

What is XBRL?

May 2008

Charles Hoffman, CPA (Charles.Hoffman@UBmatrix.com)

1 What is XBRL, the 50,000 foot Perspective

Let's first take a look at XBRL from altitude, from the 50,000 foot "big picture" perspective.

1.1 Definition

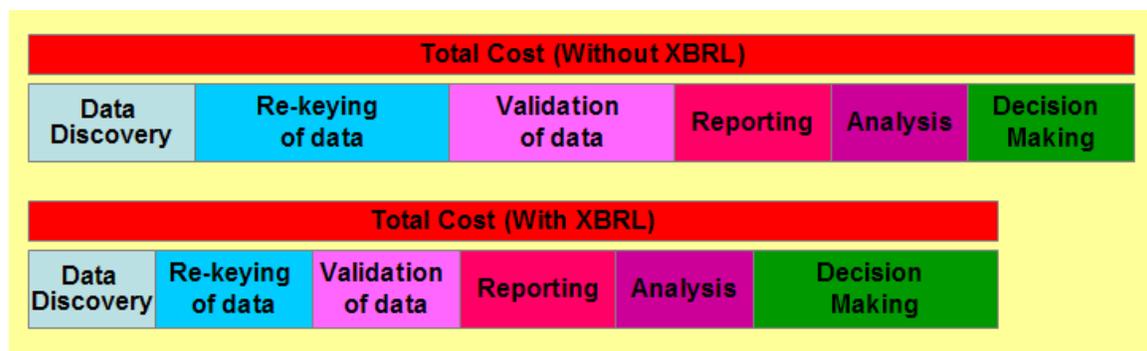
The following is a very good definition of XBRL (from Wikipedia, see <http://en.wikipedia.org/wiki/XBRL>):

XBRL (Extensible Business Reporting Language) is an open standard which supports information modeling and the expression of semantic meaning commonly required in business reporting. XBRL is XML-based. It uses the XML syntax and related XML technologies such as XML Schema, XLink, XPath, Namespaces, etc. to articulate this semantic meaning. One use of XBRL is to define and exchange financial information, such as a financial statement. The XBRL Specification is developed and published by XBRL International, Inc. (XII).

XBRL is a standards-based way to communicate business and financial information. These communications are defined by metadata set out in taxonomies. Taxonomies capture the definition of individual reporting concepts as well as the relationships between concepts and other semantic meaning.

1.2 The Fundamentals: Better, Faster, Cheaper

Fundamentally, this is what XBRL is about:



SOURCE: XBRL Essentials, published by the AICPA

The components of financial reporting from both a creation and analysis perspective involve: data discovery, re-keying of data, validation of data, reporting, analysis, and decision making.

Without XBRL these total costs are higher, with XBRL they are lower. The over all process is better, it is faster, and it is cheaper.

1.3 Metadata and Semantic Meaning

It is important to note that the semantic information expressed in XBRL is separate from any software application and can be exchanged because it is a global standard recognized by other applications. So, the creator of information can provide all business rules used to express information to consumers of that information. This is unlike the business rules expressed in proprietary formats locked within one software application.

The XBRL standard supports data definition just like XML Schema does. But, due to the needs of business reporting, XBRL extends XML Schema's data definitions in a standard way to express this additional semantic meaning not supported by XML Schema. For example, metadata such as additional concept properties such as "balance" (debit or credit) go beyond the scope of XML Schema data definition properties.

Other types of semantic information expressible includes:

- multiple relations of different kinds between concepts (whereas XML Schema supports only one type of relation);
- business rules;
- labels, documentation, and references;
- dimensional information,

1.4 XBRL: Part of a Platform

XBRL is part of what can be called the financial reporting platform. Here, we will explain the notion of a platform and how XBRL fits into that platform. This financial reporting platform was more localized, but it is becoming more global in nature.

In addition to the more specific financial reporting platform, one could say that there is, or could be, a global business reporting platform.

An example of a platform in another industry is healthcare. See the following form more information:

<http://www.govtech.com/gt/151174>

1.4.1 Platforms

Many people miss the point when it comes to XBRL because they either don't understand the fundamental value which it brings to the table or they look at XBRL from the wrong perspective.

For our purposes, it helps to understand the notion of a "platform" and look at XBRL in terms of a platform in which XBRL might work. For a moment, forget about XBRL in terms of being a technology.

