CEFACT

SPECIFICATIONS FOR A HARMONIZED ELECTRONIC FORM IN SUPPORT OF INTERNATIONAL TRADE FACILITATION

- electronic forms format aligned on the United Nations Layout Key (UNLK)

- Computer assisted padding aligned on the UN/EDIFACT Message Implementation Guidelines

Source: ECAWG
Status: Personal contribution by Claude Chiaramonti, ECAWG Chair. (original French)
Action: For discussion at the March 1998 CEFACT meeting, agenda item 4
1 THE NEED FOR A HARMONISED ELECTRONIC FORM

The Web technology is a huge accelerator of electronic commerce, which goes beyond organizations’ boundaries, simplifying and facilitating the flow of information required for an effective interoperability of distributed systems.

CEFACT’s work aims at facilitating the information flow and restricting information requirements to essential data. This led to the development of Recommendation No.1 of the UN layout Key (UNLK) for Trade documents and later to the UN/EDIFACT standard.

As mentioned in Recommendation No. 18, about the necessary adaptation to new information and communication technologies, it is suggested in this document to identify the specifications required for the adaptation of both the UNLK and EDIFACT to the Web methodologies.

The objective is to fill the gap existing between the various methods of data exchange: “paper”, “application to application” (EDI) and “human to application” (electronic forms) by proposing a unique “line” of homogeneous specifications allowing a company to move freely from one method to another according to their requirements.

The proposed “missing link” is a harmonised electronic form which can be filled on the screen, and the content of which can then be transferred using a UN/EDIFACT message subset. The recommendation for such a specification would provide coherence between the various products appearing on the market and known as Web EDI, Site EDI, Electronic From Interchange EFI (Gencod EAN France) or Simpl-EDI (ANA, UK).

Electronic forms have already been proposed by EDI sectors for small and medium enterprises (SME's); they allow the exchange of EDI orders from time to time and the reply by the same means without having to install an integrated EDI system only required if the quantity of information exchange requires an automated process.

The role of CEFACT is to avoid unnecessary complications of this simple technique as soon as the SME's will implement it with various partners, due to incompatible presentations and content. This could be obtained first by:

1. Indicating how to implement the UNLK principles for the layout of the screens of the electronic forms for use on the Internet. This could lead to a revision of Recommendation 1 or to a new recommendation by CEFACT;

2. Specifying how to associate a guided usage of the electronic form, for example a Java applet, based on the UN/EDIFACT Message Implementations Guidelines corresponding to that form. A new recommendation by CEFACT could be adopted and be associated to the UNTDID.
The envisaged specifications relating to a harmonized electronic form fall under the competence of practically all the CEFACT technical groups.

The document proposes a WHEMG (Web Harmonized E-form and MIGS Group cf.4) intergroup project structure which seems the most appropriate one. Following a positive decision from CEFACT in March 1998, the CEFACT Heads of delegation as well as the technical groups would be invited to notify the names of their representatives to the Secretary of ECAWG, Mr. Jean Kubler.

In this area, the inter-group project should draw on the above mentioned project (Web EDI, Site EDI, Electronic From Interchange EFI (Gencod EAN France) or Simpl-EDI (ANA, UK)) and also call upon the expertise of research groups in the area of Internet such as Corba, Java etc. and of ISO TC 154.

The principal issues to be addressed for the implementation of these two approaches are laid out hereafter.

### 2 RECOMMENDATION FOR THE USE OF THE BASIC PRINCIPLES OF THE UNLK FOR A HARMONIZED ELECTRONIC FORM

Since the UNLK was adopted in 1963, consistency with the layout of an EDIFACT message has been preserved for all international trade documents being produced automatically with or without the use of EDI.

Today, the same coherence between paper documents and electronic forms has to be achieved. In that framework, the implementation of the principles of Recommendation 1 has to be achieved through the following issues:

#### 2.1 Layout and organization of the forms

Generally, the design of the Layout Key is based on the "box design" principle, each box corresponding to a specific function for the entry of the data elements such as the consignor’s name, the consignee address etc. Can this dedicated box principle be used in the context of electronic forms? It seems possible as the use of icons and windows could even introduce an interactive and ergonomic approach.

