships between government and trade. Regarding the process of simplification and standardisation a joint group with relevant skills should be formed between Government and the trade and transport community. Such an approach can achieve significant advantages, for instance discussions about the size and acceptable quality of the data needed to meet current governmental information requirements. Another area of fruitful discussion would be the time when the data is needed by the government regulatory environment, the person best placed to provide the data and the most efficient and effective method of transmission.

9. Impact on Legacy Systems

One problem that data simplification and standardization projects may encounter is the effect of the use of international standards on legacy systems. For example, if a country uses proprietary coding for locations, legacy systems (for risk management, screening, targeting and accounting) are based on the proprietary scheme. Until such time as there is an overall conversion to the new data element names and coding, countries and traders may have to implement translation capabilities. This translation must convert the new international standard data set and translate it to data element names familiar to users and to those codes used in the legacy systems.

10. Repository of case studies

The Guidelines contain two Case Studies from countries that have undertaken a data simplification and standardization project. The case studies demonstrate there is no unique methodology for conducting and completing the project as each country must modify the approach to meet the specific national requirements and conditions. However, the case studies demonstrate successful operational models for producing a simplified, standardised national dataset.

UN/CEFACT plans to expand the number of Case Studies over time. Countries are encouraged to submit the results of national simplification and standardization projects for inclusion in a developing reference library. These would supplement the three Case Studies in the Guidelines and help build a Repository similar the one that supports Recommendation 33 - Establishing a Single Window.

10.1. Case study United States of America:

Single Window Data Harmonization

The accompanying data flow/process chart illustrates the process used by US Customs and Border Protection (CBP) for data harmonization for the International Trade Data System (ITDS), the US Single Window. ITDS followed the steps of capturing, defining, analysing, and reconciling noted in Recommendation 34.

Beginning at the upper left, and culminating at the lower right, each step shown in the boxes are explained in the following:

- "Capture Agency Data Elements" - The ITDS data team captured agency data elements from several sources. The initial step was to inventory agency forms used for international trade and listing the agency data elements. To supplement and verify the forms inventory, each agency was requested to complete an excel spreadsheet questionnaire. This questionnaire focused on the data element name and, most importantly, the definition of the element. Attributes of each data element (format, source, use, etc.) was also collected. Based upon this initial analysis, the ITDS Harmonization Team established a baseline or benchmark ITDS Standardized Data Set (SDS).
- "Cluster PGA[9] Data Elements" – Identical and similar data elements were clustered into categories. The use of excel allowed several different categories. One clustering was based on the first digit (1-9) of the UNTDED[10] data element Tag Number. This clustering aids analysis.
- "Identify Similar Data Elements" – The ITDS team identified similar data elements. For example, the term vendor and seller were identified as being synonyms and thus candidates for harmonization into one element.
- "Conduct Data Harmonization and IPT[11] Kick-off" - Representatives (lead contact) of each PGA attended the harmonization kick-off meeting to familiarize agencies with the data harmonization process.
- "Visit PGA's to validate…and clarify…" – The forms analysis and questionnaire provided a basis for harmonization, however, there were many instances when additional information and clarification of a data element was needed. To gain expertise and in agency requirements, ITDS data architects were assigned to specific agencies.
- "Participate in DH IPT Work Sessions…Reconcile Candidate Data Elements" – Several work sessions were held for PGA's. These work sessions focused on similar agencies such as agriculture, food safety, environment, statistics, etc. Other work sessions focused on related data elements identified by element clusters (see item 2, above) such as transport, dates/times, locations, etc. Note that this process include the define, analyse, and reconcile steps of data harmonization.
- Items 5 and 6 were iterative processes that resulted in modifications to the ITDS SDS noted in "Maintenance SDS and Candidates." The term candidates in this

[9] PGA is Governmental Government Agency. A more familiar term used by many countries is Other Government Agency or OGA. ITDS determined that the use of OGA relegated agencies to a less important role compared to the lead ITDS agency. As a result, ITDS prefers the use of the term PGA.

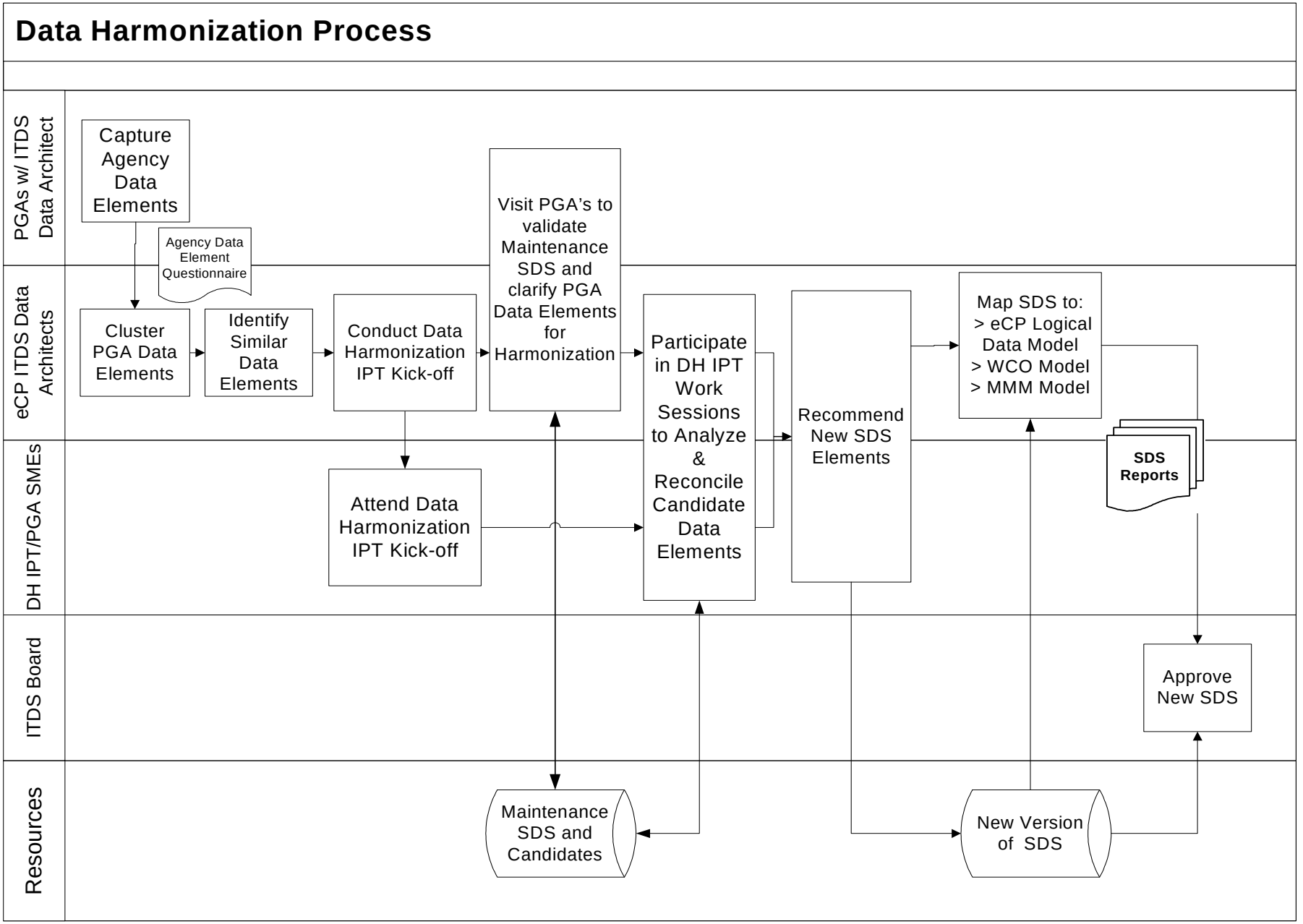
[10] UNTDED - United Nations Trade Data Elements Directory

