6.1 GAINING SUPPORT FOR DATA HARMONIZATION

The issue of data harmonization remains primarily in the technical and operational domain and is often not adequately communicated to policy makers who make decisions. Data harmonization has to deal with many technical decisions and involves numerous parties and key players in practice. To secure proper support for data harmonization, the following activities are recommended:

- **Establish an institutional mechanism for managing data harmonization** – An institutional arrangement should be made for managing the data harmonization initiative in the form of a steering committee or taskforce. It is crucial that such an institution includes a strong lead agency that can coordinate and synchronize the simplification and harmonization of the trade data of the various individual agencies. The data harmonization steering committee or taskforce should include not only high-level policy implementers but also mid-level managers whose positions are usually more stable in their post over a longer period. The members of such a managerial institution should be selected from individuals with managerial, technical and organizational expertise; these people should also have collaboration and communication skills, because they are responsible for successful stakeholder management and gaining interagency support throughout a data harmonization initiative.

- **Identify main stakeholders, define their roles and accommodate their objectives and concerns** – Stakeholders include organizations or people who have influence, who are affected by, or have some other interest in a data harmonization initiative and its result. They can be divided into stakeholders that directly participate in the initiative (i.e. take part in development and implementation) and the others that influence or are affected by the initiative. It is important to pay particular attention to the interests, viewpoints and concerns of stakeholders so that their roles and responsibilities can be clearly defined for their support and active involvement in specific phases of data harmonization throughout the initiative.

- **Pay due attention to regional and international initiatives that develop regulations and standards affecting trade documents** – Due attention should be given to regional and international initiatives that can affect the substance of trade documents. It is important to understand their influence on the national data harmonization initiative. Due consideration should be given to active use of them. Highlighting their importance in developing a harmonized national data set that can facilitate international information exchange can help gain policy support for data harmonization. To keep track of development on regulations and standards by such regional and international initiatives, a list of projects being developed by them that may influence the data harmonization operation should be compiled and prioritized according to their importance.

6.2 COORDINATING REQUIREMENTS OF NATIONAL DATA HARMONIZATION WITH RELEVANT REGIONAL AND INTERNATIONAL PARTNERS

In addition to coordination among national stakeholders, due attention should be also

---

24 TOGAF (2009) and SWIF (2010).
given to cooperation with regional and international partners. It is recommended that national data harmonization initiatives be aligned with regional and international initiatives as well as global standardization efforts. The following recommendations are suggested in promoting coordination with regional and international partners:

- **Develop a strategy for involvement in international initiatives** – A strategy for active involvement in regional and international initiatives should be developed. The relevance of any national effort to international initiatives should be monitored and analysed for their interdependence. When found relevant, effort should be made to build a link between them to ensure harmonization, if possible, or at least alignment, if total harmonization is not possible.

- **Establish a joint working group**. – A working group delegated to conduct development of harmonized national data set and harmonization of national data requirements with regional and international developments should be formed. Members of such a joint working group should have the relevant skills and capacities. The joint working group should coordinate and communicate regularly with relevant international partners so that their interests and concerns are discussed, and expectations are fulfilled in a timely manner.

- **Take into account regional and international trade arrangement in developing a standard data set** – In developing a harmonized national data set, Government should carefully take into account any regional or international trade arrangements and protocols, and ensure that the national data set is aligned to the requirements of such regional and international arrangements.

### 6.3 Iterative and Incremental Approach to Data Harmonization

A Single Window, when it operates in full scale, supports various business processes of the international supply chain from the time that the goods are ordered until the payment for the goods is made.

**Figure 6.1. Scope of Single Window and International Supply Chain**

Source: UNECE, 2001
It should be noted that the scope of data harmonization for a Single Window implementation covers the documentary requirements of the whole international supply chain. Because the full scope of a Single Window is far reaching, harmonization of data elements that cover all documentary requirements of the international supply chain in one run may not be feasible, primarily due to resource constraints. Therefore, data harmonization for a Single Window implementation is often carried out in a number of phases.

Data requirements to be harmonized in the first phase are usually from documents that hold the greatest strategic importance. The strategic importance of a particular document may be measured using the estimation on the total number produced or issued per year. Documents that hold the greatest strategic importance are usually those used in the Customs domain, e.g., the customs declaration and supporting documents, the conveyance report, and the manifest.

