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NEW METHODS OF WORKING

**UN/CEFACT'S OPEN DEVELOPMENT PROCESS
FOR TECHNICAL SPECIFICATIONS**

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Submitted by the CSG *

This document is submitted to the Centre for approval.

* This document has been published without formal editing.

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EXECUTIVE SUMMARY

1. As part of a broad move to encourage electronic working, the UN/CEFACT Steering Group (CSG) are recommending that UN/CEFACT working groups develop and evolve Technical Specifications using an open and inclusive process that produces high-quality specifications in "Internet-time."
2. This document describes the open process and the five goals that drive it: **openness, world-wide participation, speed, compatibility, and technical excellence**. The CSG believes that this process is fundamental to UN/CEFACT's large and accelerating acceptance as a modern standardisation organisation by the international community and by Electronic Business implementers (such as software developers) around the world and is also vital to maintaining the technical quality and cross-industry compatibility that a Electronic Business platform requires.

UN/CEFACT TECHNICAL SPECIFICATIONS

3. UN/CEFACT Technical Specifications are for all implementers and end-users. They are unique in providing a single set of specifications for any technical application independent of communication protocol, underlying operating systems and hardware platforms.
4. UN/CEFACT's open development process is designed to involve all materially interested parties in the creation and evolution of Technical Specifications. UN/CEFACT's goal is to produce specifications that are timely, technically excellent, implementable on any platform, and relevant both to industry participants and to end-user communities.

THE GOALS OF THE UN/CEFACT PROCESS

UN/CEFACT has five goals for developing Technical Specifications. They are:

Openness

5. All specifications must be *open*, free of any constraints or restrictions associated with intellectual property rights (IPR). Anyone wishing to contribute to the Technical Specifications must be willing to do so without imposing IPR barriers. UN/CEFACT believes strongly in fostering competition around the technologies described by Technical Specifications. Anyone should be able to produce a complete implementation of the specifications described by Technical Specifications without IPR related cost or red tape.

World-wide Participation

6. All interested parties should have the opportunity to review, comment on, and contribute to Technical Specifications. In the age of the Internet, the best way to do this is to carry out a *web-wide* public review of UN/CEFACT working draft specifications, which UN/CEFACT will make freely available at their web site: <http://www.cefact.org>. This ensures that developers from Bangalore to São Paulo to Munich can help shape the Technical Specifications - without having to pay any fees and without incurring travel expenses to attend standards development meetings. The UN/CEFACT process builds consensus¹ on a truly international scale at the cost of a simple Internet connection.

Speed

7. In an area increasingly moving "at Internet speed", it is vitally important that the process of developing specifications be speedy so that the resultant specifications are relevant to the needs of the industry, developers, and users.

1/ Consensus: general agreement, characterized by the absence of sustained opposition to substantial issues by any important part of concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. Consensus needs not to imply unanimity.

Compatibility

8. Technical Specifications must not depend on features that are available only on one application or industry specification. Software developers and end-users around the world must be able to depend on technical applications that can be implemented the same way, and give the same results, on all hardware platforms and operating systems.

Technical Excellence

9. UN/CEFACT working groups will develop all Technical Specifications with the active participation of experts, and liaisons. In this way, each specification embodies *best of breed* along with *innovation* that benefits every user of these Technical Specifications. As such, no specification will ever lock implementers or users into a single proprietary solution or be tied to just one industry specification. However, this approach enables companies/industries to employ their expertise and existing technology, when implementing Technical Specifications, resulting in high quality, and mature implementations which will come to the market place sooner.

REASONS BEHIND THE PROCESS

10. UN/CEFACT's open development process is not revolutionary. It is evolutionary because it builds upon specification development processes already used by industry consortia and standards developing organisations.
11. Perhaps the most unique feature of this process is the use of iterative refinement and web-wide participation to build international consensus. The premise is that people are usually much better at reviewing and criticising a specification than they are at compiling a requirement list and writing a first working draft. UN/CEFACT's Working Groups delegate that important task to a small, dedicated editing group that works with recognised experts. That first working draft is then refined in three steps. First, working group experts and implementers review and comment on it. When this group reaches consensus, UN/CEFACT makes the second working draft available for public review at their web site, open to anyone. As comments are received, the editors update the working draft and republish it at UN/CEFACT's web site until broad consensus is achieved. The final step is to verify the working draft via at least two independent implementations that will identify any technical problems. Once the validation review is concluded, UN/CEFACT will publish the Technical Specification on their web site, open to anyone with access to the Internet.

THE OPEN DEVELOPMENT PROCESS ²

12. UN/CEFACT's experience has proven that the best way to develop a specification that meets all its process goals is to start with a very small editing group and have them write a first working draft in close consultation with industry experts who have a deep understanding of the business process in question. Consensus is then built using an iterative review process that allows an ever-widening audience to participate. UN/CEFACT's iterative approach allows consensus to be achieved rapidly because reviewers are able to see their comments and suggestions incorporated into successive versions of the document.

1. *Proposing a new specification*

13. A request for a new specification that extends or enhances UN/CEFACT's Technical Specifications can either be filed directly with the appropriate UN/CEFACT Working Group or with the UN/CEFACT secretariat, in which case it will be forwarded, after review, to the appropriate Working Group. Sometimes end-users or industry groups request a new specification. Sometimes one or more industries or expert groups propose one. In any case, UN/CEFACT Working Group's first step is to form an editing group and assign a project editor.

