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European Committee of Central Balance Sheet Data Offices

Assessment of Alternative Software Solutions for the ECCBSO XBRL Project Phase II

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I. Introduction

In this documentation we document our observations and experiences of XBRL-enabling the Reduced Format spreadsheet and using it to collect data for analysis in the 2006 Phase II: Real Cases Project[1].

The Phase II Project was a data collection project, designed to test the creation of a reliable environment for development of 100+ Real Case XBRL instances containing using the excel-based Reduced Format as a data collection mechanism.

There are two key areas summarised:

- Assessment of Alternative Data Solutions
- Data Collection and Instance Creation Issues

The experiences recorded herein are based on our observations of using technology and software available at the time of project. That is, between January and September 2006. They are the views of the IASC Foundation XBRL Team, and not those of the ECCBSO III WG

II. Assessment of Alternative Data Collection Solutions

There are a number of discrete steps to enabling the Reduced Format in XBRL to capture data for analysis. This section examines the process adopted.

This document describes the main alternative solutions for the XBRL data gathering process for Phase II of the ECCBSO XBRL Project. We assess four general solutions:

- Instance creators
- MS Excel–based solutions
- PDF–based solutions
- Web-based solutions

This section consists of five parts:

- Background describing the General Purpose of the XBRL data gathering issue and conclusions of Phase I of the ECCBSO XBRL Project
- Base requirements presenting users requirements (including the “level of control” issue)
- Assessment of alternative solutions, presenting pros and cons of each
- Comparison of tools’ functionalities
- Recommendation of the IASC Foundation XBRL Team

A. General Purpose

The 3rd Working Group of the ECCBSO together with the IASC Foundation XBRL Team finalised in October 2005 the Phase I ECCBSO XBRL Project. The objectives of that project were:

- To create structured accounting data formats to record IFRS financial statements in order to make European comparisons of such data easier [ECCBSO objective]
- To assess the viability for companies to tag their financial information using XBRL [IASCF objective]
- To identify potential benefits in using IFRS-based XBRL tagged data for statistical and other kind of analysis by CBSOs [ECCBSO and IASCF joint objective]

[1] The Phase I: Proof of Concept Project was presented to the ECCBSO at the Torino Meeting, 2005

After recognising the value of XBRL for financial reporting the 3rd Working Group considered alternatives to solutions used during the 1st Phase of the project which could improve the process of XBRL data gathering. The following section summarises different approaches and solutions to the XBRL data collection issue. We present various possible solutions from the ECCBSO point of view, taking into account the user abilities to implement and use XBRL solutions.

B. Phase I Conclusions

In Phase I of the project the ECCBSO opted to use the XBRL-enabled Microsoft Excel spreadsheet for the data gathering process. This spreadsheet was enhanced with Rivet DragonTag XBRL software functionality which allowed for the XBRL instance document creation from the completed .xls file.

This approach provided users with a MS Excel spreadsheet and therefore hid the "XBRL side" from them. It was criticised as not presenting an efficient enough XBRL creation mechanism for the purpose of the Phase II project 100+ instance collection exercise.

The following describes the most important issues concerning the DragonTag solution:

- During Phase I the software was in Beta version – numerous temporary solutions and workarounds were required to be developed to complete the project. Not all of these have been implemented in the final 2006 version.
- There was a Requirement to remap the spreadsheet every time the taxonomy changed
- The solution was partly missing mapping features, in particular - contextual mapping
- There were important Tuple set issues

For a full the summary of the technology-related issues see:
http://213.52.229.67/eccbso/docs/Description_of_technology_issues.pdf

C. Base requirements

(i) User requirements

The Phase I Proof of Concept Project's most important assumption was that user companies should not necessarily have XBRL knowledge to be able to complete an Excel spreadsheet, with the purpose of building XBRL instance document out of it. Therefore it was agreed that the solution used for Phase II should be simplified and should not require any prerequisite levels of XBRL knowledge.

On the other hand the users should be able to view as many prevalidation results (or potential data input errors) as soon as possible in order to submit the best possible instance documents.

The solution used for the Phase II of the project should also be one users are familiar with.

(ii) 3rd Working Group ECCBSO requirements

The 3rd Working Group of the ECCBSO agreed that the potential solution should provide validation functionality at both user and ECCBSO level in order to assure high data quality and to reduce the number of input errors.

The solution should not allow users to reorganise or change the Reduced Format excel, or underlying XBRL Taxonomy. They must not be permitted to submit extended data.

(iii) The "level of control" issue

One of the issues appearing as a consequence of the above requirements is the level of "control" over the solution provided in order to create XBRL instance document that the user should have.

