



*electronic Business, Government and Trade (eBGT) initiative*

## **Gap Analyses Report**

***Presented by Peter Amstutz, Bureau Vice Chair***

**1 September 2010  
UN/CEFACT Forum  
International Conference Centre, Geneva**



- Background
- Timeline of Events
- Results of Gap Analyses
- Technical Frameworks
- Next Steps



- UNeDocs was a TBG2 project
  - Suspended by the Bureau in March of 2009
    - Project goals and deliverables challenged
    - Market confusion due to statements and marketing over the nature of the deliverables
  - Some deliverables of project had been met, some not
- Work continued under eBGT as Gap Analyses
- New developments able to tie work together



- **OCT/06** Project approved by FMG
- **MAR/09** BSP Data Model released as reference library to CCL08B
- **MAR/09** Project suspended
- **APR/09** Rome Forum Stakeholder Sessions
- **SEP/09** Sapporo Follow-Up
- **OCT/09** eBGT Gap Analyses Launched
- **MAR/10** eBGT Gap Analyses Completed



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## **Gap Analyses**

- **Three Gap Analysis Project Completed**
  - **PSM** – Priority Stakeholder Messages
  - **CCLO** – Core Component Library Outreach
  - **CCLF** – Core Component Library Framework
- Common survey instrument used to collect stakeholder feedback (115 respondents)



## PSM – Priority Stakeholder Messages

- Approved by FMG in Sapporo
- Led by Tim McGrath

### Objective

*To bring together the priority set of document types needed to support the global facilitation of trade.*

*If necessary, to provide alternative roadmaps to address requirements to support priority document types.*

*Provide a comprehensive overview of the key set of document types and related sets of core components to enhance opportunities for priorities to be identified to serve the needs of Member States and other stakeholders*





- Very diverse set of requirements in the responses
- ½ of responses came from European stakeholders
- With the European responses, the primary requirements for business messages did not change significantly



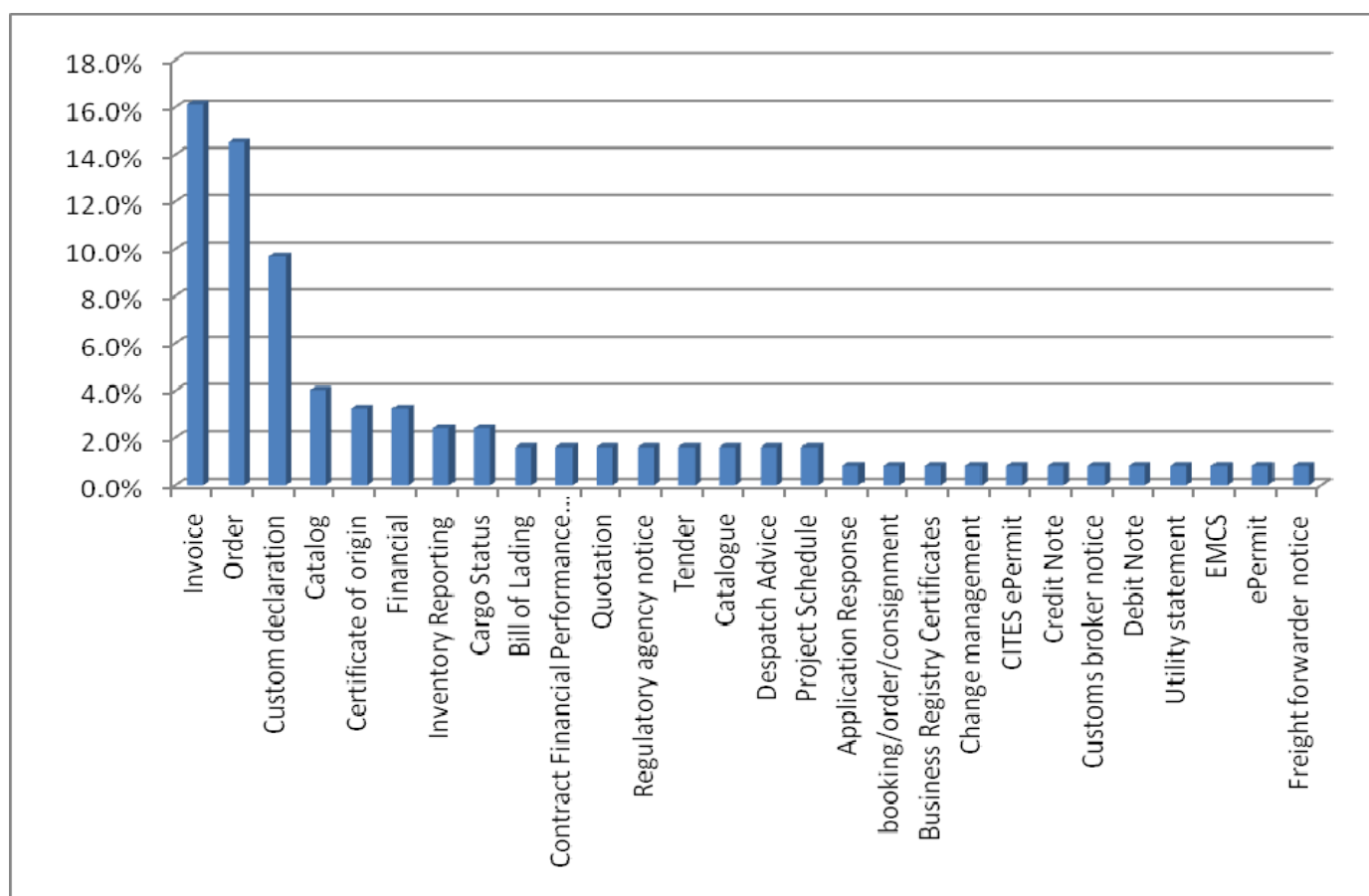
## **There is no strong trend**

- 16% of respondents requiring support for e-Invoice processes or 9% for e-customs declaration messages
- out of a sample of 119 respondents
- the distribution pattern is actually very wide
- the ‘tail’ is very long





