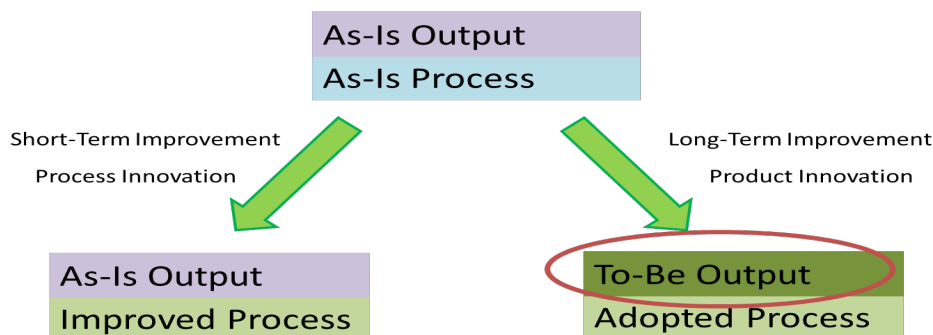


UN/CEFACT Library Review Report on Future Library Content

Background Information

The purpose of the Library Review project is to ensure the long-term sustainability of UN/CEFACT's libraries of business process and information models and associated technical artifacts.

In order to ensure long term sustainability it is critical to reassess the output – or in other words what artifacts are offered by the library – before adopting the library maintenance process. Accordingly, this document is not about improving the current process to create today's output, rather it is about expectations on a future UN/CEFACT library.



The Process to Deliver this Report

The goals of the Library Review project were presented at the 23rd UN/CEFACT Forum, 7 – 11 April 2014, Geneva. Following this presentation, the project team asked representatives of various domains for input on their view on the to-be-output of a future UN/CEFACT library. All the input received until the 24th UN/CEFACT Forum, 27 – 31 October 2014, New Delhi, was taken into account and structured into a set of identified criteria which were presented to the Forum participants. Based on these criteria the project team developed a questionnaire on UN/CEFACT library items (see Annex 1) which was distributed to all UN/CEFACT domain coordinators. After a short extension of the original deadline (15 December 2014), the project team received replies from 14 domain coordinators by February 2015. All UN/CEFACT domains – except for Customs where the domain coordinator position was vacant at that time – participated in the questionnaire. The results of the questionnaire were presented to the participants of the 25th UN/CEFACT, 20 – 24 April 2015, Geneva, (see Annex 2). The results and, in particular, the resulting conclusions were discussed in a project team meeting during this forum. The conclusions are summarized in this report – which was discussed/approved by the Methodologies and Technologies Domain – and presented at the 26th UN/CEFACT Forum, 2 – 6 November 2015, Marseille.

Terminology

It should be noted, that instead of different libraries, each including a specific type of artifact (Core Components Library, Business Information Entity Library, ...), we may envision a single UN/CEFACT library for all types of artifacts. Evidently, this single library will have dedicated sections for the different types of artifacts (still allowing cross references between artifacts of different sections). A section in the library may be realized by the concept of a package which is used to group elements, and to provide a namespace for the grouped elements. A package may contain other packages, thus providing for a hierarchical organization of packages.

Core Components

There is unanimous consent that UN/CEFACT is not only the home of the *Core Components Technical Specification (CCTS)*, but also uses this specification to standardize core components and publishes these Core Components as part of the UN/CEFACT library. UN/CEFACT considers itself as the natural home of Core Components. This means, that although other organizations may feel free to use the CCTS to develop their own set of core components, UN/CEFACT should invite/urge these organizations to rather contribute to the UN/CEFACT library of core components as a unique semantic foundation. The fact that there should be only one semantic base is also underpinned by the fact that the library should include only a single library package of Core Components. There should be no sub-packaging for a conceptual or logical grouping of core-components (such as sub-packages for Core Components that are of primary interest for a certain domain). Sub-packages of the single library package of core components may only refer to the different types of Core Components: Core Component data types, Basic Core Components, Aggregate Core Components, and Association Core Components. Furthermore it is worth to mention that Core Component Data Types are rather semantic data types (e.g. Amount) in contrary to primarily syntactic types (Integer).

Business Information Entities

The majority of the domain coordinators expects UN/CEFACT to standardize business information entities. Accordingly, UN/CEFACT should maintain a set of business information entities that are under control of UN/CEFACT. For these business information entities UN/CEFACT has to provide an appropriate quality assurance and governance process. All business information entities that undergo such a process will be published in a library package for UN/CEFACT business information entities. Similarly to the core components, a business information entity library package may contain sub-packages for the different types of business information entities. The project did not evaluate any specific structuring mechanism to logically group business information entities for a given business context, but, evidently, this has to be elaborated in a library implementation project.