[11] IPT – Improvement Process Team

context are data elements that did not appear in the baseline SDS that needed to be added to the ITDS SDS.

- "Recommend New SDS Elements" - The results of activities in 5, 6, and 7 resulted in recommendation of harmonized data element to be added to the ITDS SDS.
- "Map SDS to: >eCP Logical Data Model >WCO Model >MMM Model" – The ITDS SDS was mapped to the current and future logical data model, to the World Customs Organization, and US Multi-Modal Manifest Data Models.
- Items 8 and 9 were iterative processes in which gaps and discrepancies were identified and resolved resulting in a new version of the SDS. Since the US is basing its Business- to-Government (B2B) Government-to-Government (G2G) requirements on the WCO DM, ITDS SDS requirements are carefully mapped to the WCO standard. If an element is not included in the WCO DM, appropriate recommendations are made to the WCO for inclusion if these elements in the WCO Data Model.
- A series of SDS reports are provided to PGA's and the trade community for review and comment. These reports are agency-specific, process specific (import, export, transit), and trade specific (Customs broker, transporter), etc.
- Review and comments are incorporated into the SDS where it is approved by the governing ITDS Board of Directors.

CBP has completed this harmonization process with twenty-three Governmental Government Agencies. Over 10,000 data elements were gathered. These have been consolidated into approximately 500 elements. Additional consolidation is ongoing. Gap analysis between ITDS and the WCO DM is taking place and appropriate action will be taken to add ITDS Single Window requirements to the WCO DM.


Data Harmonization Process
PGAs w/ ITDS Data Architect
eCP ITDS Data Architects
DH IPT/PGA SMEs
ITDS Board
Resources
Capture Agency Data Elements
Agency Data Element Questionnaire
Cluster PGA Data Elements
Identify Similar Data Elements
Conduct Data Harmonization IPT Kick-off
Visit PGA's to validate Maintenance SDS and clarify PGA Data Elements for Harmonization
Attend Data Harmonization IPT Kick-off
Participate in DH IPT Work Sessions to Analyze & Reconcile Candidate Data Elements
Recommend New SDS Elements
Map SDS to: > eCP Logical Data Model > WCO Model > MMM Model
SDS Reports
Approve New SDS
Maintenance SDS and Candidates
New Version of SDS

10.2. Case study Republic of Korea:

Single Window Data Harmonization in Korea Customs area

Background

- Launching a Single Window project participated by 17 trade-related agencies including the Korea Customs Service (KCS) under「the National Project for Innovation of Comprehensive Logistics Information Service」, one of 31 tasks of Korea's e-Government
- Establishing Single Window over 3 phases from Dec. 2004 to Feb. 2007 by investing a total of 6 billion won or $6.5 million
    - Phase 1 (Dec. 2004~Jun. 2005): Standardization of marine/air conveyance report and passenger/crew list (with the participation of 5 agencies related to customs, immigration and quarantine[12])
    - Phase 2 (Sep. 2005~Jun. 2006): Establishment of internet-based Single Window connecting 8 Governmental government agencies[13], free notification service of acceptance and approval of declarations
    - Phase 3 (Aug. 2006~ Feb. 2007): Upgrade and expansion of Single Window to include additional 4 Governmental government agencies[14]

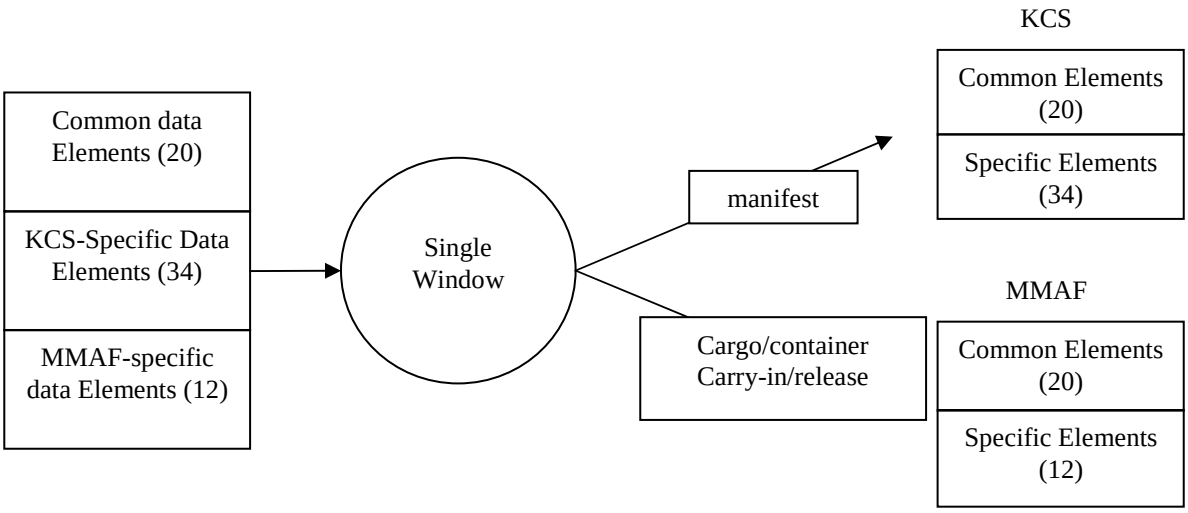
Phase 1: Single Window Data Harmonization for Arrival/Departure Report