## Requirements for Messages



## Recognizable Trends

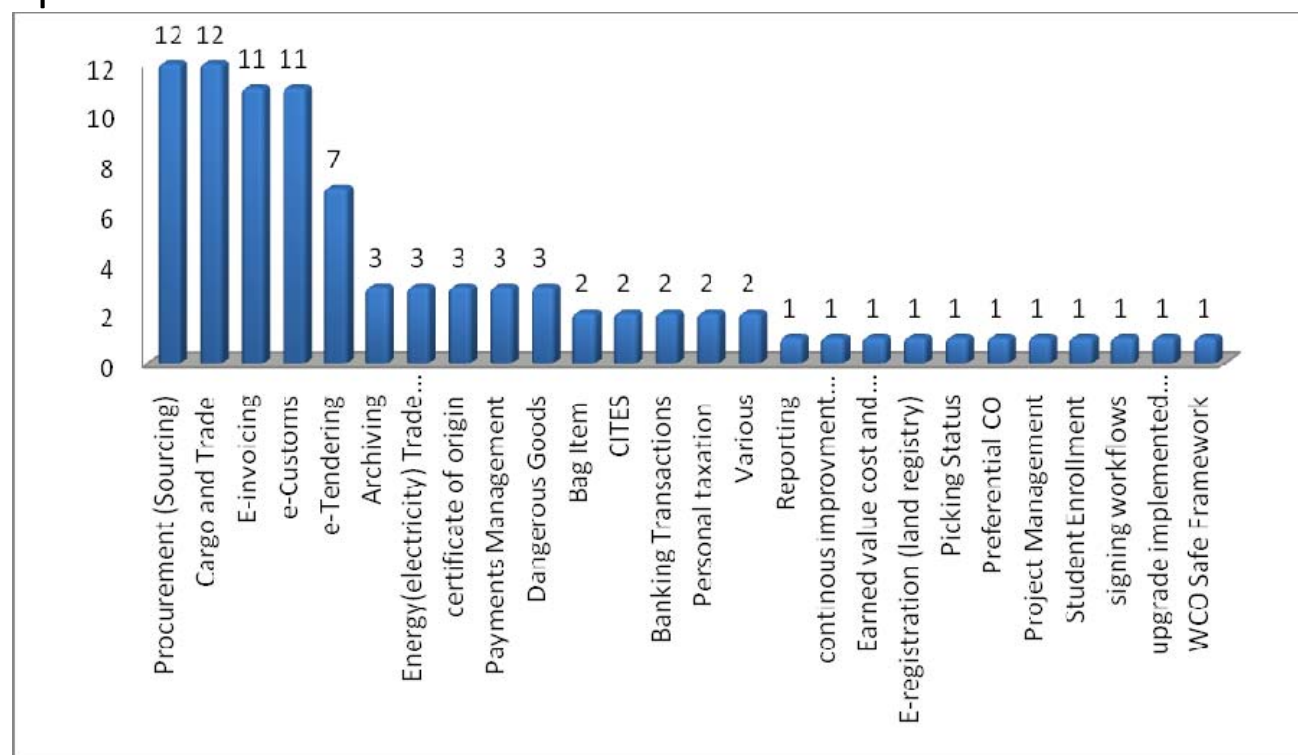
- There are a few common requirements (especially when we apply weighting to the responses from Government Agencies):
  - Invoice,
  - Order and
  - Customs Declaration
- There are gaps between these requirements and the perceived ability of UN/CEFACT to satisfy them.



## Buy-Ship but not Pay?

- Planned implementations aggregate into three groups:

- Procurement
- Cargo and Trade
- Customs

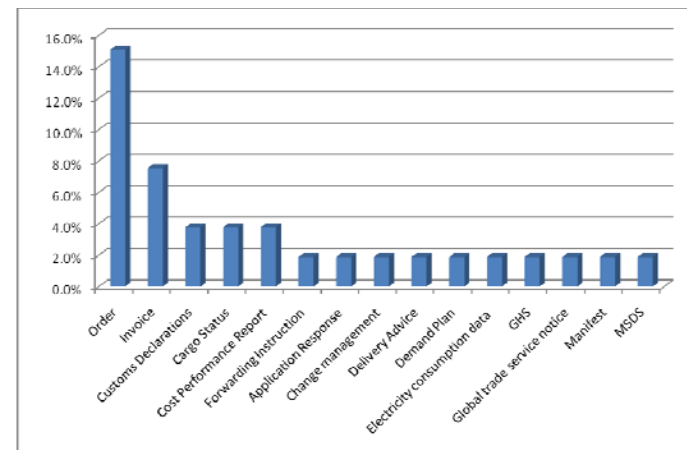
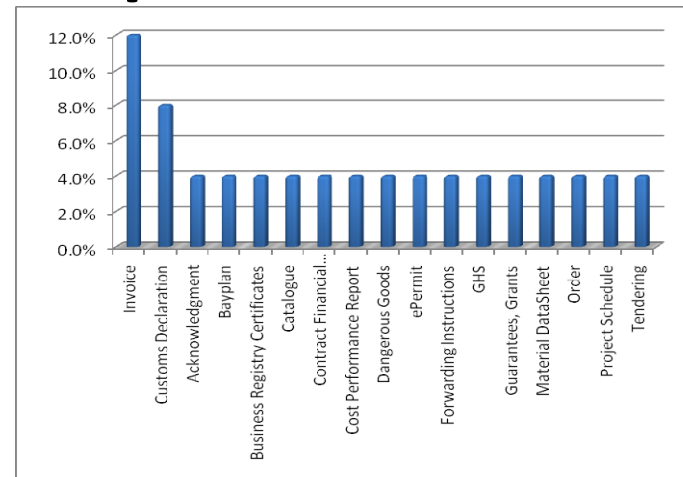


- Almost ½ of the overall business process requirements identified.
- Almost ½ of these are perceived as cross border processes.



- The influence of Government requirements
  - Invoicing and Customs Declaration emerge as clear priorities.
- Non-European responses
  - Reveals a change in priority.
- But the three primary message requirements remain the same.
- By contrasting the Government and non-European priorities we can see that the European government requirement for e-Invoicing has a significant effect on the overall pattern.

