

Business Information Masters (BIMs)

Purpose

The purpose of this paper is to introduce the concept of Business Information Masters (BIMs) to the TBGs and to seek their agreement on a common approach to message assembly.

Business Case

There are thousands of documents existing in the business world. Although each have a specific purpose, many of them share similar structures and re-use the same data. In order to be able to simplify business processes, there is a need for international standards to provide the trade facilitation tools to allow business users to harmonise their documents and data. A good example of this need is within the Single Window environment, where border authorities must harmonise their documents and data to simplify the regulatory requirements for goods crossing the border.

UN/CEFACT's Core Component Library (CCL) provides the perfect solution for business users to harmonise their documents and data. However, using UN/CEFACT's traditional document centric approach this is very difficult, especially without an expert knowledge of UN/CEFACT standards. Even for the experts within the TBGs, not only is the document centric approach very time consuming, but UN/CEFACT's technical specifications do not fully support their requirements.

The Business Information Master (BIM) approach provides the user with a set of pre-defined data structures based on the CCL which alleviates the difficulty of harmonising the data and provides common paths enabling interoperability.

The business objectives are therefore perceived to be the enablement of:

- The harmonisation of documents and data by mapping to common data structures
- The re-use of common data structures to produce large numbers of related documents
- The application of common business rules across one or more groups of documents
- The use of common data structures to both exchange and process data

What is a BIM?

A Business Information Master (BIM) is the highest level ACC/ABIE for a complete set of processes which consists of the collection of the necessary high-level data structures to support the progression through those processes. A BIM is syntax neutral and a BIM describes business information at the highest level so that any subset business message (document or transaction) can be easily derived from it through "inheritance". In terms of CCTS objects, each BIM is the basis for a Message Assembly or of a part of it [this depends from what finally a CEFACT MA standard will be; however this allows to integrate the BIM later in the not yet available standard] under which the appropriate high-level Associated Business Information Entities (ASBIEs) are structured in such a way that a business user can easily recognise them. A BIM structure thereby provides for, and facilitates, reusability whilst ensuring interoperability between business messages.

For a business user, a BIM can probably best be described as a "re-usable template". It will allow them to harmonise the data requirements of potentially hundreds of related documents by basing them on a common data structure. In addition, the use of BIMs allows users to define and apply common business rules across groups of documents. And, through inheritance, it also allows users to define and apply business rules at lower levels.

The BUY-SHIP-PAY model provides a good example of the benefits of the BIM approach, where separate BIMs can be used to define the data requirements for each of the "Buy", "Ship" and "Pay" sets of supply chain processes. For example, a "Buy" BIM would define the data requirements for all of the documents exchanged during the first part of the supply chain process. A "Ship" BIM would define the data requirements for all of the documents exchanged during the second part, including transport and Customs, and a "Pay" BIM would define the data requirements for the third and final part.

Examples of how the BIMs could be used by the TBGs are provided at the end of this document. They show how documents, and groups of documents, can be inherited from BIMs based on the same BUY-SHIP-PAY model.

What are the issues?

The main issue for the TBGs, whether or not they agree to the BIM concept, is how to apply document level restrictions (or business rules) to ABIEs taken from UN/CEFACT's Core Component Library (CCL). Currently, this is not possible to do without creating new ABIEs for each document. Although there is a Core Component Message Assembly (CCMA) User Guide, which supports these business requirements, it is not a UN/CEFACT standard.

The second issue for the TBGs is that TMG are currently developing a Core Component Message Assembly Technical Specification (CCMA TS) to support CCTS V3.0, which has been in ODP Step 3 since 2005. It is therefore important that the business requirements addressed by the CCMA User Guide are incorporated into the CCMA TS, so that it can be progressed through the ODP process and used in conjunction with UN/CEFACT's Core Component Library (CCL).