- Common utilization of data in the marine manifest and the cargo/container carry-in/release report, respectively submitted to the Customs and the Ministry of Maritime Affairs and Fisheries (MMAF)
    - Modifying the MMAF report form to the Customs manifest form to enhance user convenience while minimizing changes to the existing electronic system at each agency
    - Removing 4 existing data elements and adding 8 data elements from the Customs manifest in the MMAF cargo/container carry-in/release report
    - Automatically dividing 66 data elements submitted by a shipping company at a time through Single Window into 20 common elements, 34 KCS-unique elements and 12 MMAF-unique elements and transmitting them separately to the agencies

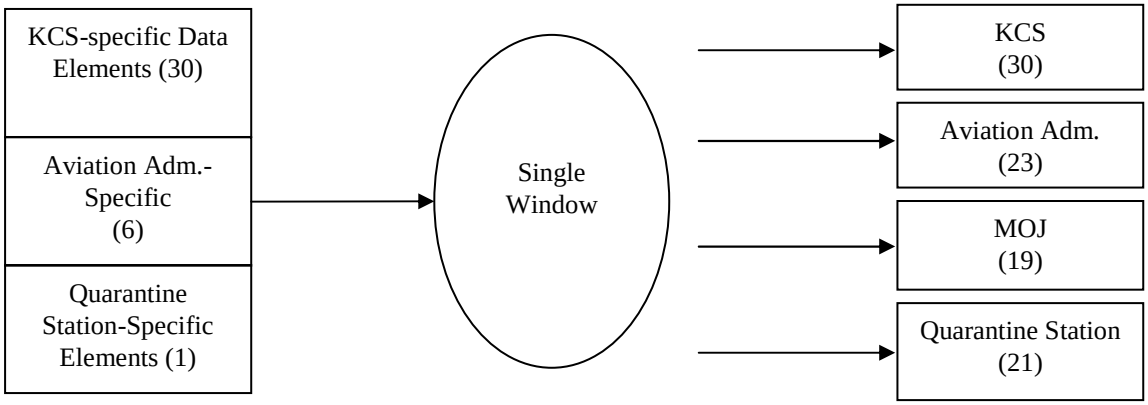
[12] KCS, Immigration Office, National Quarantine Station, Ministry of Marine Affairs and Fisheries, Aviation Administration

[13] Korea Food and Drug Administration, National Plant Quarantine Service, National Fisheries Products Quality Inspection Service, National Veterinary and Quarantine Service, Korea Medical Devices Industry Association, Korea Dental Trade Association, Korea Pharmaceutical Traders Association, Korea Animal Health Products Association

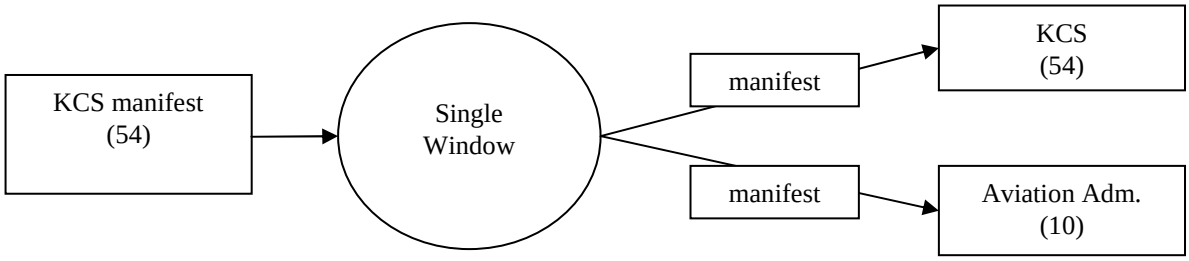
[14] Korea Environment and Merchandise Testing Institute, Korea Toy Industry Cooperative, Republic of Korea



- Common utilization of data in the airline conveyance report, passenger/crew list
  - Utilizing data in already informatized arrival/departure reports and passenger/crew lists without changing agency-unique forms
  - Harmonizing data elements by adding unique elements for the Aviation Administration and the Quarantine Station to the Customs declaration form
  - Automatically dividing 37 data elements submitted by an airline at a time through Single Window into 33 elements for KCS, 23 elements for the Aviation Administration, 19 elements for the Ministry of Justice and 21 elements for the Quarantine Station.

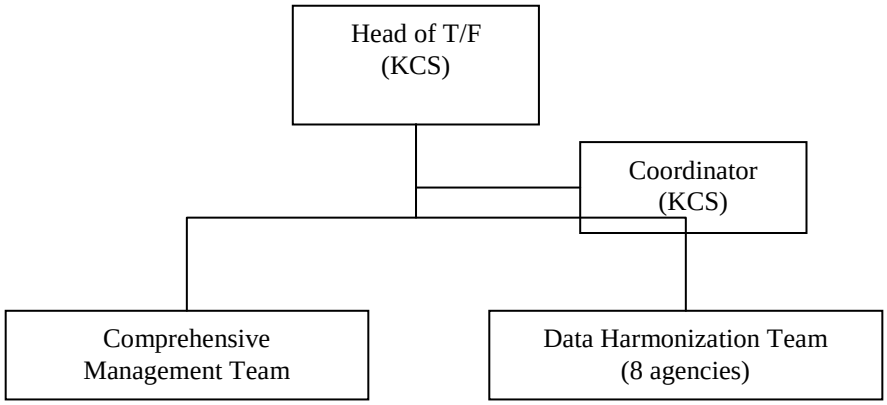


- Common Utilization of data in the airline manifest
  - Selectively providing the Aviation Administration with its required data elements from the manifest presented to the Customs, eliminating the necessity of an airline's manifest submission to the Aviation Administration