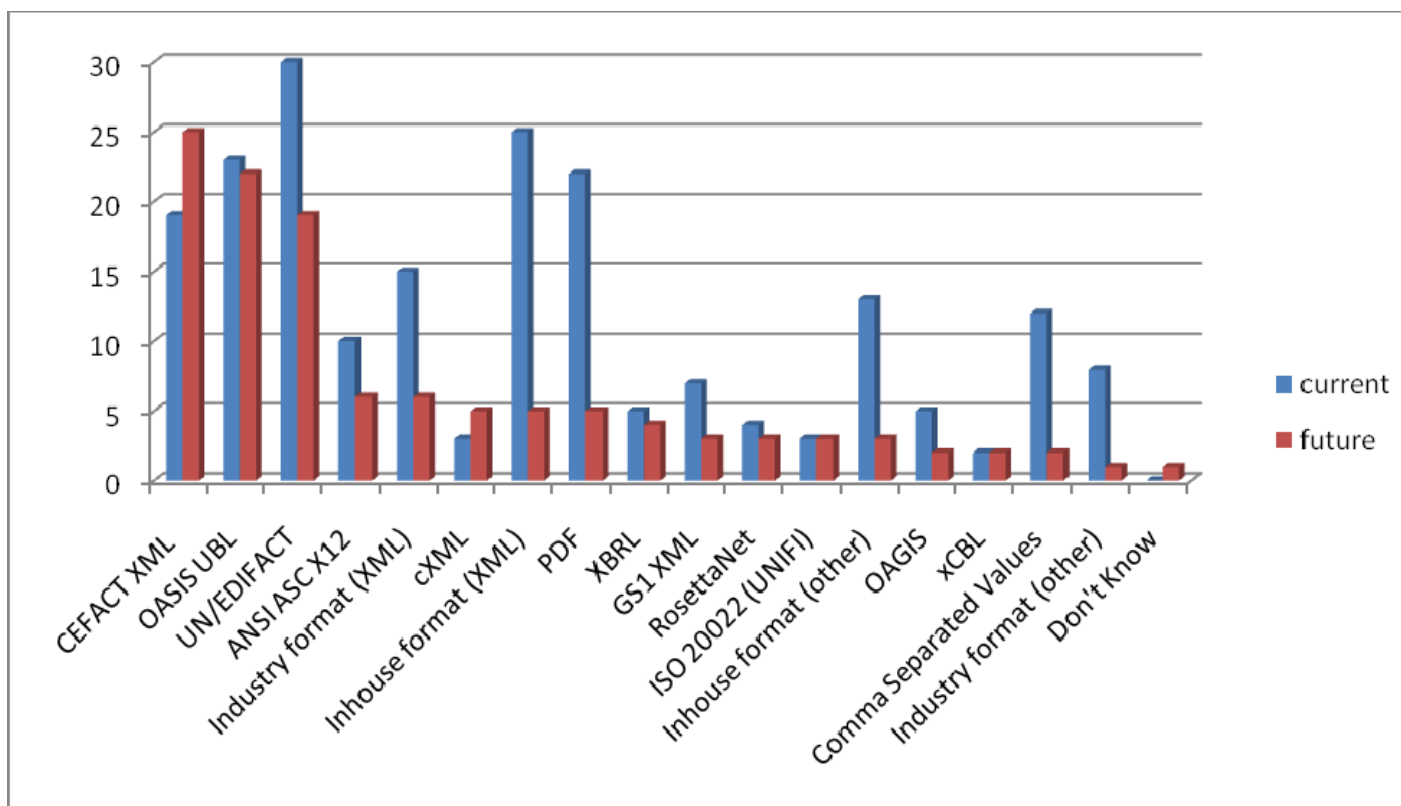
## Geopolitical Influence





## Syntax and Formats

The significant factor about requirements for syntax and format is the difference between what is currently in use and what is required for the future.







## **Notable Trends – Syntax and Format**

- UN/EDIFACT is still the dominant syntax and format currently used for eBusiness , Government and Trade
  - remains a requirement for many stakeholders the future
  - more than UN/CEFACT XML
- There are four significant formats/syntaxes in use today;
  - UN/EDIFACT
  - OASIS UBL
  - In-house formats of XML
  - Adobe PDF





## Notable Trends – Syntax and Format

- UN/CEFACT XML is the only format with a rising level of requirement
  - *especially with Governments*
- Reflects the ‘brand’ strength of UN/CEFACT within governments
- Emphasizes that Governments are key stakeholders
  - *the key potential market for UN/CEFACT standards*



## **Meeting Requirements**

- Customs Declaration message requirements
  - Perhaps can only be met by the relevant Customs Authorities in each economy
- Order message requirements
  - Currently no UN/CEFACT XML Order message

## **CCLO – Core Component Library Outreach**

- Approved by FMG in Sapporo
- Led by Chris Hassler

### **Purpose and Objectives**

- *Understand what international trade-related information standards exist*
- *How those standards compare and relate to the Core Component Library*
- *Identify who are the standards stakeholders.*
- *Determine how UN/CEFACT can lead a collaboration with other organizations to achieve greater consistency and completeness across standards to the satisfaction of their collective stakeholders.*

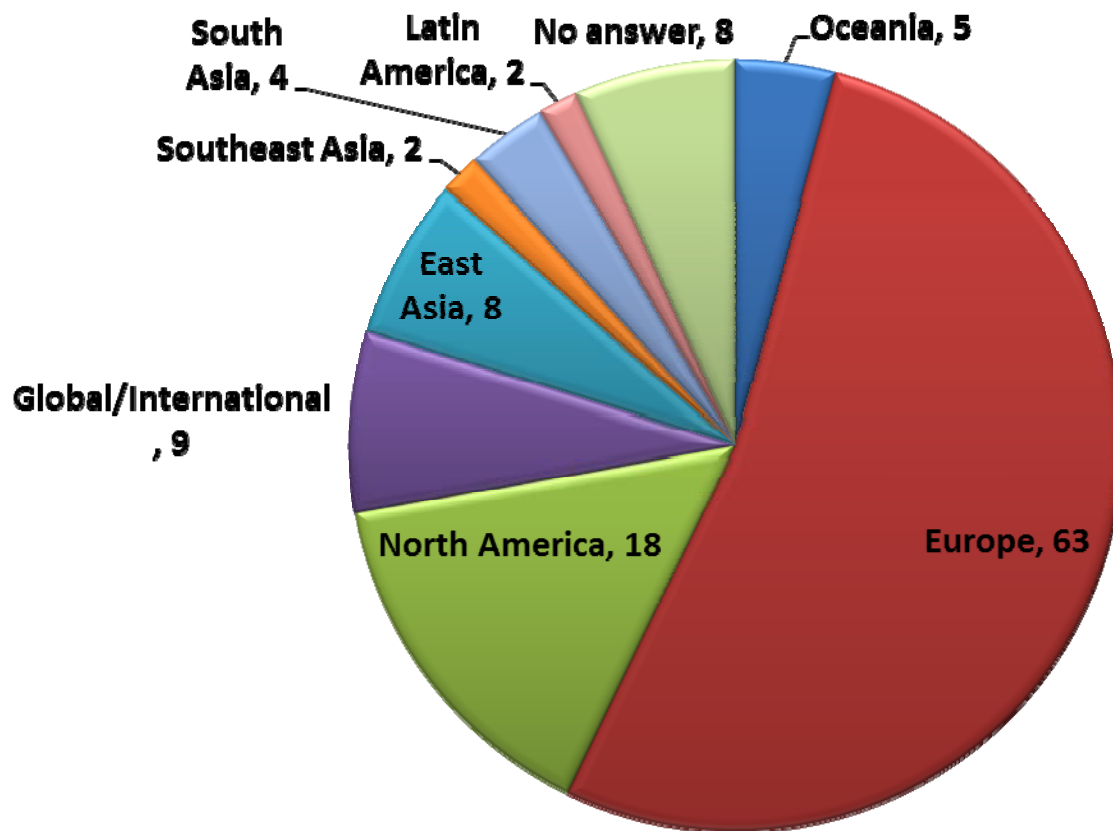


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## Responses (Geographical Distribution)



