Basics of XBRL Instance for Financial Reporting

Mihaela Enachi
Faculty of Economic Sciences, “Vasile Alecsandri” University, Bacău, Romania
PhD Student at Faculty of Economics and Business Administration, “Al. I. Cuza” University, Iaşi, Romania
enachi_mihaela@yahoo.com

Aristiţa Rotilă
Faculty of Economic Sciences, “Vasile Alecsandri” University, Bacău, Romania
rotilal1@yahoo.com

Abstract
The development of XBRL (eXtensible Business Reporting Language) for financial reporting has significantly changed the way which financial statements are presented to different users and implicitly the quantity and quality of information provided through such a modern format. Following a standard structure, but adaptable to the regulations from different countries or regions of the world, we can communicate and process financial accounting information more efficient and effective. This paper tries to clarify the manner of preparation and presentation of the financial statements if using XBRL as reporting tool.

Keywords: XML, XBRL, financial reporting, specification, taxonomy, instance

1. Introduction
The progresses known by the financial reporting practice are highlighted by the transition from the verbal exchange of information or the use of means such as stone, clay tablets, papyrus, parchment, eventually paper, to the use of electronic means in data processing, which gave rise to reports in Word, Excel, PDF (Portable Document format), HTML (HyperText Markup Language) format, various programs partially or integrally dedicated to financial reporting or EDI (Electronic Data Interchange) applications with such a role and, finally, the standard XBRL (eXtensible Business Reporting Language), the newest business reporting solution currently exists. These are the result of changes in the environment in which information is produced and used.

XBRL is a language based on XML, designed for efficient and effective storing, handling and transmission of business information via the Internet.

The initiator of XBRL language is Charles Hoffman, a certified public accountant from Washington, who, in April 1998, investigated how XML (eXtensible Markup Language) can be used for the electronic reporting of financial information, being inspired by the information on the benefits of this language when adapting to different fields.

If, at the beginning, it was intended to improve the financial information reporting process and, therefore, people spoke about XFRML (eXtensible Financial Reporting Markup Language), later, observing that the language adapts to various aspects of the business reporting, its name was change into XBRL.

XBRL functioned, initially, under AICPA (American Institute of Certified Public Accountants), from July 1999, and then, from August 1999, as a separate authority, being involved twelve organizations, along with this well known American organization of the
accounting profession, as founding members. Today, the development of XBRL is the concern of a non-profit international consortium of approximately 650 organizations, XBRL International, whose members meet regularly at international conferences on this modern language or other events, having the role to help improving the language, promoting and supporting its adoption by various entities.

The XBRL standard is based on the XML syntax and the technologies associated to this language, such as XML Schema (which describe the XML schemas content by specifying the types of elements, attributes etc. that may arise within them), XLink (having as main role the creation of links within and between XML documents), XPath (used in querying XML documents or calculating of some values), XPointer (which allows the localization of some specific parts of XML documents), XML Namespaces (used for avoiding the confusions in the case of identical terms, but with different meanings) to express meanings.

As standard, XBRL includes a set of specification called modules [see 5, pp. 57-58]: XBRL Dimensions Specification (which allows the XBRL taxonomy authors to define and restrict the dimensional information that the XBRL instance authors may use); XBRL Formula Specification (which is a set of specifications that allow the XBRL taxonomies creators to express business rules within a taxonomy; these specifications also allow the XBRL instances designers and users to validate the information in XBRL instances against those business rules; moreover, the formula allows XBRL users to programmatically generate XBRL instances based on a set of business rules); Inline XBRL (Rendering) Specification (which provide standard mechanisms for rendering information contained in the XBRL instances so that human can use that information); XBRL Versioning Specification (which communicate the changes made to the XBRL taxonomies, such as those carried over the concepts, resources and relations contained in an XBRL taxonomy); Generic Linkbase Specification (which allows anyone to create new types of XBRL taxonomy resource or relation networks, which are stored in the form of a linkbase; XBRL International also uses this specification to define new XBRL modules). Important to mention is that “the corner stone” in XBRL construction is represented today by XBRL 2.1 Specification and the above modules do not work with other older versions of XBRL.

2. The XBRL taxonomies and instances

The framework for the business reporting based on XBRL standard includes two components: the XBRL taxonomies and the XBRL instances. The XBRL taxonomies are dictionaries that the language uses. They express meanings through three components: concepts, relations and resources.