Phase 2: Data Harmonization for Customs Clearance Single Window

- Composition of Task Force (T/F) Team
  - Forming a T/F team for data harmonization consisting of KCS and 8 import/export related government agencies including the Korea Food and Drug Administration (22 officials)



  - Operating for 8 months from Apr. 2004 to Mar. 2005
  - Conducting analysis of business process and classification, confirmation, analysis and arrangement of declared data through more than 16 rounds of working-level meetings and opinion sharing
- Data Harmonization process
  - Selection of government agencies that will participate in data harmonization
    - A total of 65 agencies are engaged in the confirmation of import/export requirements under 55 laws and regulations, and 30 out of the 65 agencies are involved in the business to be confirmed by a customs collector under 29 laws and regulations.
    - KCS decided to include in Single Window 8 government agencies covering about 92% of import entries and undertook the harmonization process.

Governmental Agencies in Single Window

Laws and regulations	*Agency*	*Percentage*	*Others*
Food Sanitation Act	Korea Food and Drug Administration National Fisheries Products Quality Inspection Service	45%	92%
Plant Protection Act	National Plant Quarantine Service	17%	92%
Processing of Livestock Products Act	National Veterinary and Quarantine Service	3%	92%
Act on the Prevention of Livestock Epidemics	National Veterinary and Quarantine Service	5%	92%
Pharmaceutical Affairs Act Cosmetics Act Medical Device Act	Korea Pharmaceutical Traders Association Korea Animal Health Products Association Korea Medical Devices Industry Association Korea Dental Trade Association	22%	92%
Others		8%	
Total		**100%**	

- Identification and classification of data elements to be harmonized
  - Inventorying 542 data elements in 8 agencies' 10 forms in comparison with UN/TDED
  - Arranging 'form number', 'data element name', 'data element description', 'segment', 'line number', 'data element ID', 'data length', 'code', etc. of each form

Example: Classification of data elements in the food import declaration of the Korea Food and Drug Administration

ID	Name	Definition	LINE REF.	SEGMENT	DATA EL.	DATA REP.			Remarks
						UN DIR. LEN.	USED LEN.	M/C	
11	Total declaration amount	Total USD of value declared in a single declaration	7	MOA	C516			(M) M	
					5025	an..3	an3	| M	128 : Total amount of declaration
					5004	n..18	n..10	| M	value
					6345	an..3	an3	| M	◎ USD
Segment Group 2 M, 6 (NAD-GIS-SG.3-SG.4)									
	Applying authority	Code of applying authority	SG.2 10	NAD	3035	an..3	an2	(M) M	DO : Document recipient
					C082			M	
					3039	an..17	an3	| M	◎
					1131	an..3	an3	| M	115 : Inspection agency
					3055	an..3	an3	| M	MHW : Ministry of Health & Welfare
5	Applicant(Cargo Owner)	Details on applicants	SG.2 10	NAD	3035	an..3	an2	(M) M	DT : Applicant
					C082	——	——	N	
					C058	——	——	N	
					C080			M	
		Applicant name			3036	an..35	an..20	| M	◎ : Applicant name
		Company name 1			3036	an..35	an..30	| M	◎ : Company name 1
		Company name 2			3036	an..35	an..10	| C	◎ : Company name 2
					C059			M	
		Address 1			3042	an..35	an..30	| M	◎ : Address 1
		Address 2			3042	an..35	an..10	| C	◎ : Address 2
					3164	——	——	N	
					3229	——	——	N	
		Zip code			3251	an..9	an..6	M	◎ : Zip code

- Analysis and reconciliation for data harmonization
  - As a result of the comparison between the Customs import declaration and 6 document forms required of importers by 3 agencies including the Korea Food and Drug Administration under 6 import-related laws and regulations, an average of 48% of data elements had identical definitions. By comparison with WCO CDM V1.1, 65% of them could be adopted as common data elements.

Comparison between the Customs import declaration and requirement confirmation documents

Legal basis	*Relevant agency*	*Common elements*	*Non-common elements*	*Total*	*Percentage of common elements*
Food Sanitation Act	Korea Food and Drug Adm.	25	32	57	44%
Plant Protection Act	Ministry of Agriculture & Forestry	18	18	36	50%
Processing of Livestock Products Act	〃	25	19	44	50%
Act on the Prevention of Livestock Epidemics	〃	7	10	17	41%
Pharmaceutical Affairs Act	Korea Food and Drug Adm.	20	27	47	43%
Toxic Chemicals Control Act	Ministry of Environment	4	3	7	57%
Total	6 Acts, 3 agencies	99	109	208	48%

Comparison between WCO CDM and requirement confirmation documents

Distinction	*Common elements*	*Non-common elements*	*Total*	*Percentage of common elements*
Customs import declaration	97	48	145	67%
Food products, etc. import declaration	29	28	57	51%
Plants, etc. inspection application	25	11	36	69%
Livestock products import declaration	30	14	44	68%
Animal quarantine application	11	6	17	65%
Standard clearance schedule report	31	16	47	66%
Toxic chemicals, etc. confirmation certificate	5	2	7	71%
Total	228	125	353	65%

- Classifying 185 data elements out of 542 elements in 10 forms as common data elements based on their definitions by UN/TDED and WCO CDM V1.1., according to the analysis results of the Customs import declaration and requirement confirmation documents, and eliminating 255 data elements

Data harmonization in 10 declaration forms

Act		*Import requirement documents*	*Total data elements*	*common elements*	*Non-common elements*	*Elimination*
Processing of Livestock Products Act		Livestock products import declaration	55	27(49%)	14	14
Act on the Prevention of Livestock Epidemics		Animal quarantine application	23	16(70%)	4	3
〃		Livestock products quarantine application	25	19(76%)	4	2
Plant Protection Act		Plants inspection application	52	21(40%)	11	20
Food Sanitation Act	Food products	Food products, etc. import declaration	93	22(24%)	30	41
Food Sanitation Act	marine products	〃	79	24(30%)	16	39
Pharmaceutical Affairs Act, Cosmetics Act		Standard clearance schedule report	88	22(25%)	13	53
Medical Device Act		〃	51	15(29%)	9	75
〃 (dental device)		〃	51	15(29%)	9	75
Pharmaceutical Affairs Act(for animal)		〃	28	19(68%)	1	8
7 Acts		10	542	185(34%)	102	255(47%)

- Revision of relevant laws and regulations and establishment of integrated declaration system
    - Based on the data harmonization results conducted by the T/F team, Governmental government agencies have revised relevant laws and regulations to build the legal basis for the modification of data element names, acceptance of a declaration through Single Window, notification of approval, etc.
    - KCS has established the integrated one-stop declaration system through which users can submit over the internet their application and import declaration data for 10 forms in 8 relevant agencies at a time.