In a Business Week article "The Greatest Innovations of All Time", Larry Keeley provides a definition of a platform as being:

"broad capabilities that have the potential to cut across industries, markets, and applications. Platforms often have some proprietary capabilities at the

core, but not always. Indeed, it is common for platforms to integrate many otherwise ordinary ideas into a whole that is collectively remarkable."

He goes on to say that "A sufficiently advanced technology is indistinguishable from magic."

In his article several platforms are discussed, we will use the example of "limited liability" which is familiar to most business people. Corporations and limited liability partnerships provide a means of removing personal risk from an individual which participates within a business venture so the individual will not have to risk everything when if their companies make a mistake.

This platform of "limited liability" has allowed large corporations and partnerships to exist which allow the separation of liability from ownership. This has allowed large amounts of capital to flow from individuals to companies and ventures, which would take large organizations, to exist.

For more information see:

http://www.businessweek.com/innovate/content/feb2007/id20070216_377845.htm

1.4.2 Financial Reporting Platform

So consider a global financial reporting platform. Five to 10 years ago,

- It is paper-based.
- There were between 50 and 90 different sets of financial reporting standards.
- There was no standard way to express the information electronically, even if one wanted to.
- There is a tremendous amount of re-keying, inflexibility, etc.

Consider the dynamics impacting our world, and financial reporting within that world. XBRL's role in this is as an enabling technology, a piece of the soon to be updated financial reporting platform, a technology which allows for the expression of information relating to financial reporting electronically so that not only humans can understand and operating within this information; but computers will be able to as well.

1.5 What is XBRL, an explanation

The Wikipedia definition of XBRL only scratches the surface in explaining what XBRL is and what it will mean to financial reporting. This expands that definition.

1.5.1 Global standard syntax

Global standard for exchanging business information (syntax)

This is XBRL, a 200 page technical specification:

Extensible Business Reporting Language (XBRL) 2.1
 RECOMMENDATION - 2003-12-31 + Corrected Errata - 2005-04-25

This version:
 XBRL-RECOMMENDATION-2003-12-31+Corrected-Errata-2005-04-25.rtf

is the **NORMATIVE** version of this specification. All other versions and publication formats are non-normative.

Editors

| Name | Contact | Affiliation |
|-------------------|--|--|
| Phillip Engel | phillipengel@kpmg.com | KPMG LLP |
| Walter Hamscher† | walter@hamscher.com | Standard Advantage |
| Geoffrey Shuetrim | gshuetrim@kpmg.com.au | KPMG LLP |
| David vun Kannon | dyunkannon@kpmg.com | KPMG LLP |
| Hugh Wallis | hugh@standarddimensions.com | Standard Dimensions (formerly of Hyperion Solutions Corporation) |

Contributors

| Name | Contact | Affiliation |
|-----------------|--|-------------|
| Charles Hoffman | charleshoffman@olywa.net | UBmatrix |
| Campbell Pryde | cpryde@kpmg.com | KPMG LLP |

Status of this document

This document is an update to the RECOMMENDATION document dated 2003-12-31 and incorporates all errata corrections that have been approved by the XBRL International Specification Working Group as of the date of publication. The International Steering Committee of XBRL International approved this document for publication as an update to the

SOURCE: XBRL International

This is what the syntax looks like (but you never have to see it, do you every go and look at Microsoft Excel at this level?)

```

- <context id="Context-2002">
- <entity>
  <identifier scheme="http://www.SampleCompany.com">SAMP</identifier>
</entity>
- <period>
  <instant>2002-12-31</instant>
</period>
- <scenario>
  <gcd:actual />
</scenario>
</context>
- <unit id="Units-Monetary">
  <measure>iso4217:EUR</measure>
</unit>
<ci:Land contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">5347000</ci:Land>
<ci:Land contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">1147000</ci:Land>
<ci:Building contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">244508000</ci:Building>
<ci:Building contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">366375000</ci:Building>
<ci:FurnitureFixtures contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">34457000</ci:FurnitureFixtures>
<ci:FurnitureFixtures contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">34457000</ci:FurnitureFixtures>
<ci:ComputerEquipment contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">4169000</ci:ComputerEquipment>
<ci:ComputerEquipment contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">5313000</ci:ComputerEquipment>
<ci:Other contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">6702000</ci:Other>
<ci:Other contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">6149000</ci:Other>
<ci:TotalPropertyPlantEquipment contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">295183000</ci:TotalPropertyPlantEquipment>
<ci:TotalPropertyPlantEquipment contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">413441000</ci:TotalPropertyPlantEquipment>
</xbrl>
    
```

XBRL is a global standard method for the electronic exchange of business information (replacing 100s of proprietary methods). It provides nothing new, other than agreement.