The concepts are found in an XBRL Schema, file with the .xsd extension, which stores information on names and identifiers of the concepts, as well as many other features that describe them. The relations and resources consist of XML files, with .xml extension, containing the links between different elements (together, they are known under the name of linkbases). The relation files reflect the links between concepts, and there are three such files: presentation, which indicates the hierarchy and the order of concepts presentation; calculation, which indicates the manner one concept participates in a total; definition, which indicates a series of other links between concepts defined by those who develop taxonomies (there are four standard types of such links: general-special, which reflects links between concepts having the same meaning, one of these being used on wide-scale and the other being specific, for example, to a certain area; essence-alias, which indicates that two concepts, with different names, have the same meaning and can be used interchangeably; similar-tuple, which resembles the essence-alias relation, the
difference being that it applies explicitly to tuples; \textit{requires-element}, used to force the instance creators to enter the value of a concept if the value of another concept is provided. The \textit{resource} files are also three: \textit{label}, which shows the links between concepts and their legible expressions in a certain language; \textit{reference}, which shows the links between concepts and different regulations or paragraphs of them; \textit{formula}, which indicates different rules that apply in specific situations.

XBRL was designed to allow modular representation of financial information. At the lowest level, the financial information is divided into the smallest possible elements, stored in a warehouse. Any XBRL taxonomy can aggregate the elements of information thus creating financial statements consistent with any global accounting standard [15, p. 29].

The XBRL Instances are presented like files with .xml or .xbrl extension and can contain the following types of elements: context, unit, fact and footnote.

The \textit{context} element defines the organization which the facts contained in the document refer to and eventually its business segment, the period taken into consideration when presenting the facts or the moment of presenting the facts in a certain way, as well as other relevant contextual elements, such as, for example, historical or forecast nature of information, the audited or unaudited nature of information. The \textit{unit} element defines the physical or value measure used by various facts in the instance. The \textit{facts} concerning the business environment are two types: \textit{item}, designed to correspond to one concept from the business world; \textit{tuple}, which groups together several concepts, like, for example, different information about the amortization policy for some equipments (the amortization period, the method used etc.). The footnotes, expressed by \textit{footnote} element, act as comments.

The elaboration of business reports based on XBRL implies linking the facts to be presented to one or more taxonomies. Together, more taxonomies form what we call \textit{Discoverable Taxonomies Set (DTS)}. A DTS may comprise any number of XBRL schemas and linkbase files.

3. The presentation of an XBRL instance for financial reporting

The financial statements in XBRL format or the XBRL instances for financial reporting, representing XML files, must comply, in addition to other specific requirements of XML language, with those concerning their correct writing.

Thus, an XBRL instance is well-formed when: starts with a prologue; has a root element that incorporates all other parts of the document; the pairs of annotations are properly formed and used in the document; the empty annotations are using the special syntax designed for them; the analyzed entities that are directly or indirectly referenced in the document are well built; all the entities meet the naming rules and several other requirements of XML 1.0 specification (the version to which XBRL specification 2.1 makes reference).

To easier understand the content of an XBRL document, we mention the fact that the logical structure of an XML document may or must include: elements (the root element being mandatory) that can contain other elements or character data, obtained by bounding some names by opening and ending tags (\texttt{<name>} and \texttt{</name>}), between witch their content will be found, or empty elements, which means without content (\texttt{<name/>}); attributes (\texttt{attributName="attributValue"}) for different elements; comments (\texttt{<!-\-- comment --\-->}), that can occur anywhere outside tags; CDATA sections (\texttt{<![CDATA[Char"-(Char')]>Char'))], containing character data that won’t be analyzed by XML processors, sections which can be placed anywhere the character data may occur; references to characters or entities (the reference
to characters is made by &amp; or &amp;#x and ; which incorporate a sequence of characters, and the reference to entities is made by & and ; which incorporate a sequence of characters; a prolog declaration (mandatory), that appears at the beginning of the XML document and should contain an XML declaration (indicating that we are dealing with an XML document, being mandatory mentioned the XML version used in editing the file), in its composition being also allowed XML comments, processing instructions, blanks, DOCTYPE declarations (defining restrictions on the structure of an XML document). Text areas inside the tags are annotations and those outside the tags are character data.

Being already known a series of information on the content of XML documents, we can more easily understand the content of financial reports in XBRL format.