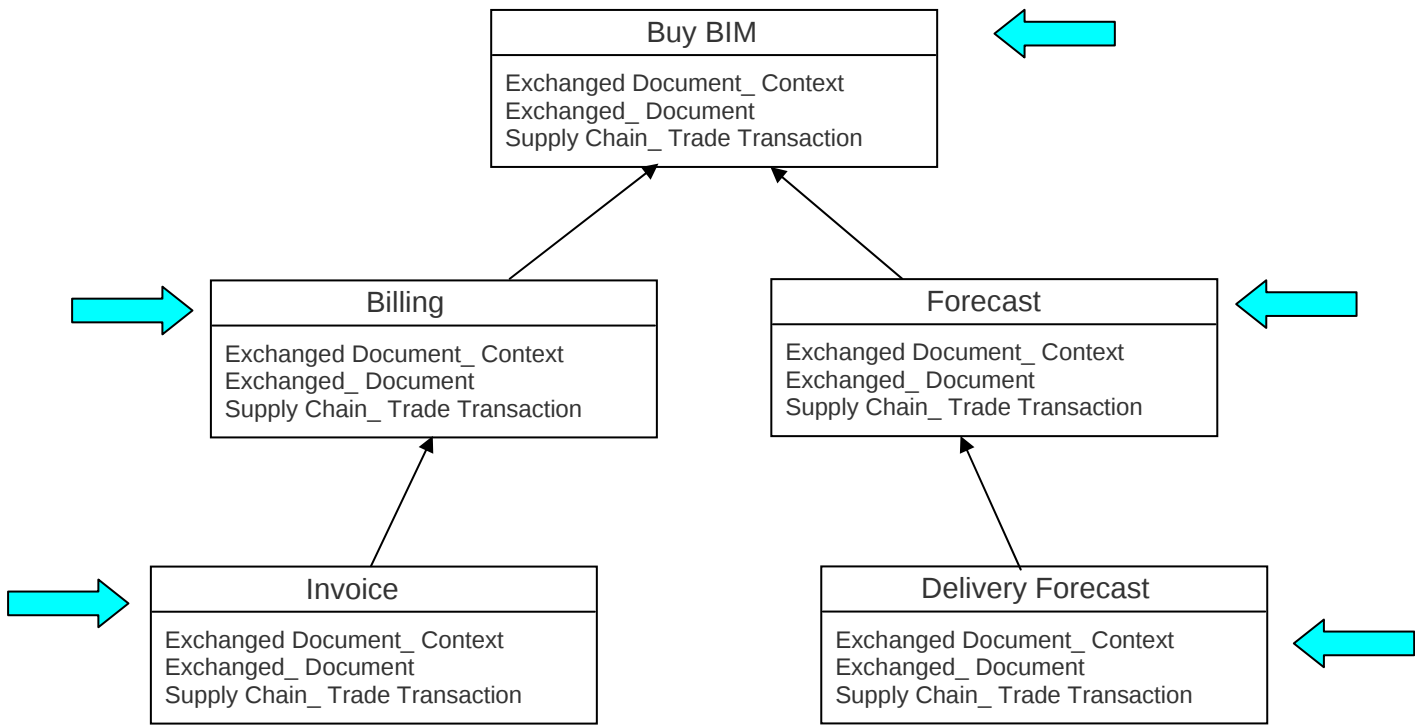
Conclusions

The attached diagrams show clearly how the BIM concept can simplify the work of the TBGs and therefore facilitate UN/CEFACT's document development process. They also demonstrate how re-usable data structures could help business users harmonise their documents and data.

Finally, although the examples are using BIMs based on the BUY-SHIP-PAY model, the BIM concept is certainly not limited to the supply chain reference model. It can be applied to any business domain where common data structures can be identified.