Phase 3 : Data Harmonization for Extensive Single Window

- Undertaking data harmonization in 2 document forms under 2 Acts with 4 additional government agencies joining Single Window
- Following the same procedure as in the Phase 2
    - Deciding to classify 28 out of 48 data elements as common elements and eliminating 5 data elements

Expected Effect

- Provision of one-stop service through Single Window enabled by data standardization
    - Cutting the customs clearance time through one-stop service from inspection and quarantine to import/export declaration with a single submission of customs data
- Reduction of corporate logistics costs including EDI transmission fees by adopting the internet-based system
    - Freeing importers and government agencies from the burden of EDI transmission fees by shifting the application for requirement confirmation and import declaration into the internet-based forms
- Enhanced operational efficiency through data sharing between the Customs and Governmental government agencies
    - Enabling data sharing between the Customs and government agencies and real-time provision of operational data to clients by establishing Single Window

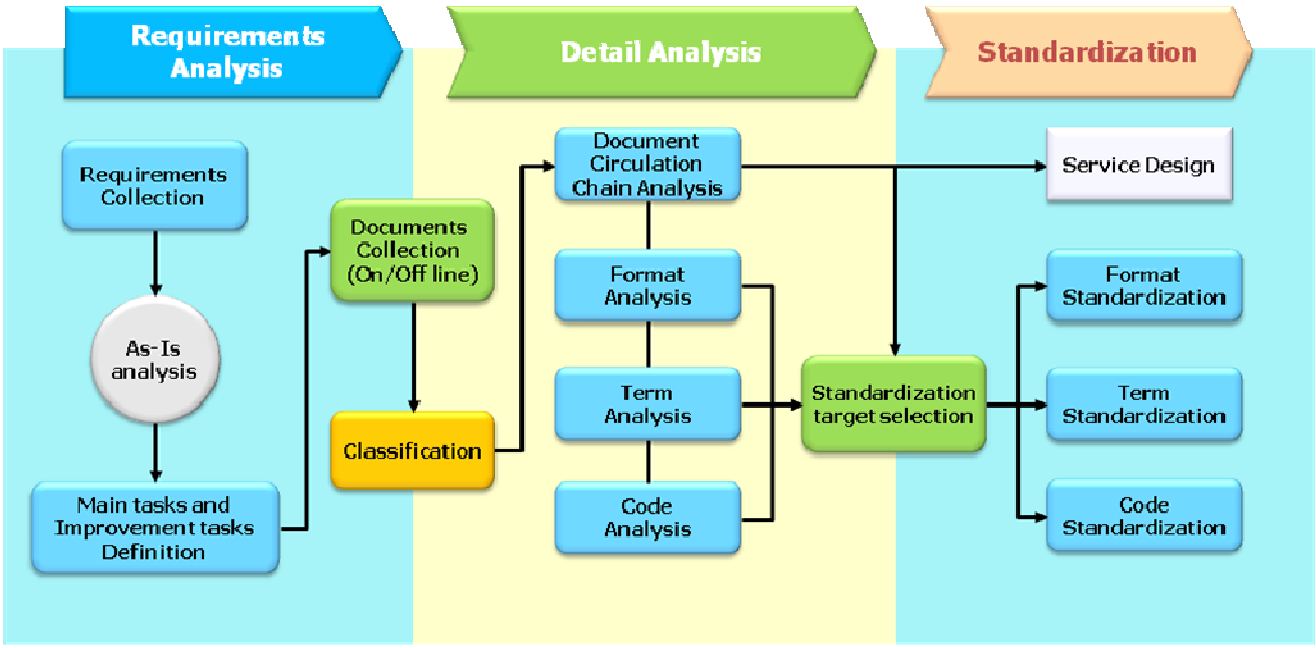
Future Plan

- By conducting the Single Window project at the national level for trade facilitation and seamless logistics flow, Korea Customs established Single Window for the conveyance report and customs clearance participated by 16 relevant agencies.
- In addition, harmonization of similar forms and data elements and simplification of declaration procedures have enhanced user convenience and reduced logistics costs.
- However, in order to build a international trade Single Window which enables advance information exchange among nations, it is prerequisite to standardize data elements to be declared to Governmental government agencies around the world.
- Therefore, the Korea Customs Service will actively join WCO's efforts to create Data Model V3.0 and communicate the significance of international standards to Governmental government agencies. At the same time, KCS plans to undertake the standardization of data elements to be submitted to Single Window upon the completion of WCO DM V3.0 in 2008.

Republic of Korea: Overall Trade Area

This case study came from the Republic of Korea’s experience in the path of implemented electronic trade service (named ‘uTradeHub’) from 2004 to 2008. From this experience, members may be able to understand how much effort the Republic of Korea devoted to data harmonization with keeping the way of UN/CEFACT Recommendations. The country is still trying to upgrade its electronic trade platform, and there are research and efforts for data harmonization and document standardization.