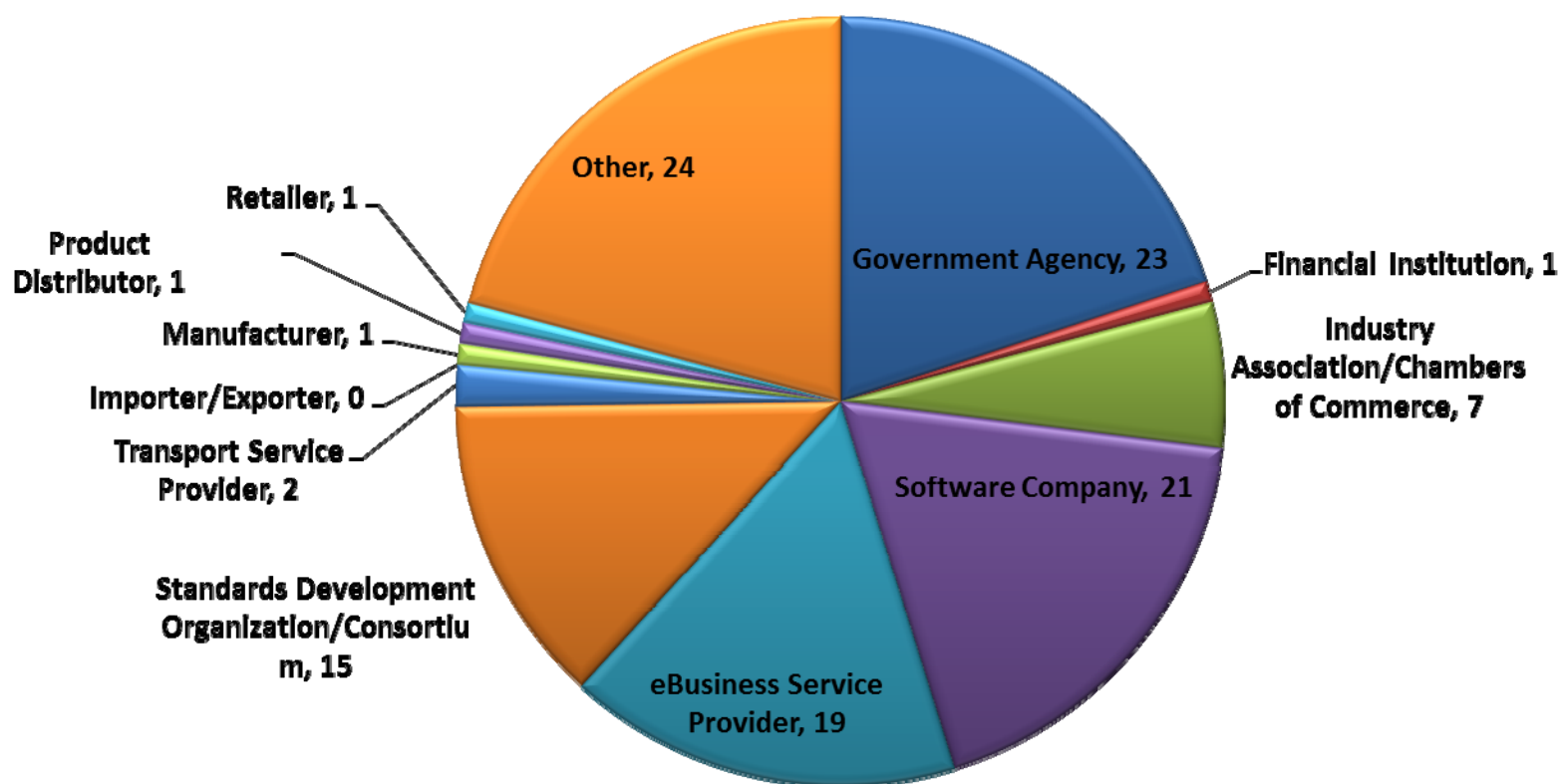


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## Responses (Industry)





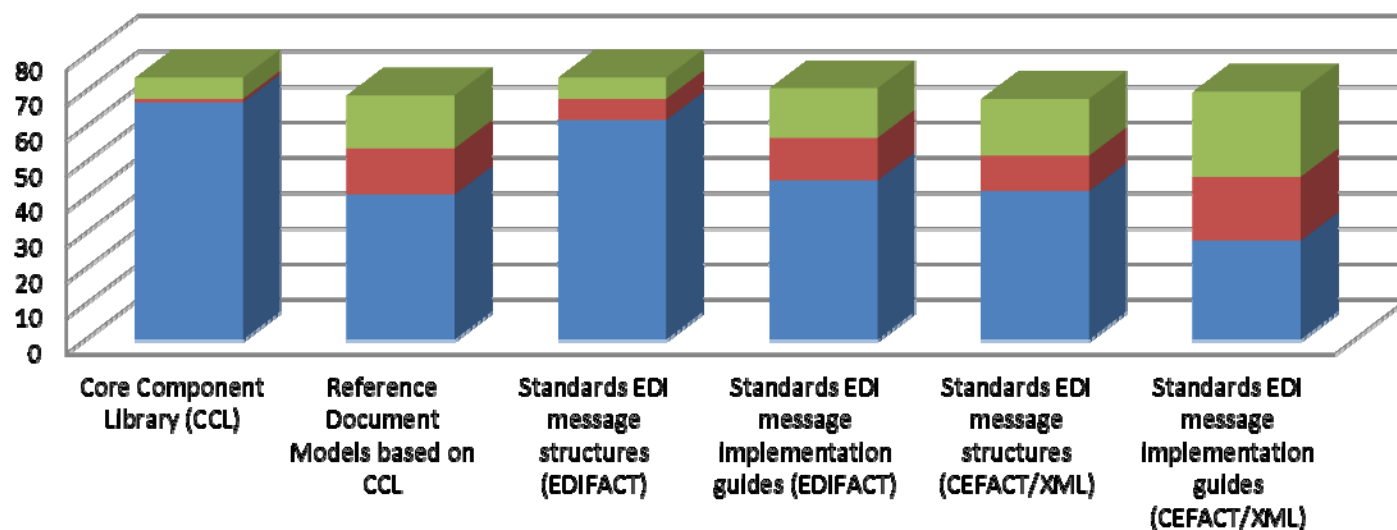


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## Awareness of Deliverables