If the reference terminology used by the UNLK is adopted since it is independent from the media, either on paper or on the screen, the flexibility of the digital forms must be accounted for. The ISO A4 paper format (210 x 297 mm, 8 1/3 x 11 2/3 in) is only valid for a printed output of the electronic form whilst the electronic forms can be “zoomed” during completion etc.

An area for "free disposal" at the lower part of the UNLK could be maintained, but its use should be more flexible; it should allow the linkage of parts of information to other related fields or is intended to cater for more particular needs, not catered for in the UNLK.
2.2 Implementation at the data elements level

- recommended UNLK data elements

The following field headings of the UNLK are recommended for use in international trade documents of goods or services:

- Consignor (Exporter), consignee;
- Notify or delivery address, transport details;
- Date, reference No., etc.
- Buyer (if other than consignee) or other address, country details;
- Terms of delivery and payment;
- Shipping marks and container numbers, number and kind of packages;
- Description of goods and commodity number;
- Gross weight (mass) cube and net quantity.

These fields should be maintained, each having a position and layout on the form identical to the UNLK, with possible different constraints, for example the position of the address box for window envelopes being mandatory only for a possible printing.

Apart from the area for "free disposal" already mentioned, the UNLK mentions a field for the authentication (signature) which has to be adapted to the techniques of electronic signature (cf. 3.1).

- electronic form related data

Supplementary data elements for the UNLK might be required for specific electronic forms aligned to UN/EDIFACT message sub-sets (cf. 3.1): the free disposal area of the UNLK should be used for these data.

On the opposite, specific data elements for the electronic form should be placed in their respective area, for example the electronic address of the parties should be placed in the address area. Special case: a form being a step within a scenario linked to other forms, the references of the previous steps could be displayed.

It should be noted that the address of the consignee in the entry messages could be reproduced automatically on the envelope of the reply messages.

The rules mentioned in the UNLK for the layout of coded data elements in special boxes should be adapted to the use of the most common word processors, taking into account the flexibility of the electronic form composition which allows adjustment to the various constraints.
3 COMPUTER ASSISTED PADDING ALIGNED ON THE UN/EDIFACT MESSAGE IMPLEMENTATION GUIDELINES

If the layout of the screen is aligned to the United Nations Layout Key for trade documents (UNLK), allowing the harmonization of documents regardless of their media, the gap between electronic exchange “application to application” (EDI) and the electronic exchange “human to application” has to disappear (electronic form and Internet exchange protocols).

The objective of this document is not to propose specifications opposed to the communication protocols used on the Internet but to address the content, from the envelope of the message to the semantic.

3.1 Functional and semantic assisted pad

Each electronic form corresponds in principle to a UN/EDIFACT message with the same functionality (otherwise it is a new message to be defined). The purpose is to be able to extract from the Message Guidelines the necessary details for the padding of the forms.

The same UN/EDIFACT message can generate a number of sub-sets each giving rise to a number of implementation guides.

- definition of the minimum sub-set

Starting from the message implementation guidelines, the possibility for a minimum set of mandatory data for the electronic form must be verified, despite the different commercial and regulatory practices.

This is possible if these minimum data conform to the syntax rules for UN/EDIFACT sub-sets, i.e. all mandatory segments are included. The possibility of filling the missing mandatory segments by neutral codes should be investigated; it should not conflict with the consignee application while being sent.

Exception to the principle to retain only mandatory segments: a link has to be established between the free disposal area of the UNLK and the FTX conditional segments required in each message to carry free text.

Finally, the concept of linked scenarios of messages can result in data being already provided: for example the reply form to an order (delivery notification) can provide the received, confirmed or modified order number.

- Assisted online pad

Each of the minimum data must be assessed based on the details of the Guidelines to secure that all cases, and only these cases, are clearly enumerated in the window of the area to be padded.
Apart from the addresses, most of EDIFACT message data is coded. The coded data element window should provide for the coded value and name corresponding to coded data element list of TDID although only the coded value is transmitted.

In case of use of a non-defined code, a warning or a denial could be displayed. In case of omission, a default response could be proposed for the mandatory data or completed by the Web EDI during receipt of the message (cf. 3.2).