As said above, UN/CEFACT business information entities will continue to undergo a quality assurance and governance process. Currently, the majority feels that this process is best centrally coordinated by the library maintenance team. It should be noted that this approach depends on a rather small team of very knowledgeable and committed persons. If these scarce human resources become unavailable, one may reconsider the approach in favor of a decentralized approach where the governance process is subject to the different domains.

The current quality assurance process involves the harmonization of business information entities. Whether or not to continue this approach (which is only feasible in a centrally coordinated process) should be subject to further investigations. Today a slight majority prefers this harmonization, but there is no clear indication that everyone appreciates this kind of harmonization.

Other organizations may decide to use not only CCTS, but also the UN/CEFACT Core Components as a starting point to develop their business information entities. However, they may not be willing to undergo the quality assurance and governance process for UN/CEFACT business information entities. Whether or not these business information entities should become part of the UN/CEFACT library is discussed in the section “Artifacts maintained elsewhere”.

Business Document Assembly

The strategic framework for UN/CEFACT activities mentions the following: “Semantic interoperability implies that the precise meaning of the exchanged information is preserved and well understood in an unambiguous manner, independently of the way in which it is physically represented or transmitted. Separating the model from the technology allows for the alignment of business processes while still supporting variations in both business practices and information technology. This is fundamental to the concept of technological neutrality.”

From the above lines it becomes obvious that standardizing the conceptual building blocks (Core Components and business information entities) in a technology neutral manner, but the documents/messages only on the level of the transfer syntax (EDIFACT/UNSMs, UN/CEFACT XML schemas) is simply not enough. Accordingly, this set of artifacts must be completed by standardized business document assemblies. A great majority feels that the UN/CEFACT library should cover business document assemblies.

Once business document assemblies become part of a UN/CEFACT library, it is desired to provide cross-links to the business information entities. This means that the library should provide information on which business document assembly uses which business information entities. Vice versa, it should also provide information on which business information entity is included in which business document assemblies.

Similarly to business information entities, UN/CEFACT should maintain a set of business document assemblies that are under control of UN/CEFACT. For these business document assemblies UN/CEFACT has to provide an appropriate quality assurance and governance process. With respect to central/distributed coordination it is advisable to follow the same process as for business information entities.

Again other organizations may base their approach on UN/CEFACT Core Components, but are not willing to undergo the quality assurance and governance process for UN/CEFACT business document assemblies. This is again discussed in the section “Artifacts maintained elsewhere”.

UN/EDIFACT Messages

Although not all domains are asking for UN/EDIFACT messages anymore, UN/CEFACT should create new and maintain existing UN/EDIFACT messages and parts thereof. These messages should be included in the UN/CEFACT library.

Message Implementation Guidelines, MIG, for UN/EDIFACT messages are usually developed by other organizations. Therefore, there is no need for a governance process of these MIGs. Accordingly, the UN/CEFACT library should not directly include any MIGs (in order to avoid the impression that they are governed by UN/CEFACT). However, it is recognized that an overview of existing message implementation guidelines may be of interest to the community and, thus, the access to them is discussed in the section “Artifacts maintained elsewhere”.

UN/CEFACT XML Messages

Even if not all domains are requiring XML schemas that are developed by UN, the majority is in favor of standardizing XML messages within UN/CEFACT and hardly anyone is against it. However, this does not mean that a UN/CEFACT XML schema has to be developed for each and every project/business document assembly. Rather it is advisable to develop an XML schema for a project/business document assembly only if someone has a need for the schema and requests it. In most cases the project team will be aware of such a need already prior or at least during the project and the XML schema will be developed as part of the project. However, UN/CEFACT should also stipulate an organizational procedure in case that a project delivers only a business document assembly (without the need for an XML schema at that time) and later on after the successful completion of the project someone requests a corresponding XML schema.

Even if it is not the most urgent issue, cross links between XML schemas and business documents may provide useful information. Accordingly, the library should provide information on which business document assembly results in which XML schema. Vice versa, it should provide the information on which XML schema is based on which business document assembly.

Again XML messages that follow the UN/CEFACT Naming and Design Rules may be developed by other organizations. Accordingly, this case is also considered in the section “Artifacts maintained elsewhere”.

It should be noted, that the answers to a question on whether or not XML schemas should include enumerations for code lists did not give a clear indication on this subject. Accordingly, this matter should be reconsidered in case of a revision of the UN/CEFACT Naming and Design Rules.