It was agreed that the user should not have control over the view or structure of the data provided. Moreover the data provided should be strictly defined and therefore the solution should also correspondingly define the way users input the data.

This sub-section presents the IASC Foundation XBRL Team point of view about the different "levels of control" that various solutions allow.[2]

D. Solution types

The following presents an overview of possible technical solutions to the XBRL data gathering issue.

In order to provide a transparent and comprehensive overview of alternatives the IASC Foundation XBRL Team grouped available solutions, assessing the advantages and disadvantages of each group.

(i) Instance creators

Description:

Stand-alone software solutions like Instance Creators from Fujitsu and UBMatrix can be used without other applications. Usually these tools are modular and extensible, moreover prepared for changes and add-ons. Providing functionalities like multiple language support, user defined validation levels, ability to assign roles and rights to Administrators, Analysts and Submitters while working with the application, these solutions are contain enhanced features and are designed for larger Taxonomies and XBRL Instances. Users are supported by built-in help menus and tool tips, errors during the process are instantly indicated by a tracking console. As these tools are vey complex, fundamental knowledge of the software and underlying technology is necessary.
After creating an instance, it can be send via internet for data collection or merely posted on the web.

Advantages:

- Maximum user discretion in building instances
- All layer-based mistakes are instantly discovered
- Dimensions support
- Instance creation independent from internet connection

Disadvantages:

- Too complex for naive users and too much discretion allowed for advanced users, leading to a high risk of making mistakes
- Low control for ECCBSO as every element is created individually by the user
- High risk of corruption of input documents
- Good comprehension of XBRL language needed
- Expensive client-software needed

Conclusion:

Instance creators are sophisticated tools, dedicated to advanced developers, giving the best flexibility in terms of XBRL Instance Documents creation. They offer the advantage of wide functionality allowing custom forms and reports creation, but risk corrupting the input data which implies very low control over the quality of data provided for the ECCBSO.

[2] Note: The opinion about the "level of control" should be regarded as IASC Foundation XBRL Team opinion only and does not represent the view of any other party.

(ii) MS Excel – based solutions

Description:

MS Excel–based solutions allow for an XBRL Instance Document creation by using Excel add-ons which help users map and tag Excel templates (tables, reports etc.) to a particular taxonomy. Users have to download the Excel template from the server and then simply populate it with financial data. The template can be pre-mapped or the user might be asked to map the appropriate cells to the taxonomy concepts. Mappings are validated by the XBRL add-ons both before XBRL Instance Documents can be created.

Advantages:

- Easy to use solution based on the well known Microsoft products
- Validation process takes place on client-side (if they are knowledgeable with the tool)

Disadvantages:

- MS Office tools required
- Low control for ECCBSO on the client side as there is a high risk of corruption of data during edition in MS Excel
- No support for dimensioning
- This group of tools still doesn't have a stable representative product – a lot of issues and bugs appear in software packages available on the market

Conclusion:

Excel-based solutions are user-friendly tools, easy for non-technical users. They provide validation of mappings and, sometimes, of XBRL Instance Documents but give low level of control to the 3rd Working Group in terms of the quality of document preparation, unless the user is knowledgeable enough to perform their own XBRL validation. That is, the quality of data depends significantly on user's contribution and experience. Additionally a significant work is involved in creation of an appropriate template. According to previous experience (Phase I) and the relative product immaturity this group of solutions is not the solution preferred by the IASC Foundation XBRL team as they place the burden of instance creation on the user.

(iii) PDF – based solutions

Description:

An interactive PDF form is a solution which combines the power of Adobe PDF format with XBRL standard functionality. It provides fields for financial data input and can be either send to all users or can be downloaded from a website. As there are possibilities to determine data types for fields, the first validation or verification could be processed on the fly. PDF allows tool-tips and other help functions to assist users during the input process. As there is no opportunity to change anything except of values inside the fields, data input errors are reduced to a minimum. After validation, data input into PDF can be saved as XBRL instance document or PDF files.

Advantages:

- Very easy solution for users, only Adobe Reader (freeware) is required
- Client-based validation minimises server-activity
- Style of PDF sheet is very flexible
- Maximum control for ECCBSO as there is no possibility to change anything outside the designated input fields

Disadvantages:

- Building the PDF sheet requires significant effort, on the other hand it could then be adopted if the taxonomy changes
- PDF is suitable for small taxonomies – it might be difficult to handle large taxonomies or tables with it
- No dimensions support
- Issues with tuple support

Conclusion:

Interactive PDF as a solution combines user-friendliness with high level of control and validation of user input. PDF modelling possibilities allow for custom forms and reports creation. In addition, no constant connection to a server is needed. As there is no possibility to change anything except of values inside designated fields, it is difficult to corrupt the given PDF-sheet and therefore maximum control for data collection is provided.