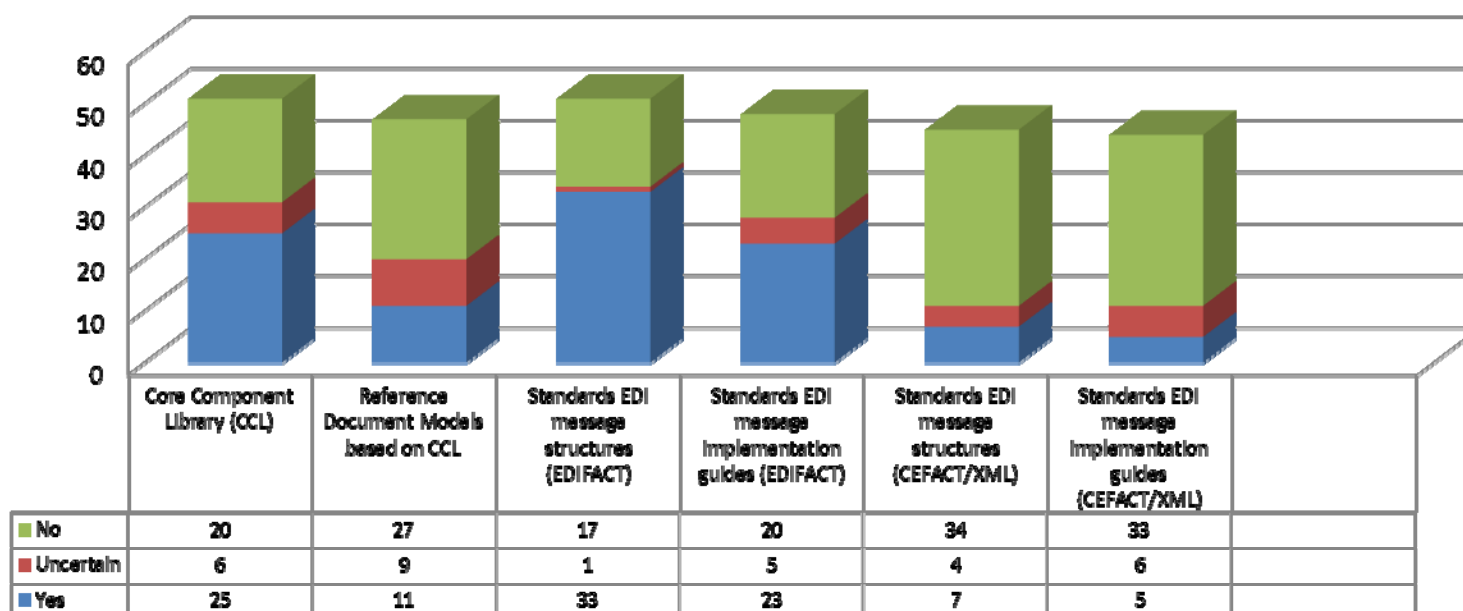


- Overall, awareness of UN/CEFACT deliverables is generally high
- In the case of Core Component Library and UN/EDIFACT, well over 80% of those who responded expressed an awareness of those deliverables.
- More than half of all respondents showed an awareness of reference document models, EDIFACT implementation guides, and UN/CEFACT XML.





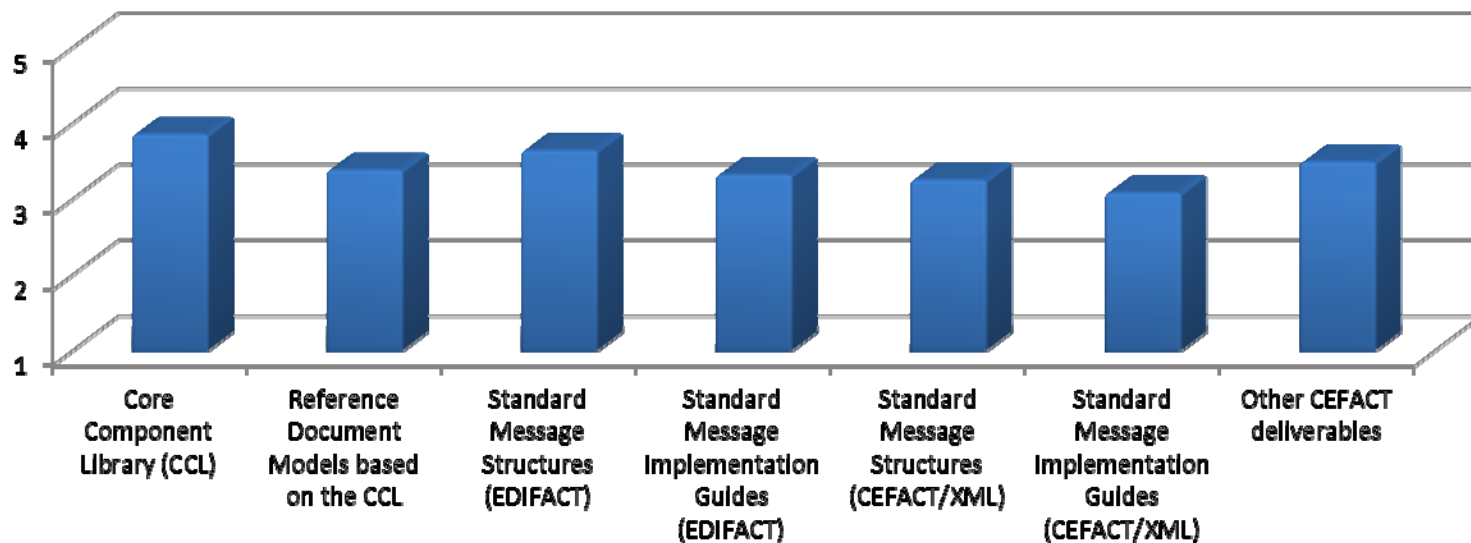
## Implementation of Deliverables



- When the question comes to implementation, the picture changes radically.
- Only UN/EDIFACT gets a majority of positive responses.
- The CCL and UN/EDIFACT implementation guidelines come close to 50%, but the remaining responses are all quite low.



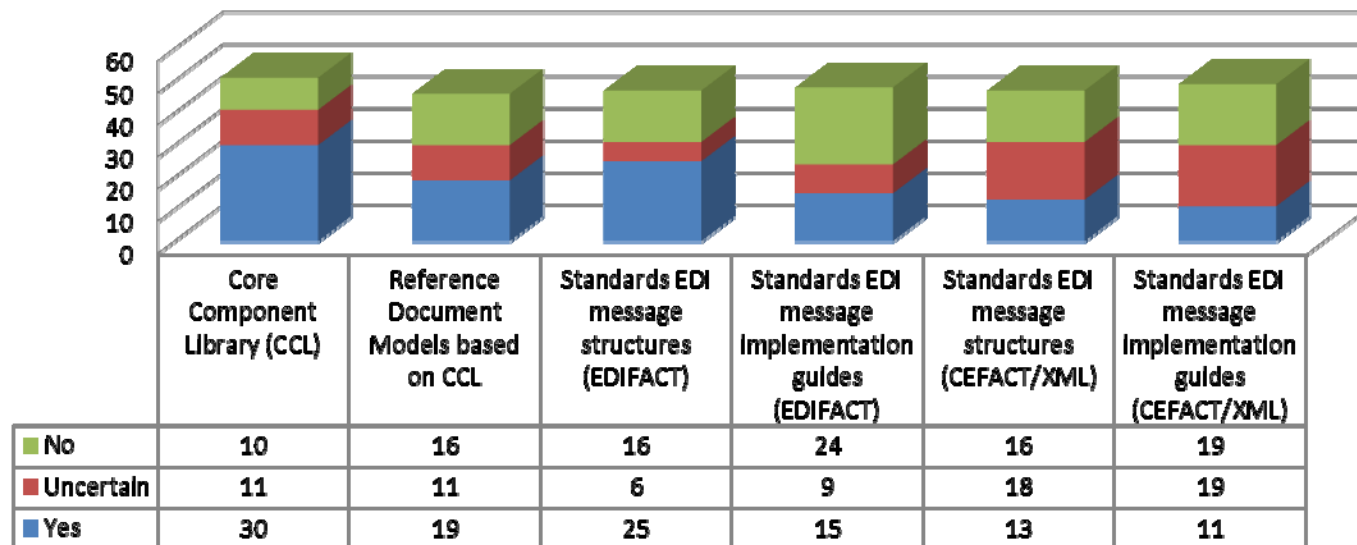
## Perceived Value of Deliverables



- When judging the perceived value of the various CEFACT deliverables, the picture is a bit muddier.
- The average of the responses generally falls between somewhat valuable and valuable.
- The CCL has the most perceived value and XML guidelines have the least perceived values.
- UN/EDIFACT has a high relative value and UN/CEFACT XML has a lower, but still relatively high perceived value.