Other Library Artifacts

The UN/CEFACT library should also contain code lists. Thereby, the publication of code lists should contain all entries, also the expired ones. According to the survey, code lists should be managed, maintained, and published independent of the transfer syntax (EDIFACT/XML). Evidently, this issue has to be aligned with the general guidelines on the library format as discussed in the section “Library Implementation”.

Currently, a project delivers a business requirements specification (BRS) and a requirements specification mapping (RSM). The quality, in particular of the former ones, is rather poor. An improved quality of the BRS documents is a precondition to include them in a UN/CEFACT library (which is still considered worthwhile by the domain coordinators), otherwise the BRS should be removed from the library. Surprisingly, most domain coordinators do not want to update the BRSs and RSMs when the underlying BDA/BIEs change. The role of BRS and RSM and how they are published should be reviewed.

In addition, it may be desirable that UN/CEFACT provides some reference material that serves as best practice for its user community. Since most of the below listed items are requested by about half of the domain coordinators we consider these as “nice to have” and do not set them as top priority. If agreed, they may not be part of the library but published elsewhere. The reference material in the order of their importance are as follows:

- Guides describing business value, technical difficulties in implementation, etc
- Schematron (or other rule language)
- Reference Implementations
- Samples (for one or two popular languages)
- Background material
- Good definitions, explanatory notes
- Best practices, technical instructions and configuration specifications for set up, test and deployment of Web Services (low priority)
- Guidelines for Setting up Web Services or other transport channels (email, ftp, ...) (low priority)

Library Implementation

A critical issue for the future of UN/CEFACT is a registry implementation of the library. In this report, we do not address any issues on how to realize and maintain such a registry implementation. Nevertheless it is important to address the issue in the near future. This means one has to outline different options on who develops the registry, who hosts the registry, who (technically) maintains the registry, who serves as registration authority, and how to interface with external content.

It is needless to mention that an easy access to the library content is essential. A key issue in this respect is the format to retrieve (and also submit) library content. From a pragmatic point of view it is desirable to allow browsing of the library content by humans and, at the same time, to provide the content in a machine-processable format that may easily be integrated by tool providers. For the former purpose, the library content should be presented as hyperlink documents, accordingly (X)HTML is a suitable format. For the latter purpose, we see a number of options. However - as also most often mentioned in the survey – an XML-based formatting is preferred. Hereby, the format should follow the specifics of the library content, or in other words the library content should follow the XML schema specification of XML4CCTS (where appropriate, for other content [e.g. business processes] a similar specification should be developed).

In order to have clear rules in case of (undesired) inconsistencies – which evidently should be avoided – a primary format should be defined. This format should be a machine processable format. From the above descriptions one can conclude that the primary format should be XML4CCTS. Any other formats, be it human readable ones such as (X)HTML and Excel or machine processable ones such as UML/XMI or the vendor-specific GEFEG FX format may be derived by transformations from the primary format. Some of the “secondary” formats may be provided by UN/CEFACT, others may be provided by external parties as external content (see again “Artifacts maintained elsewhere”)

The current practice on releasing a new version of the library twice a year seems to be appropriate for the business domains. As long as there is no mechanism within the specifications to allow partial updates, i.e. updating dedicated artifacts without affecting any other, there is no need to change the current practice.

Artifacts Maintained Elsewhere

Even if it is not the first priority, it would be desirable to provide a full picture on how UN/CEFACT’s artifacts are used in practice. In other words, we could envision links to artifacts that are based on UN/CEFACT artifacts and are conformant/compliant to UN/CEFACT artifacts, but are created and maintained by other bodies.

Accordingly, the UN/CEFACT library may provide links to such artifacts. However, such a mechanism must follow a careful user interface design. It must be clear which artifacts are “approved” by UN/CEFACT and which are maintained elsewhere in order to avoid the impression that all artifacts are “approved” ones by UN/CEFACT.

One may consider links to the following artifacts that could also be maintained elsewhere:

- Business Information Entities
- Business Data Types
- Business Document Assemblies
- XML Messages
- UN/EDIFACT Message Implementation Guides
- Any kind of support documents (see listing in section “Other Library Artifacts”)

Furthermore, external parties may provide the content of the CEFACT library in other alternative formats. For example, if UN/CEFACT decides to publish the library content by means of XML4CCTS, external parties may provide the same content in another format, e.g. UML/XMI. Again it must be clear for a library user that officially approved library is always the one in the primary format – which is important in case of undesired inconsistencies.