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International Financial Reporting and Information Technologies – Is XBRL the Panacea?

Summary

The main purpose of the financial reporting is a dissemination of information related to a financial position, performance and cash flows of a business entity. For this process to be effective, all obstacles between the entity (originator of the information) and the user of financial statements (recipient of the information) shall be removed to the greatest extent possible. Within this task, information technologies (computers, networks and dedicated software) might be employed, however, their overall efficiency is strongly dependent on the compatibility of the systems of both sides of information (originator and the recipient). Thus, even in the environment of harmonized accounting, there are certain real issues (e. g. balance sheet might be prepared under the IFRS both in the form respecting the distinction of current and non-current assets and liabilities or it might take the degree of liquidity of balance-sheet items into account in the same time). Thus, eXtensible Business Related Language is a powerful instrument, because it is capable (based on relation between its general taxonomies) to tackle with these issues.

Key words

Financial Reporting, XBRL, eXtensible Business Related Language

From the early ages of modern accounting, going back even to Benedikt Kotruljević[1], the accounting has been considered to be the most effective tool for gathering and presenting information on financial situation and economic results of business entities. Even though the external dissemination of such information was not considered to be on "top agenda" of accounting until quite recently, the post-war economy is deeply enrooted in comprehensive and complex world of finding and inventing the new sources of financing and is more and more exposed to international dimensions – thus increasing the need for such information flows as well. However, there is one major problem: *how to make the exchange of information effective, if there are (presumably) incompatible information systems at the side of transmitter (e.g. the accounting entity) and the receiver (e.g. the investor or regulation authority)?* Thus there are series of obstacles:

a) Information provided by the accounting entity must be pre-processed in order to be readable and understandable by other subjects (users); pre-processing shall include the amendment of the structure, contents and the technical carrier of information; because of the variety users this process might be ineffective (if possible);

b) If information obtained by the user of accounting information was not conversed, is must be post processed by this subject; the objection to this is the same as under a) – there might be too many "objects of interest" in portfolio of each users and the post processing will require at least the essential knowledge of the accounting system, regulations and the procedures of the respective entity.

Introduction of computers into the wide business practice brought some new ideas of how the business communication between two subjects shall be streamlined – but still, it didn't solve the issue of specific accounting environment of respective entities. Even more, very soon there started another compatibility problem – this time related to proprietary features of plenty programs and their output data types. Electronic data from one computer system were transferred to another one indirectly – mostly using the paper form as an intermediator. From mid 60´s however, there were various initiative related to establishing the systems for intercorporate exchange of data but they lack in unification[2]. The turning point starts in 1973, when Transportation Data Coordinating Committee

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[1] Kotruljević (better known by his Italian nom-de-plume „Benedetto Cotruglio") is considered to be the predecessor of Luca Pacioli (author of the first printed book on double-entry accounting). In fact, even Pacioli made some indirect references to Kotruljević´s work „*Della Mercatura et del Mercante perfetto*"which, unfortunately, was printed only more than century after it was written.

[2] However, there were some more successful projects – for example those of the K-Mart's „EPOS" system used in the mid 80´s by more than 500 companies (http://e.d.i.tripod.com/edi_history.htm).

(formed in 1968 by US railroad companies) decided to invent new Electronic Data Interchange standards which will contain more than important feature: they could be upgraded based on the incorporated algorithm (and the algorithm could be itself upgraded itself). In 1985 this task was enhanced under the auspices of United Nations project called EDIFACT (Electronic Data Interchange for Administration, Commerce & Transport). Though it has potential to greatly improve the way of communication **between business partners** - via supplying interchangeable commercial data, e. g. electronic invoices, it fails to recognize another important problem – how to standardize reporting of overall financial results of business entity to various groups authorized users (investors, accounting regulation agencies, other state oversight authorities, banks, and investors).

In the same time (but from other reasons) another initiative on compatible system of transferable information emerged. In 1986, International Organization for Standardization (ISO) approved an international standard for descriptive markup, named SGML (Standard Generalized Markup Language). This markup language has a general idea of dividing the electronic documents into two parts:

- text (together with syntactic markups);
- the overall definition of the markups an rules for their use.

As a result, the text is not only stored independently from markups affecting its style, but it might be structured with respect to its contents.

Even though the SGML was too comprehensive to be used in everyday applications, its concept was used as a starting point for development other (leaner) communication languages – out of which was most predominant XML (eXtensible Markup Language)[3].

For an illustration of XML marked information, there is an example of marked-up information related to a customer:

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<customer>
  <Name> John Smith </Name>
  <Street Address> Schumpeterstrasse 28
  </Street Address>
  <City> Linz </City>
  <Postcode> 4040 </Postcode>
</customer>
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[3] This language was proposed by eleven-member Working Group, with great support of approximately 150 members of the Interest Group. Primary purpose of the XML was to facilitate the share of data across different systems, especially in the internet.

Subsequently, the information is in this example structured in a such way, that may allow the assessment of relation between information on customer and between various customers as well.

XML was a great step towards practical applications but still proves to be too complex (rather than comprehensive) to be widespread without any alternations. For example, there was too much general principles and rules to be cope with, thus increasing the cost of software modules and decreasing the level of human understanding of such results. As a result, based on the XML, another niche-focused subset of markup languages have been developed - among them also XBRL as a tool specifically designed for the purpose of the financial reporting.