1.5.2 Global standard semantics

Global agreement on financial reporting concepts (semantics, metadata)

XBRL represents a global agreement of the semantics of financial reporting concepts and business rules. These concepts and rules, the semantics, have already been created for IFRS and US GAAP.

This is XBRL, semantics, a bit more understandable. Semantics...accounting terms, how those terms relate, how they add up, etc.

| Presentation Report | | | | | 5/5/2005 10:16:17 AM | | |
|---------------------|-----|-----|-----|----------|----------------------|---|---|
| ID | Bal | Per | Nil | Type | NS | Label | Reference |
| 1 | | | | | | Extended Link (Balance Sheet, Classified Format) | |
| 2 | I | | | (String) | ifrs-gp | Balance Sheet (Presentation) | IAS 1 8 a (Pres) |
| 3 | I | | | (String) | ifrs-gp | Assets (Presentation) | XBRL (Pres) |
| 4 | I | | | (String) | ifrs-gp | Assets, Non-Current (Presentation) | XBRL (Pres) |
| 5 | D | I | T | Monetary | ifrs-gp | Property, Plant and Equipment, Net | IAS 16 73 e (Pres); IAS 1 68 a (Pres) |
| 6 | D | I | T | Monetary | ifrs-gp | Investment Property | IAS 40 79 c (Pres); IAS 1 68 b (Pres); IAS 40 76 (Pres) |
| 7 | D | I | T | Monetary | ifrs-gp | Intangible Assets, Net | IAS 1 68 c (Pres) |
| 8 | D | I | T | Monetary | ifrs-gp | Biological Assets | IAS 1 68 f (Pres) |
| 9 | D | I | T | Monetary | ifrs-gp | Investments in Subsidiaries, at Cost | IAS 27 37 a (Meas) |
| 10 | D | I | T | Monetary | ifrs-gp | Investments in Associates, at Cost | IAS 27 37 a (Meas) |
| 11 | D | I | T | Monetary | ifrs-gp | Investments in Joint Ventures, at Cost | IAS 27 37 a (Meas) |
| 12 | D | I | T | Monetary | ifrs-gp | Equity Method Accounted Investments, Total | IAS 1 68 e (Pres) |
| 13 | D | I | T | Monetary | ifrs-gp | Equity Method Accounted Investments in Associates | IAS 28 38 (Pres) |
| 14 | D | I | T | Monetary | ifrs-gp | Other Equity Method Accounted Investments | IFRS-CP (Pres) |
| 15 | D | I | T | Monetary | ifrs-gp | Deferred Tax Assets | IAS 1 68 n (Pres); IAS 12 81 a i (Pres) |
| 16 | D | I | T | Monetary | ifrs-gp | Assets Pledged as Collateral Subject to Sale or Repledging, Non-Current | IAS 39 37 a (Pres) |
| 17 | D | I | T | Monetary | ifrs-gp | Other Financial Assets, Non-Current | IAS 1 68 d (Pres) |
| 18 | D | I | T | Monetary | ifrs-gp | Hedging Assets, Non-Current | IAS 1 68 d (Pres) |
| 19 | D | I | T | Monetary | ifrs-gp | Trade and Other Receivables, Net, Non-Current | IAS 1 68 h (Pres) |
| 20 | D | I | T | Monetary | ifrs-gp | Prepayments, Non-Current | IAS 1 75 b (Pres) |
| 21 | D | I | T | Monetary | ifrs-gp | Cash Restricted or Pledged | IAS 1 57 d (Pres) |
| 22 | D | I | T | Monetary | ifrs-gp | Other Assets, Non-Current | IAS 1 74 (Pres) |
| 23 | D | I | T | Monetary | ifrs-gp | Assets, Non-Current, Total | IAS 1 51 (Pres) |
| 24 | I | | | (String) | ifrs-gp | Assets, Current (Presentation) | XBRL (Pres) |
| 25 | D | I | T | Monetary | ifrs-gp | Non-Current Assets and Disposal Groups Held for Sale | IAS 1 68A a (Pres); IFRS 5 38 (Pres) |
| 26 | D | I | T | Monetary | ifrs-gp | Inventories | IAS 1 68 g (Pres); IAS 2 36 b (Pres) |

1.5.3 Global organization

Global organization (XBRL International)

XBRL is also an organization, comprised of 400+ members from around the world which stands behind and maintains XBRL.