Overview - Overall Data harmonization process



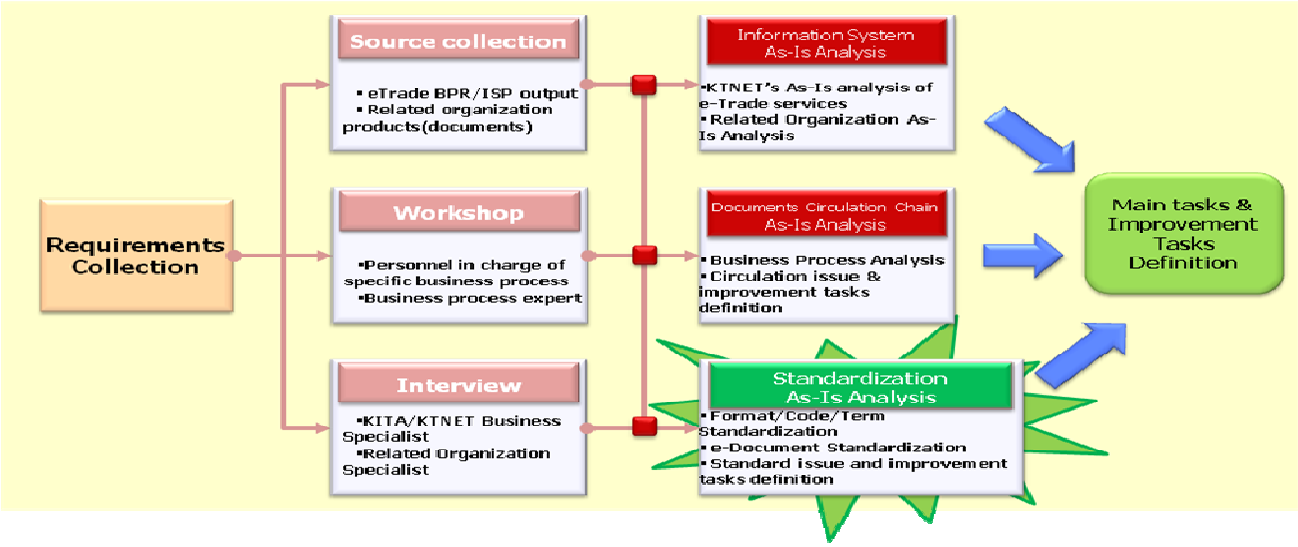
The first step was requirements analysis. At first, the requirements for electronic trade were collected, and they were analysed to identify main tasks and improvement tasks. Then, information of target documents was gathered and classified. The second step was detail analysis. Document circulation chain was analysed first. Objective of this analysis was improving document circulation chain and making future electronic trade circulation model. After that, formats, terms and codes of documents were analysed. Through detail analysis, the targets of standardization were identified and standardization of formats, terms and codes was started out.

Detail Procedures for Data Harmonization

Requirements Analysis *(Capture and Define)*

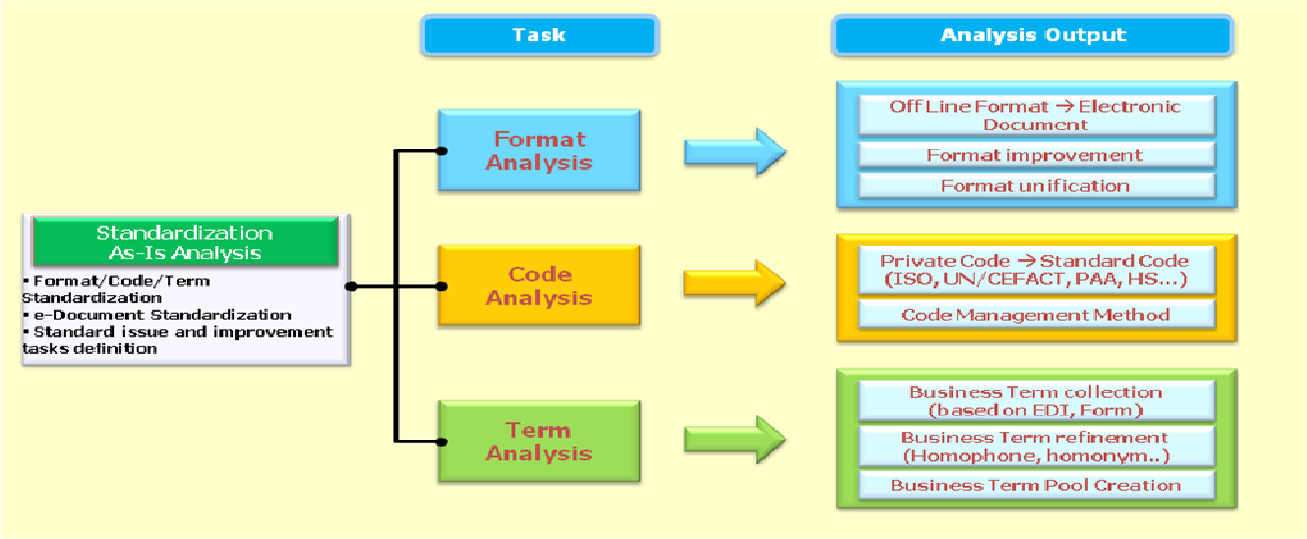
- To define main tasks and improvement tasks

This level is a detailed process of the requirements analysis, which is the first step of data harmonization. Source collection, workshops and interviews were executed to analyse requirements. Through the electronic trade BPR/ISP (Business Process Reengineering/Information Strategy Planning) project, carried out in 2004, plenty of data had been collected and analysed. After source collection, workshops and interviews, as-Is analysis was performed with the following three approaches, which are existing e-trade related organizations' information system analysis, documents' circulation chain analysis and standardization as-is analysis. Main tasks and improvement tasks were identified through this process. Output of the Information System Analysis, the Standardization As-Is Analysis and Documents Circulation Chain Analysis laid the foundation to design the e-trade service.



