

NDIA Program Management Systems Subcommittee
Preliminary Notes for the EDI/XML Working Group
August 19 and 20, 2003

Purpose

The purpose of the working group is to develop and publish a set of XML schemas for the purpose of exchanging cost and schedule data. In general, this cost and schedule data is specific to a named project and defined by a contract mechanism between two or more parties. While the intent of the schemas is to address specific contract requirements for the US federal government, other related entities can also use these schemas to exchange cost and schedule data. For example, a prime contractor could also use these schemas to collect cost and schedule data from their suppliers as well as using the schemas to send cost performance (CPR) data to their government customer.

The intention of this document is not to educate or provide a general background on the benefits of using XML schemas and documents. That information is freely available on the web, through various XML related organizations, and in various publications and books.

Background

In the early to mid 1990's, a series of ANSI X12 transaction sets and UN/EDIFACT messages were developed to standardize the exchange of project related cost and schedule data. This included the 196 (CCDR), 806 (schedule), and 839 (cost) transaction sets as well as the PROTAP (schedule) and PROCST (cost) messages. In addition, a series of US federal government implementation conventions were produced that described how to use the transaction sets. Two convention guides were published for the 839 transaction set; one addressed how to use the transaction set for exchanging C/SSR or CPR data, the other addressed how to exchange CFSR data. In addition, the DID's for the CPR, C/SSR, and CFSR reports were updated to include wording that specified the use of the X12 or UN/EDIFACT standards to exchange cost data electronically.

While the X12 standards served their purpose at the time, the means and methods to exchange data electronically have improved over time. The current de facto means to exchange business data, XML, has a number of features and capabilities that improves the overall means and methods to exchange data electronically.

Scope

The objective is to use the current set of X12 transaction sets, UN/EDIFACT messages, and the US federal government implementation guides as a foundation to build a set of XML schemas for the exchange of cost and schedule data. While these sources provide a starting point, it is also prudent to recognize that the transaction sets have their shortcomings. The intent then, is to build on the experience gained from the earlier efforts and at the same time provide the means to exchange additional cost and schedule elements that would extend the data exchange capabilities. The best sources for identifying common additional elements for the schemas are to review the XML DTD (document type definitions) or schemas available from various project management software vendors.

In general, the cost related schemas will focus on data related to the Cost Performance Reports (CPR), Cost/Schedule Status Reports (C/SSR), and the Contract Funds Status Report (CFSR). There is no intent to address data requirements specific to the Contractor Cost Data Reports (CCDR) as another OSD group is working this issue. However, it should be noted that the NDIA

EDI/XML working group has every intention to work with the CCDR group; it may be possible to share common elements such as a reporting structure schema.

In general, the schemas will address the exchange of the following data:

- Overall contract data (basic form header data)
- Reporting structures (WBS, OBS, etc.)
- Codes (could be any type of code such as resource code, control account, or work package) and related attributes
- Calendars (start/stop dates, non working dates, number of hours in a calendar period)
- Activity data (may be resource loaded)
- Activity resource data
- Milestone data
- Time-based cost data (period, elements, cost type, value types, etc.)
- Summary cost data (cum and/or current period, at complete)

The schemas will NOT address the exchange of the following data:

- Rates
- Any metrics or data that can be calculated from the source, base data – this includes such calculated values as CV, SV, CPI, SPI, etc.

The working group will need to discuss other data that may be useful to exchange. An example would be threshold data.

Approach

The intention is to create a set of vendor-neutral XML schemas that can be posted to the DoD XML Repository. It is the intent of the working group to take into account and address the needs of all players. This includes the various project management software vendors, the contractors, and the government end customer. We also intend to work with any related project management industry associations such as the PMI-CPM.

The intention is to take a modular approach to the schemas. For example, one schema will address the data content related to reporting structures. This approach has several advantages.

1. An end user of the XML data can mix and match what data they need to collect. For example, perhaps all they want is WBS structure data along with cum and at complete cost data. They collect only the data they are interested in.
2. Simplifies and streamlines the process. Getting only the data you are interested in saves processing time and improves performance. When things are simple to understand and use, they get used.

The goal is to have a set of schemas that can be published and used within a 12 month or less time frame.

Other general ground rules include:

- Mandatory elements will be kept to a minimum. This allows the maximum amount of flexibility for the end users. Again, after the mandatory elements are provided, it is up to the end user to only select the elements they need.
- We will have a set order to the data elements. While this can generate some discussion for proponents of the semantic web (web services); there is value to having a set order. One, there is currently a performance penalty when data does not have a set order (software parsing issues). Two, pure flexibility has its drawbacks; it creates confusion. For our application, it makes more sense to provide the basic parameters for all players to work within.

Note 1: We will need to have a DoD sponsor to be able to post the schemas to the DoD XML repository. We will need to identify and work with that DoD sponsor (it may be possible to dovetail on the work of the CCDR XML group as they also plan to post to the repository). We may need an interim posting location (URL) while we are in the development/testing phase.

Note 2: We will need to work closely with the project management software vendors to make this work. We need their support and cooperation.

Note 3: We will need contractor and end customer volunteers who are willing to use the schemas on a test basis to verify we have addressed end user needs.

Note 4: The nature of XML schemas allow the end users to extend the schema for their needs. For example, perhaps a prime contractor wants to collect additional information from their suppliers that is unique to a given contract. They can use the posted XML schema (think of it as a foundation schema) and add the data elements they need. The nature of XML documents also lets users repurpose the data for use in other systems.

Note 5: There is no intention to take these schemas through any standards-setting body such as DISA (X12), UN/CEFACT (UN/EDIFACT), ebXML, or OASIS. It takes too long, is too time-consuming, and expensive. We also have more control over the end result. While there is some hazard to this approach, posting a set of industry created and endorsed de facto schemas to the DoD XML Repository does provide a viable alternative. They will have been vetted by the end users of the data and they will be sponsored by a federal government entity.

Note 6: It may be worthwhile to work with the right entity to get the applicable DIDs updated to include XML as a means to exchange data electronically.