XBRL (which stands for eXtensible Business Reporting Language) is a XML-based language used to define and exchange financial reporting information. Generally speaking, it is based on use of specific markups (which are describing the content and the nature of the exchanged information), which are defined in a basic set of so-called **taxonomies**. Because there are describing the elements of information and their mutual interdependence within the reporting framework, the importance of those taxonomies lays in two layers:

- it serves as a *lingua franca* between various XBRL based systems even if they are used in various countries, if those countries are using the common reporting requirements*;
- it allows understanding of such information, which is company specific but is described with the help of other elements and features embedded in a respective taxonomy (those elements and their syntax is thus extensible, hence the name XBRL)

* Note: Theoretically, XBRL may allow transferring financial information between various subjects directly. However, because of different legal requirements, scope of financial statements and their structure, taxonomies have been prepared just for the important financial reporting environments – like those governed by the U.S. Generally Accepted Accounting Principles (US GAAP)
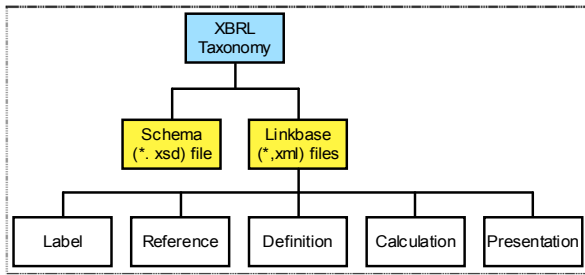
XBRL taxonomy consists from six elements (Figure 1):

Figure 1

The function of respective components of taxonomy might be described in a following way (Figure 2):

| Schema[4]	Linkbase	
Gives the terms used in taxonomy, their data types type of period, etc ([5])	Label**	allows the user to attach different labels within various languages to a given term (e. g. *current assets* in english or *obežné aktíva* in slovak)
	Reference	connects external sources information to a given term (e.g. IAS 1.57 for current assets)
	Definition	allows the user to define additional semantics related to the respective term
	Calculation	defines quantitative dependance among various terms (e. g. sum of all items included in the *current assets*)
	Preentation	prescribes the order and grouping of terms - e. g. presentation of current assets in the group of all assets (if the balance sheet is prepared in horizontal form)

Figure 2

** Note: For example, "Change in Accounting Policy Affecting Total Equity" or "Change in Accounting Policy Affecting Equity Merger Reserves". Because the XBRL contains also references to languages, transmission of information is possible without any need for translation (with the possible exception of currency conversions, which is also an embedded feature of XBRL).

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[4] To make it valid all time, any document shall contain location (Universal Resource Indentifikator, URI), with the address those taxanomy, which relates to the respecitve *concepts* (term). For example: URI= *http://www.x4gfr.org/aicpa/us/gaap_ci/00-03-3* locates the US GAAP taxonomy for commercial and industrial companies.

[5] For example, **dates** are presented using the ISO 8601 date presentation standard (2005 for the full year of 2005; 2005-01/2005-09 for first 9 months of the year; 2005-01-01/2005-09-27 for the total period ending on 27th of September 2005. For **types**, parent.child naming convention is used: *ifrs:NotesToThe financialStatements.AccrualPrinciple* means that there is a parent element (Notes to the Financial Statements), which is specified in a more detailed way (from all possible things related to the Notes, only Accrual Principle is related to the specific information).

XBRL information is distributed in the form of **XBRL instance documents**. These documents are electronic files consisting of financial data together with their corresponding XBRL tags. For example, instance document prepared under the IFRS may be automatically translated into the Slovak or Dutch local system using the both local taxonomies:
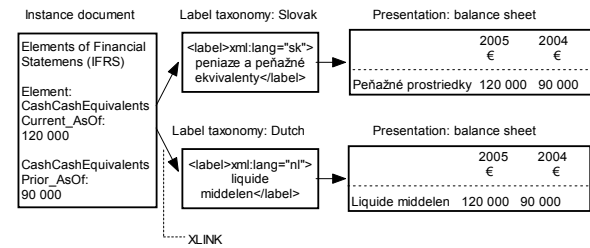
Note: Based on the scheme presented in article "Wat is XML?" by Jacques Urlus (2004), section 4.3.1.J-12.

Figure 3

In order to maintain the taxonomies and the overall XBRL as a living system, it is supported by the XBRL consortium with a open and free policy – there are neither fees nor royalties paid for the use of the XBRL (or its features). As a result, it is supported not only by big software and consultancy companies, but also by the International Accounting Standards Board (in the form of collaboration on the IFRS taxonomy), government of the USA[6] and regulating authorities in the UK[7]. XBRL is thus probably the most supported instrument for electronic exchange of information within the financial reporting framework. Even though there are several parties included in this process (business entities preparing financial reports, consulting companies, vendors of software and final users), the most predominant importance have requirements and information needs of users. Its role is even enhanced by the current process of accounting and financial reporting standardization (represented to a great extent by the recent adoption of the IFRS in the EU and other countries), however, it is not one-time solution for all issues in international financial reporting. As Kannon and

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[6] Both Securities and Exchange Commission (governmental agency) as well as Public Company Accounting Oversight Body are introducing an initiative which will allow to file the required information electronically (via the use of XBRL based data formats). According to the PCAOB *Staff questions and answers material* (published in May 2005), this initiative is now only on a voluntarily basis.

[7] According to XBRL International Progress Report (April 2004), the UK´s integrated financial services regulator (Financial Services Authority – FSA)

Wang point out: *"(XBRL) should only comply with, not change or set new accounting standards".* However, the XBRL framework should facilitate possible changes in financial reporting overt the long term.

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