Detail Analysis *(Analyse)*

- To clarify standardization target

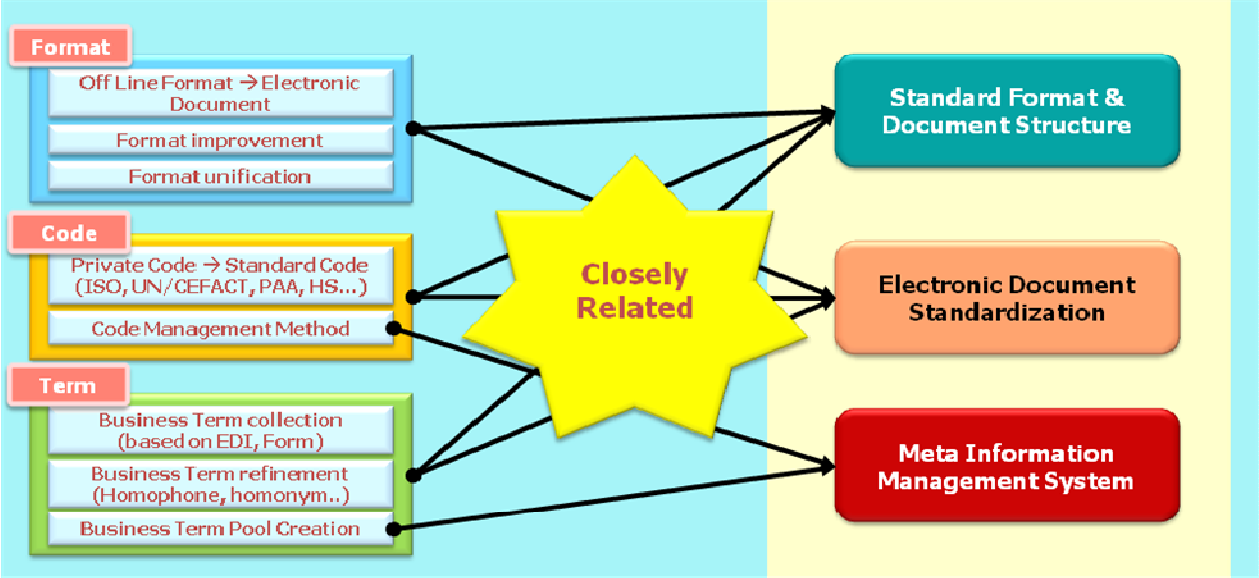


This is the detail analysis of standardization, one of the three as-is analysis. Detail analysis process can be divided into three approaches – format analysis, code analysis and term analysis. When it comes to format analysis, format improvement and unification are major tasks while off line format is transformed into electronic document. The objective of the code analysis is converting private code into international standard one in preparation for future globalization and generalization of the service. Moreover, code analysis may raise the necessity of effective code management. The last approach of detail analysis is the term analysis. Abundant business terms were collected by analysing EDI documents and various formats of documents. Then, homonyms and synonyms of these business terms were defined. After this refinement work, a business term pool for future use was created.

Analysis Output Application

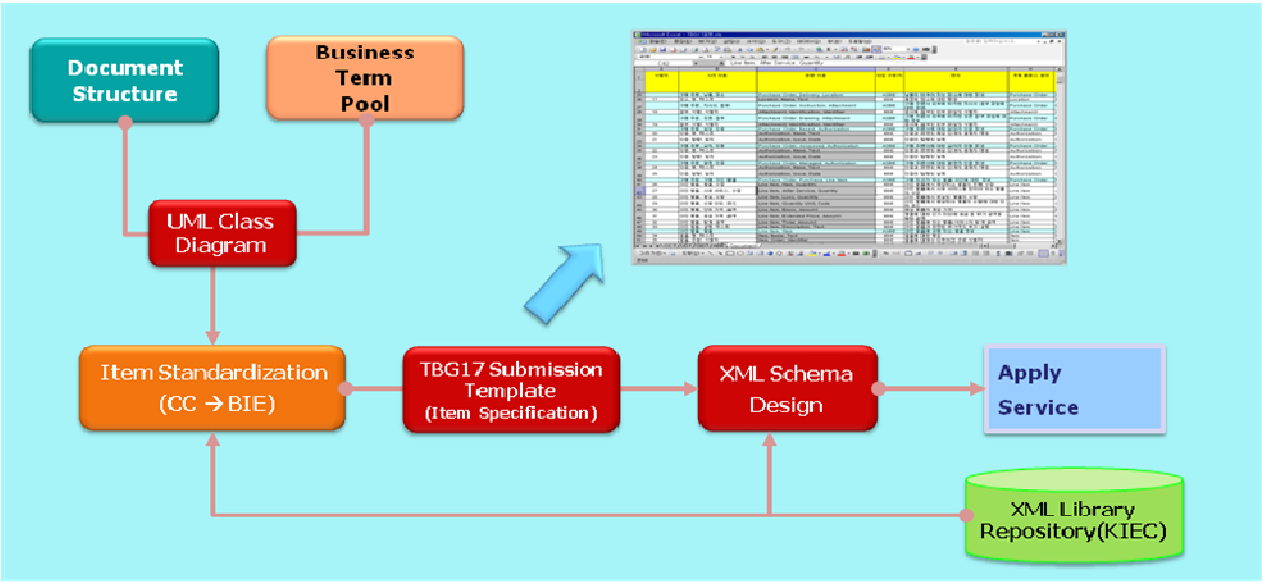
- Term, Code and Format are closely related in data harmonization

The right part of the below diagram is where the outcome of the analysis process is applied to. Through format analysis, standard format and document structure were defined. And base work for electronic document standardization was done by the term and format analysis. Code analysis and term analysis revealed a necessity of code and term management. Therefore, Information Management System was built. Meta information management system managed meta information such as codes, terms and database schemas. It was important that term, code and format were closely related in data harmonization.



Electronic Documents Standardization *(Reconcile)*

- -Applied Data Harmonization‘s output to e-document standardization.



Document structure and business term pool were built after previous steps. CCs and BIEs were derived in accordance with CCTS specification and Item specifications were drawn up based on TBG17 submission template. Then, XML schema was designed based on item specifications and class diagrams. This is a generalized document standardization development methodology.

Adoption of domestic and international Standard

First of all, as a standard of the Republic of Korea, guidelines for development of XML Electronic messages and guidelines for Routing Information, KIEC XML CC Library apply correspondingly. As a global standard, Core Component Technical Specification, XML Naming and Design Rules, UN/CEFACT Modeling Methodology apply correspondingly.

e-Documents of uTradeHub have been designed in compliance with the following Korean standards - Guidelines for development of XML Electronic messages, Guidelines for Routing Information and KIEC (Korea Institute for Electronic Commerce) XML CC Library. Among international standards, Core Component Technical Specification, XML Naming and Design Rules and UN/CEFACT Modeling Methodology were complied.

