Implementation of Office Open XML (OOXML): What Governments Need to Know

Governments around the world increasingly recognize the importance of open ICT standards to encourage choice and interoperability, lower costs and spur innovation. That an open format should be used for government documents has now become commonly-accepted wisdom in the public sector, and made open standards-based solutions an essential feature of eGovernment strategies.

While this trend has resulted in the Open Document Format (ODF) becoming widely recognized and increasingly accepted by public sector authorities[1], there continues to be confusion and challenges with implementation of purported alternatives, such as Microsoft's Office Open XML (OOXML). In order to help inform public officials on this topic, this paper explains the current status of OOXML implementation, including the history that led to the standards development and standardization, and ultimately multiple different OOXML formats today.

OOXML Confusion Derives from Creation through the ISO/IEC Approval Process to Today's Multiple Versions

Understanding the constraints that led to the development of OOXML helps explain some of today's confusion around the format.

First it is important to understand that when it comes to standards, success is measured by the problems a standard solves and the opportunities it provides for innovation. Most commonly, the need for interoperability, choice and flexibility is cited as the impetus behind open ICT standards creation and adoption.

In contrast, OOXML arose as a reaction by Microsoft to fill a "standards-gap" identified in mid-2005 when governments were starting to demand open standards, when the EU was calling for great disclosure of document formats, and when the risks of vendor lock-in were being acutely felt. Without support for an open standard document format in its Office software, government usage of Microsoft Office around the world would be threatened, especially as procurement preferences for open standards were beginning to emerge. The OOXML scope statement describes this conflict, balancing the objectives to "faithfully represent the preexisting corpus of word-processing documents, spreadsheets and presentations that had been produced by the Microsoft Office applications" from Office '97, and to "facilitate extensibility and interoperability..."[2]

1 "The State of ODF & Outlook for 2010", ODF Alliance,
2 ISO/IEC 29500 "Office Open XML File Formats", Part 1, Section 1 "Scope"

Given the rushed circumstances and the backwards approach of retrofitting an existing proprietary standard, OOXML was created without sufficient effort to build industry consensus, to work with competitors to hash out a mutually acceptable industry standard.

In its initial ballot in ISO, OOXML failed to receive sufficient votes of support[3]. Many of the comments referred to ways in which OOXML was tied to the Windows operating system. It was only after Microsoft made a number of changes to the standard that ISO deemed it acceptable. The foremost of these concessions was the introduction of "Strict" and "Transitional" conformance classes.

Essentially, in order to gain approval as an International Standard by ISO, Microsoft agreed to move the parts of OOXML that were Windows-dependent and could only be successfully implemented by Microsoft into a "Transitional" part of the standard, to be used only for translating legacy Microsoft Office documents. This "Transitional" portion was explicitly not to be used for creating new documents.

The "Strict" conformance class added dozens of improvements to satisfy ISO members. Based on the improvements made by adding this "Strict" conformance class, OOXML was approved in its second ballot. The final result was that the OOXML specification was approved as an ISO/IEC standard (ISO/IEC 29500) in March 2008 in two flavors: "Strict" and "Transitional."

Microsoft's Brian Jones, Project Manager for Office, explained the significance of "Strict" and "Transitional" as:

> The conformance classes... used in conjunction with the new multi-part structure of the standard means that users and procurement policies can now ask explicitly that applications should save for example documents with a conformance class "strict" or as another example, archiving libraries can procure software that support both strict and transitional classes[4].

Conversely, the impetus behind the creation of ODF was simply to ensure interoperability among office applications and provide users with a choice in software applications:

> This standard specifies the characteristics of an XML-based application-independent and platform-independent digital document file format, as well as the characteristics of software applications which read, write and process such documents.[5]

Accordingly, the results have shown the value of open standards as today all major personal productivity applications implement ODF.

3 "ISO Rejects Microsoft's OOXML as Standard", PC World, September 4th, 2007
4 "Narrative of the ISO/IEC DIS-29500 BRM Meeting", Brian Jones, 16 March 2008
5 OASIS ODF 1.2, CD 05, Section 1.1 "Scope"

The Current Status of OOXML Implementation: Confusion of Multiple Versions

In the several years since approval of OOXML by ISO, the format remains fragmented into several different versions, none of which closely match what Microsoft writes out in their Office products. Following is an overview of these versions:

- The Ecma 376 version of OOXML, the version that ISO rejected. This somewhat matches what Office 2007 writes out, but lacks definitions for scripts, macros, DRM, connections to SharePoint, etc. This version also contains many Windows-platform dependencies. The use of Ecma-376 essentially ties the adopter to Microsoft Office.
- The ISO/IEC 29500 "Strict" version. This is the version that ISO said should be used for new documents. But neither Office 2007 nor Office 2010 are capable of writing OOXML "Strict." Microsoft has made no public commitment on when they will fully implement OOXML "Strict."
- The ISO/IEC 29500 "Transitional," the version that ISO stated should not be used for new documents. Neither Microsoft Office 2007 nor Office 2010 implement this version precisely. Further, Office 2010 writes out a non-standard form of OOXML "Transitional" which includes many proprietary extensions. These extensions have not been contributed back to ISO for standardization.

The fact that Microsoft is not implementing "Strict" while privately extending "Transitional" means that the improvements required to make OOXML acceptable to ISO are now being ignored. This divergence between the ISO standard and the Microsoft implementation has lead the Convenor of the OOXML Ballot Resolution Meeting to declare recently that, "[T]he entire OOXML project is now surely heading for failure".[6]

What Does This Mean for Governments?

While not all adopters of open standards are the same, generally they are looking to avoid vendor lock-in, lower costs, increase interoperability, increase citizen access to public documents, and ensure long-term preservation of these records. Some, but not all, also have an explicit goal to encourage competition or even to encourage usage of open source software.

Regardless of whether a government's objectives are the former or the latter, until and unless the ISO-approved "Strict" version of OOXML—ISO/IEC 29500—is fully implemented by Microsoft and other vendors, governments that rely on any version of OOXML can only expect to be locked-into a proprietary solution that will not meet their basic goals and needs.

6 Alex Brown, "Microsoft Fails the Standards Test" (2010)