This is XBRL. A global organization of 400+ members which create and maintain the XBRL specification:



SOURCE: XBRL International

1.6 What is XBRL, a Technical Definition

Trying to understand XBRL without understanding a few fundamental concepts about information is like trying to understand algebra without understanding how to add, subtract, multiply, and divide.

There is no way around it. If you don't understand the difference between syntax and semantics or what meta-data is, it is extremely difficult to understand why XBRL works, how it works, or why it is beneficial.

- **XBRL is XML**
 - XML is the syntax of XBRL
 - XML Schema does not express semantics, only syntax
- **Prescriptive Extensibility**
 - XML's greatest strength is also its greatest weakness
- **Express Semantic Meaning**
 - To do what XBRL does with XML, would have to re-invent XBRL
- **Content Validation of Semantic Meaning**
 - XML cannot express it, so how could it possibly validate it
- **Normalized**
 - XML is not normalized (one implicit hierarchy, it gets in the way)
- **Express Multiple Relations**
 - Because XBRL is normalized (hierarchies are explicit and separate)
- **Fits into Relational Databases**
 - Because XBRL is normalized
 - Lots of relational databases around

SOURCE: UBmatrix, Financial Reporting Using XBRL

2 What is XBRL, the Details

If one tried to explain calculus or trigonometry to someone who does not understand the notion of "counting" or addition, subtraction, multiplication, and division; you would likely fail to convey the meaning and get the target of your explanation to properly understand your meaning.

In fact, if you wanted to understand calculus and trigonometry, you would also need to understand the concept of algebra. You would also need to understand equations, functions and logarithmic functions.

Now, you don't need to understand trigonometry to use a global positioning system (GPS) tool to help you get from point "a" to point "b" in your car. But, if you want to understand how it works, there is no way around understanding trigonometry.

There is a similar truth when it comes to XBRL.

While it is not necessary to understand how XBRL works in order to derive benefit from XBRL; if you do want to understand how it works, you do have to make an

investment in learning a few basic principles, or you will never be able to understand how it works.

And today, as the number of software applications which make use of XBRL is rather lean and virtually non-existent from a business user's perspective, and therefore you don't have that "GPS"-type application which shows you the benefits of XBRL; to understand XBRL's value requires, unfortunately, an understanding of these few basic principles.

For this we apologize. However this explanation is necessary as if no one understands why XBRL is important, and if no one understands that XBRL can in fact work, then no one will express the need for software vendors to implement XBRL within their software applications.

2.1 How XBRL Works, an Explanation

The following is a very brief explanation of how XBRL works for those who chose to delve into this level of detail. We talk about the notion of syntax, semantics, meta-data, business rules, structured versus unstructured information, and structuring for presentation as compared to structuring for information meaning.

2.1.1 Syntax

Syntax can be described as "the order of the words," Syntax has nothing to do with what words are used; only the order in which they appear. This is a syntax:

- `<foo:bar john="doe">345</foo:bar>`
- "foo", "bar", "john", "doe", "345"
- [foo:bar john/doe/345/foo:bar]

It is important to understand that XML parsers enforce syntax (not semantics). XML Schema enforces syntax (not semantics). This is why XML is not a sufficient tool to meet the needs of business reporting.

2.1.2 Semantics

Semantics is basically "meaning". Fundamentally, XBRL is a method of expressing semantics or semantic meaning. This semantic meaning is expressed using XML syntax. Examples of semantic meaning:

- Concept name such as "CashAndCashEquivalents"
- Concept is a "debit" and is "as of" a point in time
- Its label is "Cash and cash equivalents"
- It "contributes" to the value of "AssetsCurrent"
- It shows up on the balance sheet and cash flow statement

XBRL uses the XML syntax to express semantic meaning which is important in business and financial reporting.

2.1.3 Meta-data

Metadata is data about data. Many people find it difficult to understand the difference between "data" and "meta-data". And, there are often arguments over

whether something is data or meta-data. But that truly is not important. One persons data is another persons meta-data. Just think of meta-data as "data", but at somewhat of a different "level". Consider an invoice

- Data on the invoice might include:
- Invoice number of "I-10001"
- Invoice date of "July 1, 2005"
- Total invoice amount of "\$9000"

Metadata for the invoice might include:

- The invoice number must start with the letter "I", be followed by a dash, and must be 5 digest long
- The invoice MUST have an invoice number, an invoice date, at least one line item, and a total
- The sum of the line item amounts MUST equal the total invoice amount.