## Planned Implementation



- In every case, far more respondents did not respond than did.
- Even among those who did respond, the overall positive response was quite low.
- Only in the cases of the CCL and EDIFACT were a majority of responses an unqualified yes.
- In the case of XML, there is a high degree of uncertainty with regard to future implementation.

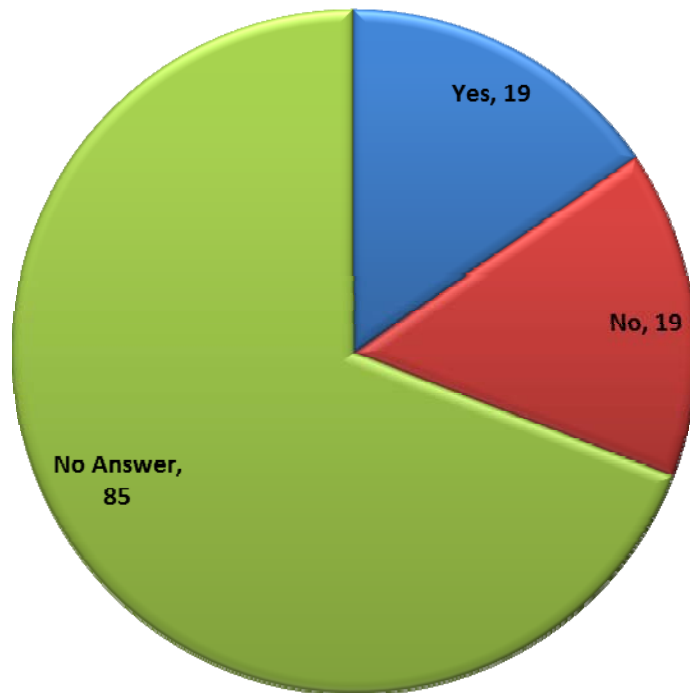


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## CCL Usable?



Of those who chose to answer this question (30%), half do and half do not feel CCL is usable the way it is currently published.



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## **Recommendations**

- Establish a registry that provides enhanced search capability, scalability, and hierarchical structure. This should be coupled with a well-defined listing of hierarchical context values (particularly business process context) that provide a good searchability.
- Work with governments to provide better localization of the CCL in languages other than English. This should be coupled with a registry that allows multi-language search.
- Move away from Excel spreadsheets as the primary publication mechanism for the CCL.
- Work cooperatively with tool vendors to foster creation of tools that support CCTS and the CCL.





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## **Recommendations (cont.)**

- Encourage rapid development of XML for CCTS.
- Work with the 7372 MA to more closely align the CCL with the TDED.
- Work to maintain backwards compatibility as the CCL is developed further to allow stable, mature business standards to be built.
- Create a Core Component Message Assembly specification to better enable messages to be developed from the CCL.
- Encourage greater efforts at convergence with other standards.



## **CCLF – Core Component Library Framework**

- Approved by FMG in Sapporo
- Led by Jostein Fromyr

### **Purpose and Objectives**

- *Identify and articulate stakeholder requirements for methodology and approaches for the Core Component Library*
- *Identify gaps in the ability of current technical specifications to meet identified requirements.*



## Relevance of .....

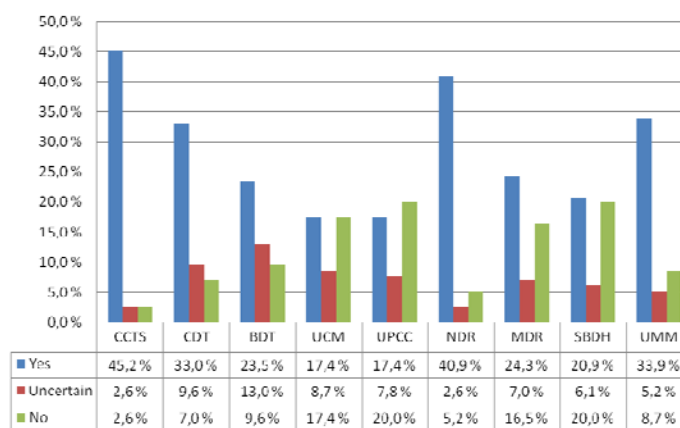
- “... *complete only those [questions] that are of interest or relevance to your organisation*”
  - Only half of the total number of respondents actually provided a response to these questions.
- **How should this be interpreted?**
- Not necessarily a challenge for UN/CEFACT.
  - Respondents, or stakeholders, who are only interested in the resulting Core Component Library or messages don't necessarily have an interest in the underlying technical specifications.
- There is little interest in the methodology specifications amongst the UN/CEFACT stakeholders or for this particular set of respondents.
  - A consequence of this could then be that the further development and maintenance of the methodology specifications should be moved to other organisations, such as ISO or OASIS.



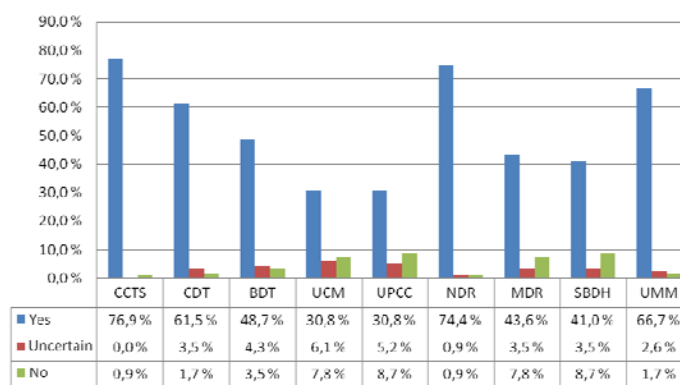
## Knowledge about .....

- CCTS and NDR are the two specifications known to most of the respondents.
- As for the modelling oriented specifications – the UMM and UPCC – the picture is slightly less encouraging in that only 33.9% claims to be familiar with the UMM and only 17.4% is familiar with the UPCC.
- Amongst those that are currently contributing to the work of UN/CEFACT we get a more encouraging picture in that all of the specifications are know to more than 1/3 of this sub-population.
- No, or little, change in the pattern across specifications.