2 / Technical specifications are developed within UN/CEFACT Working Groups

14. UN/CEFACT's goal of **speed** demands that this group be kept as small as possible. Typically, the editing group will comprise of the project editor and two or three associate editors selected from within the UN/CEFACT working group's experts.

2. *Compiling a requirement list*

15. The group begins work by compiling a requirement list. The group will hold discussions with the specification requesters, participating industry experts, software developers, end-users, and implementers. They gather as much information as possible from those with expertise and a material interest in the specification.

16. UN/CEFACT's goal of **technical excellence** demands that contributors must be experts in the business area in question. This allows diverse voices to comment on the details of the specification and ensures that no single organisation can dominate the process. UN/CEFACT's other goal of **compatibility** means that contributors must try to include features, if possible, that are applicable to more than one business and/or industry area.

3. *Writing the first working draft*

17. The editors write the first working draft. To satisfy UN/CEFACT's goal of **openness**, everyone that has made a contribution to this working draft, or a subsequent working draft, must agree to remove any IPR constraints or restrictions that might be associated with their contribution.

18. Since most people are usually much better at reviewing and criticising a specification than they are at compiling a requirements list and writing a first working draft, the editors work to produce a document that is suitable for review and comment. They are not expected to produce a nearly final, polished version.

4. *Refining the first working draft*

19. UN/CEFACT's iterative improvement process begins when the first working draft is distributed to members of the responsible UN/CEFACT Working Group, technical implementers and other interested industry experts for their review and comment. This initial review serves to identify potential problems, point out areas for improvement, and build consensus among the Technical implementers (who are likely to be implementing the final specification). The editors collect the comments, revise the working draft, and re-circulate it until the reviewers are satisfied with the content. Experience has shown that 2 or 3 revisions are usually enough to arrive at a stable second working draft.

20. **Speed** dictates that the initial review period is limited to a month or two at most. The goal is to get the first working draft into a form suitable for public review as quickly as possible. The technical implementers help UN/CEFACT to meet the goal of **compatibility** early in UN/CEFACT's development process. The implementers have a wealth of experience in implementing the Technical Specifications for different business areas and industries. They are invaluable in identifying potential problems.

5. *Public review*

21. UN/CEFACT's secretariat publishes the second working draft at their web site and allows the public to review and comment on the specification. In keeping with the goal of **world-wide participation**, UN/CEFACT allows anyone with access to the Internet to comment on the proposed specification. The public review period lasts for at least a month (or longer if there are many comments).

22. The public review period is a critical part of the development process. Comments from the public have frequently raised fundamental process and technical issues - missed by the expert reviewers - that have considerably improved the specifications.

23. As the editing group collects the comments, criticisms, and suggestions from the public, they use them to further refine and improve the specification. As changes are made, the updated document will be republished at the web site. In UN/CEFACT's open process, everyone can see the changes, and the broad participation helps to build international consensus. Again, experience has shown that 2 or 3 iterations over a month or two are enough to address the public comments and to build consensus for the final version of the specification.

6. *Implementation verification*

24. After the public review period, the UN/CEFACT Working Group makes the final working draft available for download at UN/CEFACT's web site to allow verification through implementation. Implementers (especially those that contributed to the working draft) are encouraged to verify the validity of the technical specification by implementing them.
25. The verification review period is the most critical part of the development process. Problems and issues identified will result in considerable improvement in order to move the working draft towards a UN/CEFACT Technical Specification.
26. As the editing group collects the problems and issues identified from the implementers, they use them to further refine and improve the specification. As changes are made, the updated document will be forwarded to the implementers, as well as being re-published at the web site. In UN/CEFACT's open process, everyone can see the changes, and the broad participation helps to build international consensus. Again, experience has shown that 2 or 3 iterations over a month or two are enough to address the public comments and to build consensus for the final version of the specification.

7. *Final Technical Specification release*

27. After the successful verification by at least two independent implementations, and conformation from the editing group, the UN/CEFACT Working Group releases the work as a UN/CEFACT Technical Specification available for download at UN/CEFACT's web site. Given the diverse group from around the world that contributed to refining the working draft, it should receive broad industry endorsement upon final release and be quickly implemented. UN/CEFACT's goal of **openness** ensures that the final specification contains no barriers to implementation: anyone with Internet access can freely download a copy of the specification and produce an implementation without paying any additional licensing fees or royalties.
28. The specifications are published as part of the "UN/CEFACT *Technical Specification Series*". These printed versions, translated into various languages, will be available world-wide at moderate cost from the UN/CEFACT secretariat and/or International Industry User Groups.

When the final specification is released, the editing group has completed its work and disbands.

Steps 1-7 typically consume 9-15 months total, which meets the industry's need for **speed**.

8. *Maintenance*

29. As the specification is implemented in various industry and business sectors UN/CEFACT's Working Groups begin to receive feedback that points out problems or suggests improvements. Maintenance of the specification is handled by forming an editing group (where deemed necessary by the Working Group) and restarting the process at step 2 with the errata and suggestions forming the core of the new requirements list. UN/CEFACT's Working Groups will maintain a list of problems, errors and misprints at their web site so that the public can access them as easily as the Technical Specifications.

HOW TO REVIEW TECHNICAL SPECIFICATIONS

30. All working draft and final specifications as well as E-mail addresses for comments will be available at the URL:

<http://www.cefact.org>