The applet could also provide consistency controls between the various areas of the forms: consistency with the EDIFACT syntax, semantic consistency between the replies, display of the controls of the data part of the EDIFACT message.

Each EDI community should also be able to provide specific details related to the coding of certain data and display of the later in the data related windows.

  - **Electronic signature**

The area related to the signature will be retained in the electronic form for the data required for the electronic signature technique recommended by the EDI community using that message.

These techniques could be reviewed to identify those that are the best suited for a harmonized electronic form. Another option could be the use of the UN/EDIFACT authentication message AUTACK or the inclusion of the electronic signature in the binary segment of version 4 of the UN/EDIFACT syntax.

**3.2 Construction and submission of a UN/EDIFACT sub-set message**

The advantages and disadvantages of a fundamental option have to be identified: either the use of a centralised Web EDI site for an EDI community or a more open approach preparing for integrated EDI.

  - **the Web EDI site for an EDI community**

The hardware for such a Web EDI site could be limited to a microcomputer with a standard screen, and external modem and a Web browser. In this case, the names and their codes as well as the assisted padding are processed remotely at each connection to the central Web EDI site.

In line with this approach, the electronic form will not be submitted as a UN/EDIFACT message to the consignee. It only consists of a flat file which will be sent to the Web EDI site which, if necessary, after completion and checking, will transform it into a UN/EDIFACT sub-set message used within the EDI community (addition of labels of segments etc.), for submission in the shape expected by the addressee.
This flat file can be saved as a complementary part of the form, before being sent to the EDI Web site, for paper version and integration into a commercial database, this functionality being a first approach to integrated EDI.

Advantages: lightness of local equipment, automation of updating of assisted padding, respect of the homogeneity of the EDI community, opening the way to electronic forms on internet.

- Towards open EDI with electronic forms

A complete local processing, without a central EDI Web site, would be the immediate step towards integrated EDI. The disadvantages of the EDI Web site concept; such as incompatibility between various user communities would be avoided, and would broaden a concept that is not very compatible with the open logic of the network.

The role of CEFACT could be to check whether standardized specifications of electronic forms could be proposed to EDI users which would allow them to accept UN/EDIFACT messages created locally. In this case, the Java type applet including the creation of the UN/EDIFACT message would provide a true open environment to any potential new partner.

EDI would then no longer be perceived as a serial of closed communities concentrated on their important order providers but rather as a technique taking into account all the possibilities of the world-wide network that is Internet.

4 PROJECT STRUCTURE FOR RECOMMENDATIONS RELATING TO A HARMONIZED ELECTRONIC FORM

The envisaged specifications concerning a harmonized electronic form fall under the competence of nearly all the CEFACT working groups: analysis of business process, UN/EDIFACT, Techniques and methodologies, Codes, Analysis of the international business transaction, Legal Group.

The issue is to find the best way to organise this inter-group working task without taking away their responsibility.

A project structure seems the most appropriate one: the Heads of delegation of the CEFACT would designate experts, whom would be joined by representatives designated by these technical groups. These would make sure, on the one hand, that their group’s expertise is taken into account in the project, and on the other hand, that their group retains the responsibility of the maintenance of the defined specifications, once the project structure is disbanded.

The Heads of delegation of the CEFACT, as well as the technical groups are invited to inform the ECAWG Secretary, Jean Kubler, of the names of their representatives.

The WHEMG inter-group project (for Web harmonised E-form and MIGs Group) should not consider all the possible electronic forms for the 150 UN/EDIFACT
messages of the D.97B Directory, but should concentrate on forms which have already been implemented, based on a UN/EDIFACT message:

- Customs form proposed by the European Community DGXXI, using a CUSDEC sub-set message;
- Forms used by EAN International members, using EANCOM sub-sets of ORDERS, DESADV messages, etc.
- Electronic forms for road or maritime transport: using IFCSTA, IFCSUM, etc--messages;
- Any other form proposed by members of the WHEMG.

A report on the feasibility and the interest of specifications for a harmonized electronic form should be presented as soon as possible to the CSG, with an assessment of the necessary resources and a possible timeframe.