The example 1.1 presents a balance sheet in XBRL format that we assumed is based on a taxonomy developed according to Romanian accounting regulations in compliance with European directives.

```xml
<?xml version="1.0" encoding="us-ascii" standalone="no"?>
<!-- Document XBRL avand la baza Specificatia XBRL 2.1 -->
<xbrl xmlns="http://www.xbrl.org/2003/instance"
xmllns:link="http://www.xbrl.org/2003/linkbase"
xmllns:xlink="http://www.w3.org/1999/xlink"
xmllns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmllns:iso4217="http://www.xbrl.org/2003/iso4217"
xmllns:roinsfi="http://www.xbrl.org/ro/taxonomy/2010-12-31/rcrcde/roinsfi-cor_2010-12-31"
xmllns:roinsfi_full="http://www.xbrl.org/ro/taxonomy/2010-12-31/rcrcde/roinsfi-full_2010-12-31"/>
<!-- rcrcde reprezinta o prescurtare pentru reglementarile contabile romanesti conforme cu directivele europene, iar roinsfi reprezinta o abreviere pentru situatiile financiare individuale ale intreprinderilor romanesti -->
<link:schemaRef xlink:type="simple"
xlink:href="http://www.xbrl.org/ro/taxonomy/2010-12-31/rcrcde/roinsfi-full_2010-12-31"/>
<context id="SituatieLa_31Dec2010">
  <entity>
    <identifier scheme="http://www.mfinante.ro/agenticod.html">995549</identifier>
  </entity>
  <period>
    <instant>2010-12-31</instant>
  </period>
</context>
[unit id="RON">
  <measure>iso4217:RON</measure>
</unit>
<roinsfi:ActiveImobilizateTotal contextRef="SituatieLa_31Dec2010" unitRef="RON" decimals="INF">14574000</roinsfi:ActiveImobilizateTotal>
<roinsfi:DatoriiCareTrebuiePlatiteInMaiPutinDeUnAn contextRef="SituatieLa_31Dec2010" unitRef="RON" decimals="INF">335000</roinsfi:DatoriiCareTrebuiePlatiteInMaiPutinDeUnAn>
<roinsfi:CapitalSubsrisVarsat contextRef="SituatieLa_31Dec2010" unitRef="RON" decimals="INF">32585000</roinsfi:CapitalSubsrisVarsat>
..............................
<link:loc xlink:type="locator" xlink:href="#ActiveImobilizateTotal"
Example 1.1 Balance sheet in XBRL format

The XBRL software allows viewing this instance in an easily human-readable form, translating labels for different concepts in other languages if taxonomy developers have created such labels, or even transposing the instance from the format requested by Romanian regulations to other formats required by foreign regulations if there were previously created mappings of the Romanian taxonomy to the taxonomies from other countries.

Our example of XBRL instance contains a prologue with an XML declaration, on the first row, and an XML comment, on the second row, followed by the root of the document, \textit{xbrl}, which incorporates all other parts of the document. Another comment was introduced in the content of the instance in order to clarify some abbreviations used in naming namespaces.

In the open tag, \texttt{<xbrl>}, it specifies the definitions of namespaces which enable the distinction between the XML attributes or elements with the same name but different meanings. Conventions on the prefixes of namespaces used in the XBRL instances are: \texttt{xbrli} for http://www.xbrl.org/2003/instance, \texttt{link} for http://www.xbrl.org/2003/linkbase, \texttt{xlink} for http://www.w3.org/1999/xlink, \texttt{xsi} for http://www.w3.org/2001/XMLSchema-instance. Other prefixes can refer to the standard on the reporting currency, the accounting regulations which apply, the organization that presents its financial statements etc.

Immediately after the \texttt{<xbrl>} tag, it specifies at least one \texttt{schemaRef} element, which indicates what XBRL schema the instance refers to. Optionally, can be specified \texttt{linkbaseRef} elements, which show the linkbases which XBRL instance refers to, but, as a rule, the reference to these is indirectly made through the XBRL schema. The schemaRef and linkbaseRef elements are, as resulting from the above mentioned, mechanisms involved in combining the components of a DTS.

After this component of the instance it follows the \texttt{context} and \texttt{unit} elements.

Taking into account the fact that information from financial statements may refer to the situation at a time or to changes in the structure of the patrimonial elements in a given period, we can have, in terms of the presentation moment for the facts or the period considered more types of context.

In the example 1.1, the context shows that the instance presents the state of some patrimonial elements at a time, but if the instance refers, let’s say, to the elements from the income statement, then we’ll have two types of context, like in example 1.2, being known the content of this component of the financial statements.
Example 1.2 Defining the context in the income statement

For several years reporting will be created, in a similar way, a number of other contexts. The presentation of the units of measure for the numeric facts is done differently depending on the nature of the elements to which they refer. For example: if we talk about the value of some patrimonial elements expressed in a certain currency we use identifiers according to ISO 4217; if we are dealing with percentages, their unit of measure could be procentItemType; for shares we can have actiuni as unit of measure; for different indicators are mentioned the units of measure for the numerator and denominator.

In the example 1.3 we reflected the manner of defining such units of measure in an instance.

Example 1.3 Defining different units of measure used in the instance

The reported facts are required to present the following attributes: contextRef, which links the information provided by a certain context; unitRef, those with a numeric content, with role in