(iv) Web-based solution

Description:

A web-based application provides HTML-forms for entering designated financial data. The user should be able to open the web-application with an internet browser. Tips and support for entering the data can be provided online on-the-fly. The HTML interactive forms can be designed in custom ways allowing for a significant flexibility in terms of web-based XBRL Instance Document creation.

Potential technologies may include ASP, PHP, JSP or other languages suitable for interactive websites with XML / XBRL support. Validation of the XBRL instance documents is done on the server side upon submission of the form.

Advantages:

- No client-software required, apart form a web-browser
- All control on form provider's side
- Validation can take place on the fly on the server side
- Greater security of the form – difficult for user to change or to corrupt it
- Server-sided changes on collection forms take place immediately

Disadvantages:

- Server has to be available 24/7 and efficient enough to process XBRL documents
- Very dependant on internet connection, loosing the connection could mean losing the data (if there is no possibility that allows saving before finishing the data-input process)
- A secure connection has to be guaranteed
- Solution has to be created from scratch, implementing one of the available XBRL processors

Conclusion:

The web-based solution is probably the easiest one for users, as there are no further tools needed except for an internet browser and internet connection. Validation of the data can take place contemporaneously with the input process.

It should be noted that this solution requires substantial development effort in terms of interface and back-end server architecture.

Important issues here are also network security and stable internet connections.

D. Tools' details

In order to provide a better overview of available solutions the Team prepared the following summary table.

Name	Fujitsu Instance Creator	UBmatrix Instance Creator	Rivet Dragon Tag	Corefiling EarningsDirect	UBmatrix Report Buillder	Corefiling ReportDirect	Web-based solution
Solution type	**Stand-alone**	**Stand-alone**	**Excel-based**	**Excel-based**	**Excel-based**	**PDF-based**	**Web-based**
Entries							
Excel as entry			x	x	x		
PDF as entry						x	
Word as entry			x				
Stand-alone program as entry	x	x					
Online entry							x
HTML entry							x
Other types							
Validation process							
Validation client-sided	x	x	x	x	x	x	
Validation server-sided							x
Other types							
Database support							
DB import	x (Limited CSV)	x	x (Excel)	x (Excel)	x (Excel)		x
DB export	x (Limited CSV)	x					
Output formats							
PDF				x		x	
Excel	x (Partly manual)	x	x	x		x	
Word							
HTML	x	x	x				x
XBRL instance document	x	x	x	x	x	x	x
Other types							Flexible
Licence/ Versions							
Freeware	x (Limited)						x
Evaluation	x		x		x		
Programmable source version (API) available							x
Technical Features							
Dimension Support	x	x			?		Customisable
Formular Support		x		x	x	x	x
Versioning Support		?					?
IASC Foundation Team Opinion							
Ability to Control User Input	Medium control	Medium control	Low control	Low control	High	Maximum control	High control
Requirement for User Contribution	Medium	Medium	Substantial	Substantial	Medium	Very low	Low
Requirement for Developer Contribution	Substantial	Substantial	Very High	Very High	Substantial	Very High	Very High

E. Recommendation

After analysing the possible solutions, the IASC Foundation XBRL Team recommends the use of a custom built web form for the data collection process, providing maximum control of the process to the data collectors and making the XBRL invisible to the user. Due to the resource commitment required to bud such a system, this method was not followed in the project, but will be entertained for Phase III.

As its second choice a PDF-based solution as the most desirable and practical for the ECCBSO Phase II Project.

It can be easily filled by users without having any XBRL knowledge (opposite to Instance Creators which need at least little, if not advanced, XBRL language understanding). Because of it's closed structure, PDF forms are resistant to corruption which gives the template provider substantial control over the content of the file and might increase the quality of data input. This refers as well to the validation process, which is provided within the PDF file.

PDF-based solution is suitable for creating small XBRL documents. As it is dedicated for non-technical, non-XBRL financial and accountant professionals, it should not be used to create more complicated documents, i.e. with multi-dimension structures, where there is a need for more sophisticated tools (Instance Creators) and which might require higher level of understanding of XBRL. Unfortunately this technology is not yet able to work with a document as sophisticated in nature as the Reduced Format (element count and tuple structures, for example).

The Fujitsu excel plug-in provided the final solution for this project, and although a beta product, it provided an excellent excel solution which enabled the excel file to be separated form the mapping file, meaning that taxonomy changes did not require complete remappings.