Knowledge about the UN/CEFACT methodology specifications in the full survey population



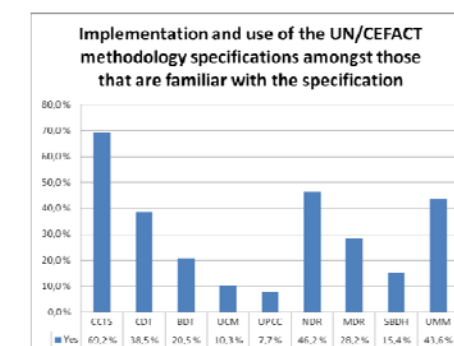
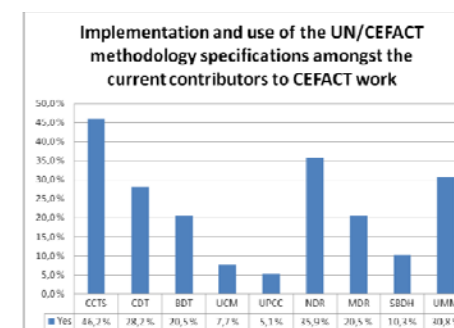
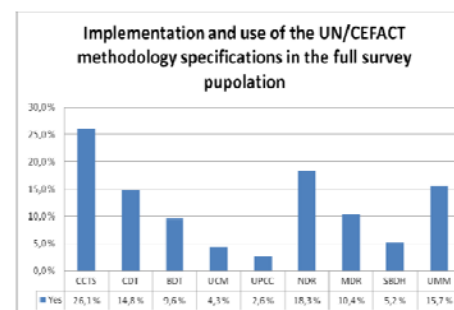
Knowledge about the UN/CEFACT methodology specifications amongst the current contributors to CEFACT work





## Implementation and use of .....

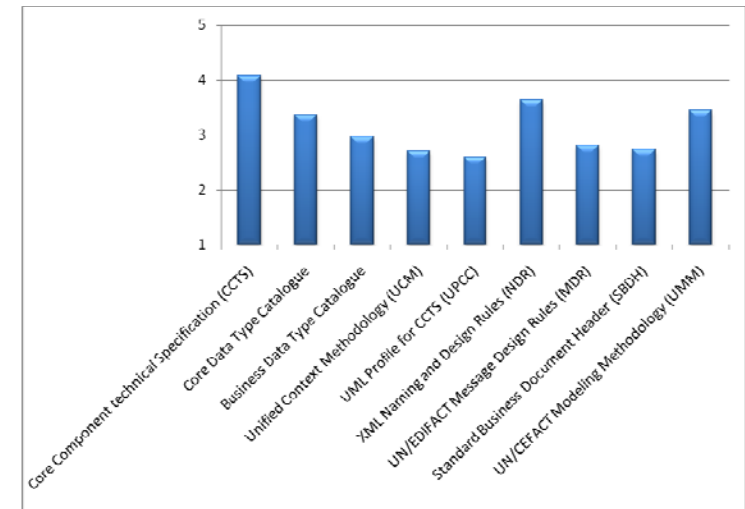
- The CCTS and the NDR are by far the most widely implemented or used technical specifications, although only implemented or used by respectively 26.1% and 18.3% of the respondents.
- Only relatively low implementation of the modelling oriented specifications - the UMM (implemented or used by only 15.7%) and UPCC (implemented or used by only 2.6%). (It is worth noting that the 2.6% who have implemented or used the UPCC represents 3 respondents.)
- Implementation and use seems to increase with engagement and knowledge (or visa versa)



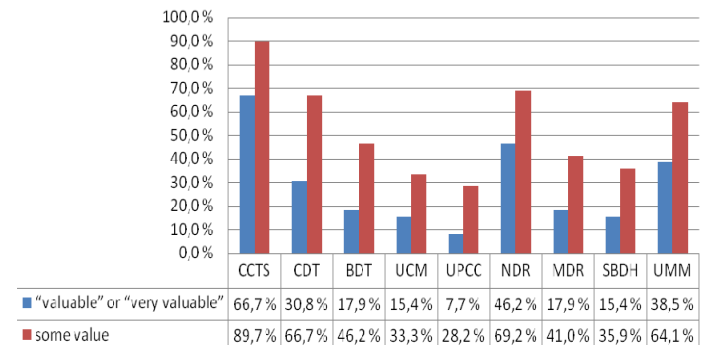


## The value of .....

- The CCTS and NDR are the technical specifications rated as being of the highest value to most respondents.
- The technical specifications are rated significantly more valuable in the sub-population who claims to be familiar with the specification than in the general survey population.
- This seems to suggest that the value of the specification increases with knowledge.
- No, or little, change in the pattern across specifications.



The perceived value of the UN/CEFACT methodology specifications amongst those familiar with the specification

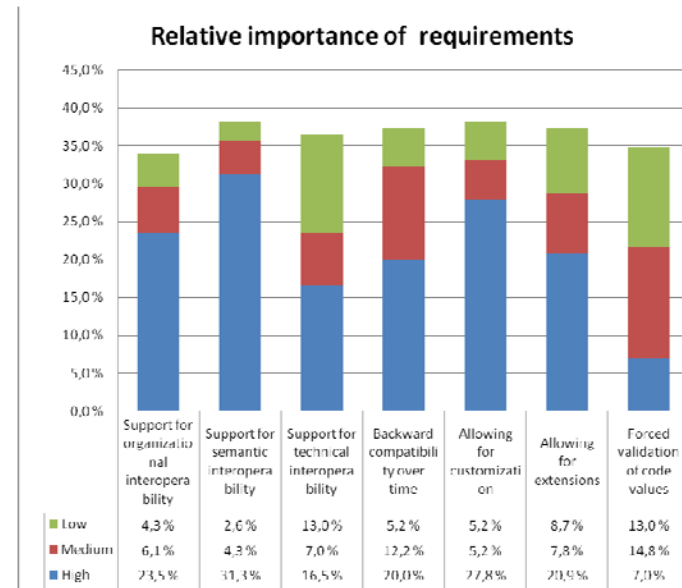






## Requirements and characteristics

- “Support for semantic interoperability” is by far the most important characteristics of the UN/CEFACT Technical Specifications, rated to be of high value by 31.3% of the respondents.
- Likewise “forced validation of code lists” looks to be the least important characteristics, rated as being of high value by only 7.0% of the respondents.