TBG1 – Supply Chain

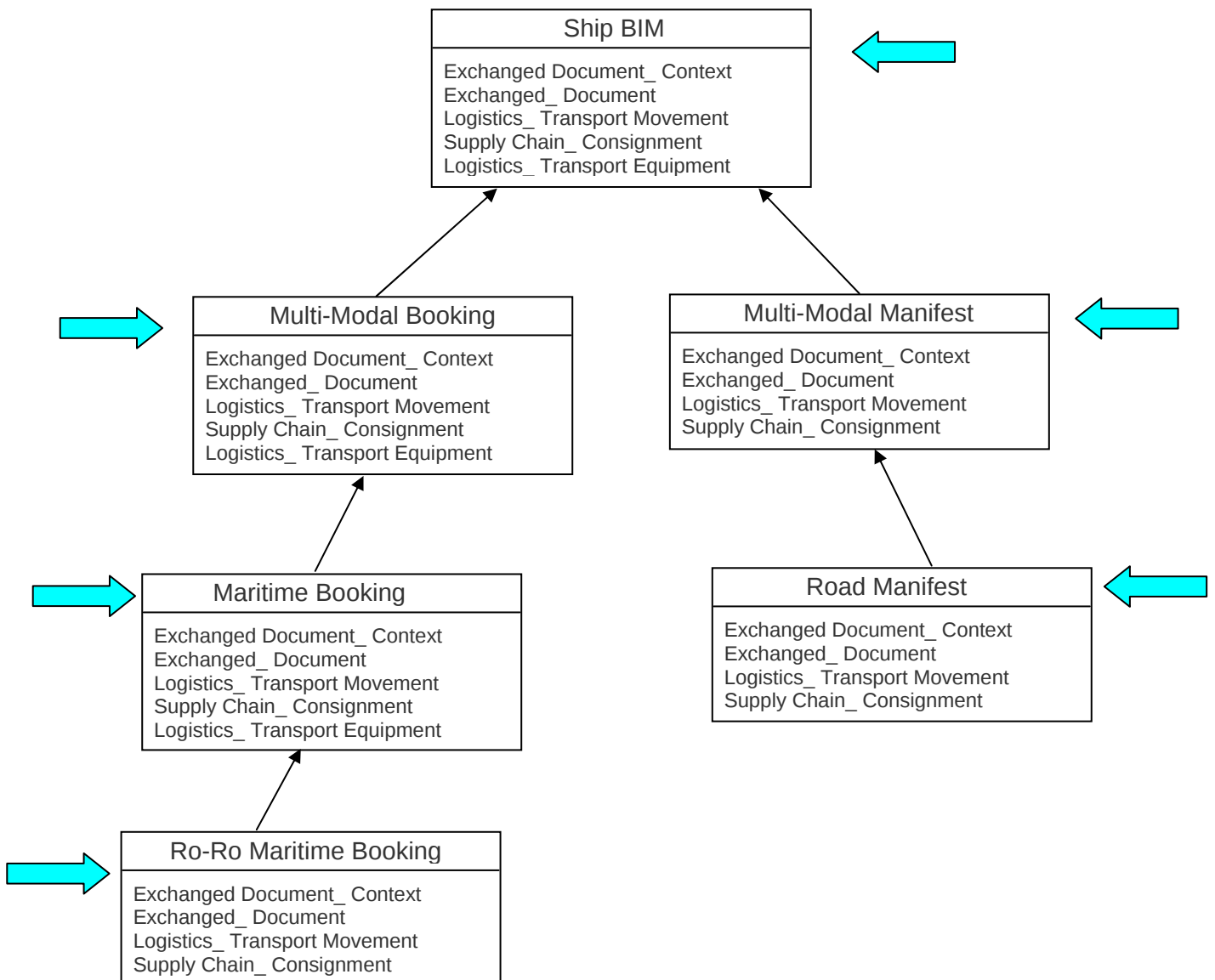
The diagram below provides an example of how two of TBG1's documents could be inherited from an over-arching data structure using ABIEs from the CCL. In this example, business rules (e.g. mandatory/optional) could be applied at the "Buy BIM" level, then at the "Billing" and "Forecast" levels and finally at the document levels of "Invoice" and "Delivery Forecast".