Meta-data expresses data about the invoice data in the case above. Meta-data is a type of semantic meaning.

XBRL taxonomies express meta-data commonly used in business reporting. The meta-data can also be extended by users so it is not a form, it is dynamic. Meta-data can be added by users as needed.

2.1.4 *Business Rules*

Business rules are a way of expressing semantic meaning, or meta-data. Another way of saying this is that business rules are "a formal and implementable expression of some user requirement". For example:

- "Assets MUST equal total liabilities plus total equity"
- "If property, plant and equipment exists on the balance sheet, then a PPE policy and a PPE disclosure MUST exist and they MUST contain..."
- May be definitional, express calculations, process oriented, regulations, instructional

Today many of these business rules exist within specific software applications and therefore cannot be exchanged. Also, there is no standard format for expressing these business rules, even if they were separated from applications.

But what if you COULD exchange these business rules? Imagine being able to exchange data and the business rules which checked that data to be sure that the data was correct. Imagine having an Excel spreadsheet and being able to evaluate that spreadsheet against YOUR formulas, rather than the formulas of the creator of the spreadsheet? It would be a lot more difficult for creators of spreadsheets to hide information intentionally or to make mistakes if a high-quality public set of business rules were used to check the spreadsheet's data.

2.1.5 *Structured versus unstructured data*

Critical to all of what was discussed above is the notion of structured versus unstructured data. It is very challenging for a computer to work with unstructured data, in fact it data has to be structured at some level for a computer to work with it.

Consider the example of unstructured data below. While the data may be "structured" in terms of being, say, a paragraph within a financial statement, from that point inward it is only seen as "a blob of text" by a computer. For example, the computer cannot go in and grab the value for inventory as of December 31, 2005.

Unstructured Data:

```
Inventory consists of produce purchased for resale and supplies and are
stated at the lower of cost or market using the first-in, first-out (FIFO)
method. Inventory as of December 31, 2005 and 2006 amounted to $45,594 and
$34,456, respectively.
```

So, actually a computer could grab that information. However, the computer application would have to be precisely programmed to grab a specific value from a specific blob of text and could generally not be used for any other financial report created by a different person at a different company. If you ran that same application against a different blob of text, it generally would not be able to find the information as a different term may have been used to refer to inventory, or a different date format were used, etc.

To a degree computers can "parse" this information or use a process called "screen scraping" to glean information, but that process is not reliable in many cases and prohibitively expensive.

Consider this bit of structured information below. This helps you get to the paragraph which relates to "InventoryInformation," but again, you cannot get into the blob of text.

Semi-structured data:

```
<InventoryInformation>
  Inventory consists of produce purchased for resale and supplies and are
  stated at the lower of cost or market using the first-in, first-out (FIFO)
  method. Inventory as of December 31, 2005 and 2006 amounted to $45,594 and
  $34,456, respectively.
</InventoryInformation>
```

Now, consider this example of structured information. This information is structured at a finer level.

Structured:

```
<Inventory>
  <ConsistsOf>produce purchased for resale and supplies</ConsistsOf>
  <StatedAt>lower of cost or market</StatedAt>
  <ValuationMethod>FIFO</ValuationMethod>
  <Value2006>$45,594</Value2006>
  <Value2005>$34,456</Value2005>
</Inventory>
```

Is it possible to grab information from that chunk of data? Far easier. In fact, those pieces of information can quite easily be "structured" into the form of a paragraph. But it is nearly impossible, and if you do want to do this prohibitively expensive, to use the test within the two blobs above.

2.1.6 *Structured for presentation versus meaning*

There is one last piece to our puzzle. There are different ways to structure the information. Information can be structured for "presentation" or in can be structured for "meaning". Consider the two examples below:

- `<bold>100,000</bold>`
- `<revenues>100,000</revenues>`

Both pieces of data are structured information. The first structures the information for presentation, saying that the number 100,000 should be bold. The second says that the number 100,000 is revenues.

HTML is a common way to structure information for presentation to a human in, say, a browser. But this information is less useful to a computer. In fact, the information is generally not understandable to a computer in terms of meaning, only in terms of how that information should be presented.

Generally, it is possible to take information which is structured in terms of meaning and further articulate how it should be presented. It is less likely that you can take information which is structured for presentation and further determine its meaning.

2.2 *How XBRL Works, a Walk Through*

What we will do now is walk you through the use of XBRL from beginning to end. We will cover this in enough detail to understand what is going on in each step, but not necessarily enough detail to actually perform these steps in actual practice. The intention is to provide an overview of the entire process with the purpose of understanding what the overall process consists of and the steps within that process.