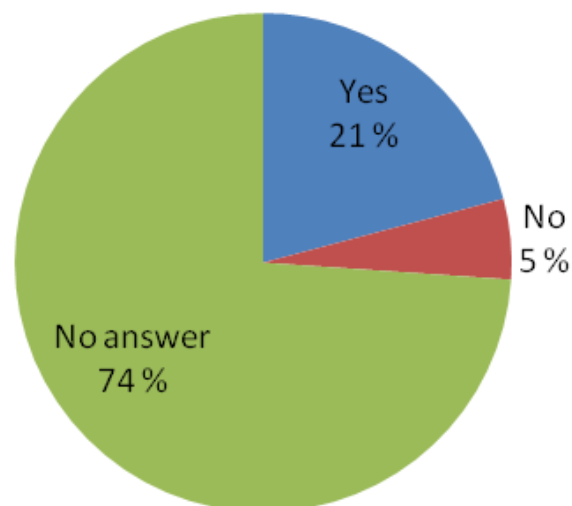
Technical Specification	Number of “high” responses	Number of “medium” responses	Number of “low” responses	Level of importance
Support for semantic interoperability	36	5	3	121
Allowing for customization	32	6	6	114
Backward compatibility over time	23	14	6	103
Support for organizational interoperability	27	7	5	100
Allowing for extensions	24	9	10	100
Support for technical interoperability	19	8	15	88
Forced validation of code vales in XML parsers	8	17	15	73





## Planning to use .....

- Amongst those who actually responded to this question more than  $\frac{3}{4}$  stated that they plan to implement one or more of the UN/CEFACT methodology specifications



## Recommendations

- UN/CEFACT evaluates, and potentially reconfirms, its commitment to the development and maintenance of a complete, consistent and stable set of methodology specifications as a basis for its message development activities. Hence, the resources required for it must be in place to be effective in this respect.
- In order to increase the knowledge, and ensure the consistent use and application of the methodology specifications within UN/CEFACT, an educational program needs to be developed covering all key technical specifications and that must be made mandatory to participants involved in the UN/CEFACT development process.

## Recommendations

- If UN/CEFACT wishes to continue to take responsibility for the development and maintenance of the methodology specifications and wants these to be used outside of the UN/CEFACT development process, e.g. as the basis for developments in other SDOs, the educational program must be made available outside of UN/CEFACT also.
  - To foster increased implementation and use of the UN/CEFACT technical specifications, efforts should be made to collect and publish actual examples of best practices, both within and outside of the UN/CEFACT development process.
  - When developing and publishing technical specifications emphasis should be given to explain and demonstrate the value proposition offered by the specification towards UN/CEFACT's ability to meet its objectives.



## **Identified Gaps**

- **Customisation**
- **Backward compatibility**
- **Extensions**
- **Core Component Message Assembly**
- **Code list publication**

## Identified Gaps

### Customisation

The survey shows that the ability to do customisation (i.e. the ability of user communities to define compliant subsets of e.g. an Invoice applicable within their community while remaining compliant to the UN/CEFACT deliverables) is considered the second most important characteristic of the methodology specifications. The CCLF team is of the opinion that UN/CEFACT currently does not have a recognised, documented and stable approach allowing users to do customisation of its published deliverables. Such specification is urgently needed by the market.



## Identified Gaps

### **Backward compatibility**

The survey shows that backward compatibility over time (i.e. the ability to have e.g. an Invoice issued under an old version to be valid under a newer version) is considered the third most important characteristic of the methodology specifications. In this regard it is the experience of the CCLF team members that the published UN/CEFACT XML schemas do not meet this requirement, as there is a change in XML namespace with every publication of the XML schemas. There is thus an urgent need to revamp the current approach for publication and versioning.

## Identified Gaps

### Extensions

The survey shows that the ability for extensions (i.e. the ability of user communities to define additional data over and above the data structures defined in the UN/CEFACT deliverables) is considered an important characteristic of the methodology specifications. The CCLF team is of the opinion that UN/CEFACT currently does not have a recognised, documented and stable approach for users to extend its published deliverables

## Identified Gaps

### **Core Component Message Assembly**

The CCLF team are of the opinion that UN/CEFACT currently does not have a fully developed message assembly methodology for how to assemble CCL objects into business document structures although this is not evident from the survey. Internally in UN/CEFACT this is known as the CCMA. On the other hand a Message Assembly Template defining how a message structure should be presented is available. To ensure a consistent approach in the specification and documentation of message structures within UN/CEFACT, a fully developed message assembly methodology needs to be provided.

## Identified Gaps

### **Code list publication**

The CCLF team is of the opinion that UN/CEFACT currently does not have a full publication of all of its code lists independent of its syntax deliverables. Currently most of the UN/CEFACT maintained code lists (those not published as UN Recommendations) are either published as part of the UN/EDIFACT syntax or as part of the XML syntax deliverables. The CCLF team is aware that activities are under way within ICG to fill this gap. This activity should however be given even higher priority within the organization.



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**Next Steps**

# Next Steps





- New developments able to tie work together
- Additional work on the library to make the data model more complete
  - Continuous improvement as projects are added
- Technical frameworks to be adopted that better support the previous work done with UNeDocs and the B-S-P data model
- Could demonstrate UNeDocs conformance to various levels of UN/CEFACTS technical frameworks



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# Conformance

		CEFACT Provides Specifications	Claims for Self Conformance
Types	<b>Core Data Types</b>	DTC	<input type="checkbox"/> Uses only types contained in the DTC <input type="checkbox"/> Complies with rules contained in the DTC
Semantics	<b>Core Components</b>	CCTS/UPCC	<input type="checkbox"/> Applies CCTS Naming Rules <input type="checkbox"/> Fits CCTS metamodel
	<b>Context</b>	UCM	<input type="checkbox"/> Conforms with UCM methodology <input type="checkbox"/> Context graph is compatible with CEFACT graph
	<b>Business Information Entities (including BDTs)</b>	CCTS/UPCC+UCM (UMM ,BRS, RSM)	<input type="checkbox"/> Fits CCTS metamodel <input type="checkbox"/> Uses Core Component Library <input type="checkbox"/> Fits Context metamodel <input type="checkbox"/> Uses UN/ECE code lists
Business Processes	<b>Business Processes</b>	UMM, UCM, UPCC, BRS Template	<input type="checkbox"/> Contains the same information as the CEFACT BRS template <input type="checkbox"/> Conforms with UMM <input type="checkbox"/> Conforms with UCM <input type="checkbox"/> Conforms with UPCC
Structure	<b>Document Models</b>	Message Assembly Template/Specification?	<input type="checkbox"/> Conforms to Common Assembly Structure <input type="checkbox"/> Supported by descriptions of business process/context of use
Syntax	<b>Formats</b>	NDR	<input type="checkbox"/> Conformant with NDR
Implementation	<b>Implementation Guidelines</b>	Implementation Guideline Specification (profiling and variance)	<input type="checkbox"/> XML Schema validation <input type="checkbox"/> Uses valid code list values



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## **Future Work**

- Library Improvement
- Conformance Paper
- Guidelines for Reference Data Models
- Possible "Electronic Trade Document Methodology"
  - Uses Common Reference Data Model
  - Consistently applied for paper, XML and UN/EDIFACT



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**Questions?**

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