the identification of the unit of measure. For some of the facts with a numeric content it also specifies the decimal attribute or precision attribute, the first having the role to indicate the number of accurate decimals (when it has a negative value it means, depending on that value (-1, -2, -3 etc.), that all digits to the left of tens, hundreds, thousands etc. are accurate), and the second indicating how many digits going from left to the right are accurate, in the sense that they do not contain rounding or do not result from the omission of the decimals. When the two attributes mentioned above have the INF value, this means that all digits of the number they refer to are accurate.

The facts contained by that balance sheet in XBRL format are reflecting balances of various patrimonial elements at the end of a financial period of twelve months, the values attached to different concepts being expressed, accurately, in RON.

Regarding the footnote introduced, this addresses to the users interested in changes on fixed assets during the financial year 2010, by indicating one of the notes to the financial statements containing such additional information.

4. Possibilities of working with XBRL instances

Referring to the functionality which the XBRL specific software offers related to the XBRL instances, we can particularly mention the following types of operations allowed: creating, editing, processing, viewing, analyzing. Among the providers of such software are included: Altova, CaseWare, CoreFiling, Coyote Reporting, Fujitsu, Invoke, Microsoft, NeoClarus, Rivet Software, Semansys Technologies, UBmatrix.

The transition to financial reporting based on XBRL standard viewed from the perspective of organizations in terms of informatics, taking into consideration the currently most used tools, implies: the mapping of the information in a certain document (Word, Excel etc.) to XBRL and then the using of the document and the mapping to generate XBRL instances; the export of the information from an accounting program or other software application in XBRL format, after the implementation of XBRL in the existing software products; the import of the information in any format in a program dedicated to XBRL, which is intended to generate XBRL instances. Each of these choices usually makes necessary the using of software that enables mappings.

The creation of the financial reports in XBRL format and publication on Internet allow them to be accessed for any type of use by investors, creditors, customers, government and its institutions, employees and their representative groups, public.

A major objective of XBRL is the reduction of information asymmetry resulting from incompatible global reporting formats [14, p. 5]. This can be done by creating mappings of the contents of the taxonomies used by certain jurisdictions to the contents of other taxonomies. To simplify this process and create the possibility of viewing the XBRL instances in the formats of many jurisdictions it is preferable to create mappings of the information contained by the taxonomies from each country to the information contained by a general accepted or widely used taxonomy, such as IFRS Taxonomy. Thus, the XBRL instances would be quickly transposed from one format specific to a country to another of other country, being much easier to realize comparisons in space.

The use of XBRL in financial reporting (eXtensible Business Reporting Language for Financial Reporting - XBRL FR) brings benefits to both producers and users of financial information. Thus, through this new language are supported: the managers, who have the possibility to reduce the costs and increase the speed of the processes of transforming and
reporting financial information and increase their effectiveness, the most of the time available
being devoted to the analysis and interpretation of this information in order to take better
decisions in a shorter time; the accountants of the organization, who simplify and automate their
tasks, being also reduced the possibility of producing errors, thereby increasing the confidence in
the financial information for those involved in supplying or using them; the analysts, who have
the opportunity to work with good structured information accompanied by a good organized
electronic documentation, which supports the analysis and interpretation process; the auditors,
who can automate the processes of collecting, analyzing and interpreting the information in order
to certificate the financial statements; the expert accountants, who have the possibility of
remotely working by automating tasks, with minimal movement to the entities; the state
institutions, which benefit from automatically storing a huge amount of information in their
system without the need of recodification, reducing the costs by automating processes, quickly
identify the potential problems and solve them in real time; the various other persons interested
in the activity of an entity, by allowing a faster and easier access to information more transparent
and friendly in use.

5. Conclusions
XBRL language appeared in the idea of improving the financial reporting for better meet
the needs of internal and external users of information produced by accounting at the end of the
reporting period.

Based on XML, the standard allows, due to the modular representation of financial
accounting information, the multiplication of the benefits that can be obtained from its use. Thus,
the development of taxonomies for the accounting regulations specific to different jurisdictions
allows, through the use of an appropriate software, the generation of modern financial reports,
with role in the acceleration of the decision making process, by providing an optimal amount of
quality information, accessible to users in real time.

6. Acknowledgment
The paper was accomplished with financial support under the project
POSDRU/88/1.5/S/47646, co-financed by the European Social Fund, through the Sectoral

7. References
   București: Editura Academiei Române.
   Napoca: Editura Albastră.
   Jersey: John Wiley & Sons Inc.
   Interactive Data. Germany: Springer.
   Worldwide Inc.