Target Document (Total : 102 XML documents)

- Trade Related : 25 documents
- Foreign Exchange / Finance Related : 57 documents
- Land Carriage Related : 6 documents
- Insurance on Cargo Related : 8 documents
- (Customs Clearance Related : 6 documents)

KIEC stands for Korea Institute for Electronic Commerce that manages electronic commercial transaction policy and electronic documents of the Republic of Korea. It was necessary to register as a Korean electronic standard through KIEC the documents that were developed through the process. 102 documents have been submitted for the registration as a Korean electronic standard. The documents are related to overall trade business including trade, trade financing and logistics.

Present and so on

As of January 2009, the Republic of Korea’s electronic trade service, uTradeHub already has about 11,000 users and it recorded approximately 2,000,000 transactions last year. The number of users is constantly increasing while we are in the mid of service enhancement project for uTradeHub. In this month, BPR/ISP project was launched for next generation uTradeHub services. Our main tasks are service development for global connection and enhancement of current services.

- User number : About 11,000 trade companies
- Message Transaction : About 2,000,000 (Annual)
- Service enhancement in progress
- In the future
- BPR/ISP project launched for Next Generation uTradeHub services
    - Global Linkages
    - (incl. cross border e-C/O, service integration with SWIFT network)
    - Service expansion

- Service Enhancement
    - e-Nego Service (electronic Negotiation)
    - e-B/L Service (electronic Bill of Lading)
    - User Interface Solution
    - System Performance

Data Harmonization Result and Expectation Effect

- Result
    - About 7000 separated items of 125 kinds of electronic documents were standardized into 2700 items (reusable items)

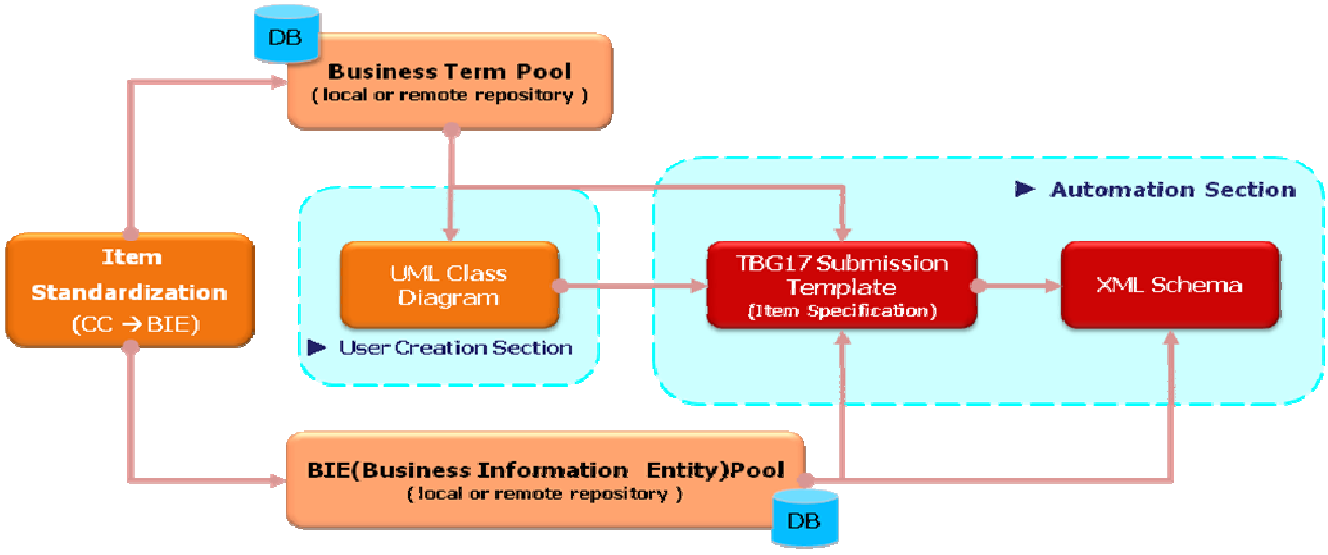
Types of Business	*Documents Number*	*Elements Total*		*non-Standardized Data Set*	*Standardized Data Set (Re-usable elements)*
Trade Related	25 Documents	about 7000 elements	**Perform Data Harmonization** →→→	about 700 elements	about 2700 elements
Foreign Exchange & Finance Related	57 Documents				
Land Carriage Related	6 Documents				
Insurance on Cargo Related	8 Documents				
Customs Clearance Related	6 Documents				
the others	20 Documents				

- Qualitative Effect
    - To increase work efficiency and reduce cost by simplifying work procedure through the built electronic trade single window
    - To prevent overlapped investments and maximize efficiency against cost by the connection and the share with trade related organizations
    - Procedure simplification and Process innovation without the existing repetitive submission of paper documents by building e-Trade Doc Repository through Electronic Documents Standardization
- Quantitative Effect
    - The shaded sections of the below chart are the quantitative effect by the electronic documents standardization

classification		*Settlement factor*	*Currency value ($100,000)*
Directive Effect	Cost saving effect according to the elimination of the repetitive submission of paper documents by the built e-Trade Doc Repository through the documents standardization	The converted amount of reduced business handling time by the process innovation and online connection	**2,474**
		The amount of reduced delivery cost by the electronic documents	**1,460**
		The converted amount of reduced cost by the depository, search and use of electronic documents	**1,389**
		subtotal	**5,323**
	Investment cost saving of international trade companies by the built service single window and productivity promotion effect	The amount of reduced self building cost of international trade companies by the electronic trade platform, uTradeHub	**1,216**
		Productivity increase effect by the automation of the major management tasks related with international trade	**708**
		Cost saving effect by the increasing capacity to handle the transaction documents by Information Technology	**195**
		subtotal	**2,118**
Indirective effect	Export increase effect	Trade increase effect by the built and utilized electronic trade platform	**6,183**
total			**$ 13,624**

<2004.6 the result of the electronic trade BPR/ISP project>

Future Works for Harmonization - Automation Solution Development



Automation Purpose : Time and Cost savings through automation

- Automation Target : TBG17 Submission Template(Item Specification) and XML Schema

Electronic document standardization is a time and money consuming work. The automation solution, uTradeHub is planned to be developed to solve this problem. Users are just asked to create UML class diagram. Then, the automation solution generates xml schema and item specification automatically. Currently technical review on the solution is being done. It is necessary that this solution is completed in the near future to help to take a lot of advantages.