Key :
Business Rules applied →

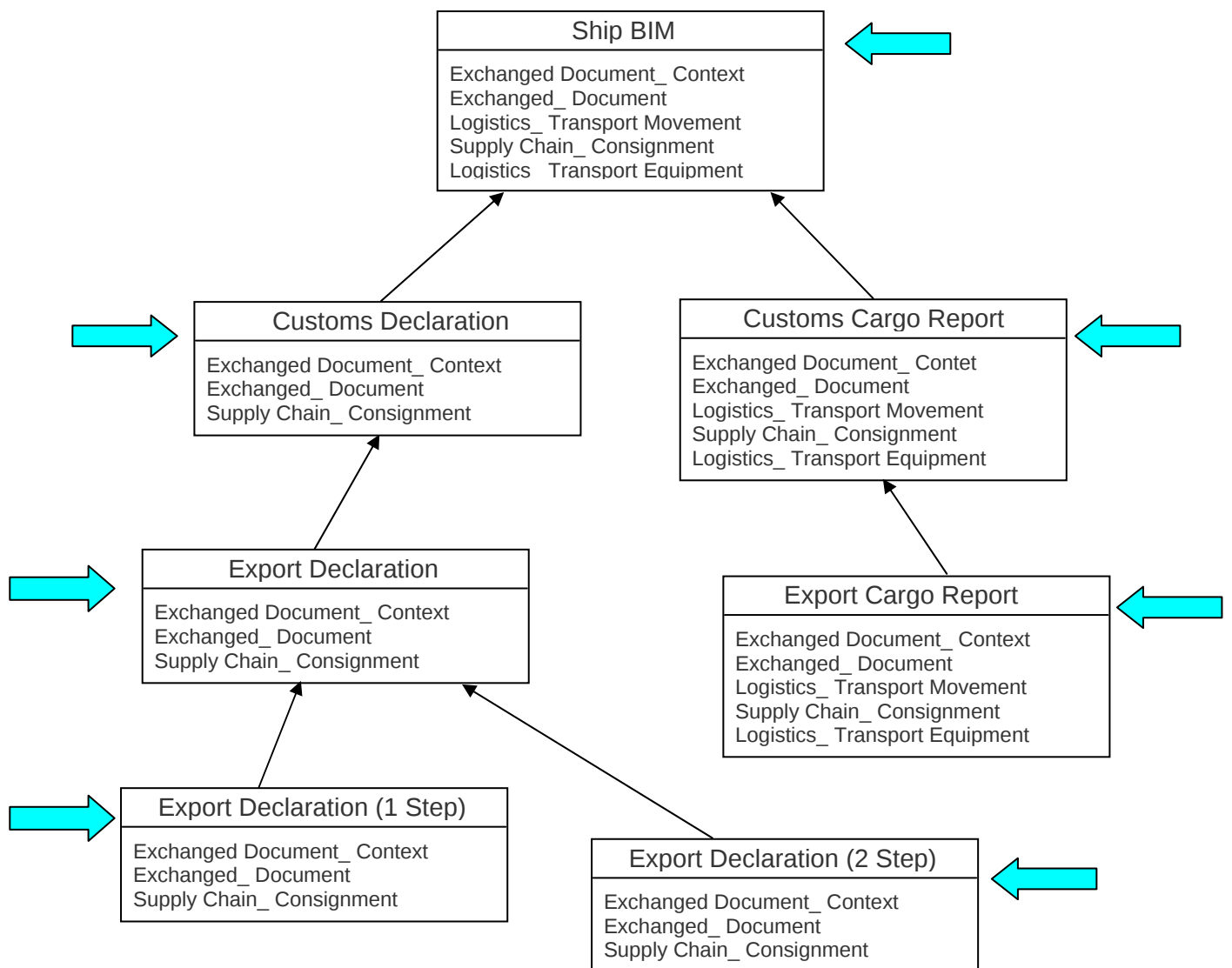
TBG3 – Transport

The diagram below provides an example of how two of TBG3's documents could be inherited from an over-arching data structure using ABIEs from the CCL, which is based on the same concept as their IFCSUM message in EDIFACT. In this example, business rules (e.g. mandatory/optional) could be applied at the "Ship BIM" level, then at the "Multi-Modal Booking", "Multi-Modal Manifest" and "Maritime Booking" levels and finally at the document levels of "Ro-Ro Maritime Booking" and "Road Manifest". The diagram also shows that there is no limit to how many levels could be used.



TBG4 – Customs

The diagram below provides an example of how three of TBG4's documents could be inherited from an over-arching data structure using ABIEs from the CCL, which is based on the same concept as the WCO Data Model. In this example, business rules (e.g. mandatory/optional) could be applied at the "Ship BIM" level, then at the "Customs Declaration", "Customs Cargo Report" and "Export Declaration" levels and finally at the document levels of "Export Declaration (1 Step)", "Export Declaration (2 Step)" and "Export Cargo Report". The diagram also shows that there is no limit to how many levels could be used.



ANNEX 1

Background

When setting up rules and workflow some years ago UN/CEFACT was aware that "... it is necessary to develop and put into place a phased approach that enables the Working Groups of the International Trade and Business Process Group (TBG) to progressively adopt UMM." (Source: REQUIREMENTS SPECIFICATION MAPPING (RSM) CEFACT/ICG/006).

This was especially relevant at that time because it was widely assumed that the first activities of the trade and business groups would be very EDIFACT like orientated and that "During this transitional period, initial requirements will for the most part be orientated around single processes that take account of UN/EDIFACT and the introduction of XML implementations that are "document" or "information payload" based." (source ICG 006)

Meanwhile some or, maybe, even many of the TBGs were starting to seriously explore and model complete processes and to define supporting business data models and syntax solutions for them. This had also been foreseen by UN/CEFACT/ICG: "As the TBG working groups begin to adopt UMM capabilities the focus could extend to other "non-document" information objects." (source ICG 006)

Now CEFACT is facing the situation that more TBGs and more projects are serving the business needs of complete sets of processes and 'non-documents' as had been foreseen. Consequently an optimized reusability of artefacts is now required. For example, overall data structures have been developed by World Customs which are collated in their WCO Overall Model and from which all their individual Customs data exchange message structures are derived including their UN/EDIFACT equivalent WCODEC, WCOCAR and WCOREP. Other examples are the WCO GOVDEC approach, the TBG3 IFCSUM and the related CON*** data structures, canonical models of Single Windows solutions, port community systems and middleware based generic interfaces many of which are already developed and in use.

These systems and models care more about the reusability across related processes and documents than about document by document refinement applying classis document restrictions. They want to have one and only one address structure and not hundreds of Address ABIEs with differently mandated BBIEs and ASBIEs as required to support individually defined document-based processes. They want to minimize the programming efforts required for the production and processing of multiple payloads by having as few differently designed payload structures as possible. Having identified the data needs of their end to end processes they want a standardized way to express them in order to support efficient management of sent and received message flows. The ability to have a standard data carrier for business data and to have the flexibility to model different business rules on top of them is now a clear business need.