The degree to which document owners are willing to participate in the data harmonization process may be considered as another criterion for determining the scope of data harmonization. Without support from document owners, there is a risk that the data harmonization project will not be successful and the project outputs will not be used.

6.4 CRITERIA FOR STANDARD SELECTION

Prior to harmonizing data requirements, a data model that provides generic semantic rules and that serves as a building block for aligning definition and representation as well as the cardinality and location of each data element in the electronic message has to be identified, assessed and selected. Comprehensiveness and compliance with prevailing internationally accepted standards for electronic data exchange are criteria that have to be taken into consideration when selecting the data standards.

- **Comprehensiveness** The selected data model should be generic yet sufficiently contextualized that the documentary requirements of all stakeholders in the international supply chain are covered.

- **Compliance with internationally accepted standards for electronic data exchange** The selected data model should comply with relevant international recommendations and standards that promote semantic interoperability. They include:
  - The UN/CEFACT Core Component Technical Specification (CCTS: ISO 15000-5/ebXML) which provides the methodology for the identification of dictionary entry names (data elements) in the data model and the development of a data model that in turn defines the structure of an electronic message;
  - The UN/CEFACT Core Component Library (CCL) which provides reusable CCTS-compliant dictionary entry names and their standard definitions;
  - The United Nations Layout Key (UNLK) which promotes the principle of reusable document template and outlines a set of minimum data elements of key trade and transport documents; and
  - The WCO Data Model is an example of standard data model for B2G and G2G data exchange that cover data requirements needed for Customs and regulatory purposes. The WCO Data Model supports development of electronic documents in UN/EDIFACT and XML syntax.

- The selected data model is built upon stable version of standards.

6.5 MAINTENANCE OF OUTPUTS FROM DATA HARMONIZATION PROJECTS

The outputs of data harmonization projects, such as harmonized data set/data elements, data model and message implementation guides, should be properly maintained for their reusability and sustainability. National specifica-
tions providing mappings between national requirements and international standards should be published and appropriately disseminated to key stakeholders. Business environment and requirements are continuously changing due to the rapid development of technologies, shifting of business practices, modification of legal and regulatory framework, organizational change, etc. When the outputs of data harmonization are properly managed and updated, the outputs can be continuously reused and accommodate interoperability in future use. For proper maintenance, the following recommendations are suggested:

- **Keep baselines of the project outputs in a platform** – A listing or collection of data elements, data structure, standardized data set, and data model produced as the outputs of data harmonization projects should be recorded as a database in a form of data registry and/or repository. The data registry and repository are platforms designed to support the management of project deliverables throughout their life cycles. The physical location of the registry could either be local or accessed over a network. The registry could easily be in the form of a simple web site or a more complicated database or repository system accessible by intended beneficiaries. Government may decide to set up a responsible unit, such as a National Data Registry and Repository Office, to take charge of monitoring and controlling standards and outputs related to data harmonization.

- **Facilitate adoption of the project outputs** – The outputs of data harmonization projects should be presented to policy authorities for their proper understanding and support, so that political support and funding for continuous implementation and maintenance of data harmonization can be secured. In addition, the project deliverables should be publicized and disseminated to stakeholders and agencies for their use. It is recommended that the knowledge and experiences gained from data harmonization are publicly shared with interested parties, and the application cases of the outputs are presented to promote more data harmonization activities.

- **Monitor and maintain changes in data harmonization baselines** – As mentioned earlier, there might be circumstances where development of technologies, shifting of business practices, modification of the legal and regulatory framework, organizational change, etc. occur, which may affect data harmonization baselines. It is important to consistently monitor and maintain changes in data harmonization baselines. A comprehensive maintenance process may integrate analysis of key issues, including problems of existing version, needs for changes, impact of changes and so on, with a multi-stage review by relevant parties and stakeholders. Various measures such as surveys, interviews, focus groups, public hearings, and other communication media should be used throughout the process in order to solicit inputs needed for changes and to obtain feedback from concerned parties. A task force may be formed to:

  1. Develop drafts,
  2. Review all comments and suggestions resulting from surveys, interviews, and focus groups,
  3. Conduct revisions,
  4. Receive further reviews and feedbacks, and
  5. Carry out testing or trials.

As a result of this process, the final versions can be broadly accepted by the general public and stakeholders. They should then be approved by the relevant authority and announced as new baselines. The new baselines of data harmonization should be publicized and promoted through public awareness raising, seminars and publication, to facilitate their adoption in businesses.