2.2.1 *Identify need to exchange data*

Our starting point will be a simple portion of a financial statement. A screen shot is shown below.

| | 2003 | 2002 |
|------------------------|---------|---------|
| | €'000 | €'000 |
| Land | 5,347 | 1,147 |
| Buildings | 244,508 | 366,375 |
| Furniture and Fixtures | 34,457 | 34,457 |
| Computer Equipment | 4,169 | 5,313 |
| Other | 6,702 | 6,149 |
| Total | 295,183 | 413,441 |

In our fragment of a financial report above we see many things. This is a visual presentation of information with which you are probably quite familiar. This information can be broken down into categories. And why most accountants may not understand all the aspects of what we need to do from a technical perspective, they do understand how to refer to this information from the perspective with which they are comfortable.

So let's pretend that we want to exchange the data above.

2.2.2 Create new, select existing, or extend existing taxonomy

Once we know the data we want to exchange, the first step is to (a) define the taxonomy or (b) select an existing publicly available taxonomy which we may want to use which will save us the time of having to create our own, or (c) extend an existing taxonomy to some degree.

Or you can call it expressing the metadata. What information are we going to exchange; and information about that information?

"Taxonomy" is a freaky technical sounding word but we've been using taxonomies almost since we began to talk.

A taxonomy is simply a classification system, such as you might have a classification system for flowers, plants, animals, birds.

In our case we will create (or use) a taxonomy which relates to financial information. This taxonomy will have things which are very familiar to business people. This is a picture of what you might find in a taxonomy:

| Presentation View | | | | | | |
|-------------------|-----|-----|-----|---------------------|----|-------------------------------------|
| ID | Bal | Per | Nil | Type | NS | Label |
| 1 | | | | (Abstract) Monetary | ci | Property, Plant and Equipment |
| 2 | D | I | T | Monetary | ci | Land |
| 3 | D | I | T | Monetary | ci | Building |
| 4 | D | I | T | Monetary | ci | Furniture and Fixtures |
| 5 | D | I | T | Monetary | ci | Computer Equipment |
| 6 | D | I | T | Monetary | ci | Other |
| 7 | D | I | T | Monetary | ci | Total Property, Plant and Equipment |

| Calculation View | | | | | | | |
|------------------|-----|-----|-----|-----|----------|----|-------------------------------------|
| ID | Wgt | Bal | Per | Nil | Type | NS | Label |
| 1 | | D | I | T | Monetary | ci | Total Property, Plant and Equipment |
| 2 | 1 | D | I | T | Monetary | ci | Land |
| 3 | 1 | D | I | T | Monetary | ci | Building |
| 4 | 1 | D | I | T | Monetary | ci | Furniture and Fixtures |
| 5 | 1 | D | I | T | Monetary | ci | Computer Equipment |
| 6 | 1 | D | I | T | Monetary | ci | Other |

Now, don't get too freaked out, but this is what the "guts" of the taxonomy looks like:

```

- <annotation>
- <appinfo>
  <link:linkbaseRef xlink:type="simple" xlink:role="http://www.xbrl.org/2003/role/labelLinkbaseRef"
    xlink:arcrole="http://www.w3.org/1999/xlink/properties/linkbase" xlink:href="BasicCalculation-label.xml" />
  <link:linkbaseRef xlink:type="simple" xlink:role="http://www.xbrl.org/2003/role/presentationLinkbaseRef"
    xlink:arcrole="http://www.w3.org/1999/xlink/properties/linkbase" xlink:href="BasicCalculation-presentation.xml" />
  <link:linkbaseRef xlink:type="simple" xlink:role="http://www.xbrl.org/2003/role/calculationLinkbaseRef"
    xlink:arcrole="http://www.w3.org/1999/xlink/properties/linkbase" xlink:href="BasicCalculation-calculation.xml" />
</appinfo>
</annotation>
<import namespace="http://www.xbrl.org/2003/instance" schemaLocation="xbrl-instance-2003-12-31.xsd" />
<element id="ci_PropertyPlantEquipment" name="PropertyPlantEquipment" substitutionGroup="xbrli:item"
  xbrli:periodType="instant" abstract="true" type="xbrli:stringItemType" />
<element id="ci_Building" name="Building" type="xbrli:monetaryItemType" substitutionGroup="xbrli:item" nilable="true"
  xbrli:balance="debit" xbrli:periodType="instant" />
<element id="ci_ComputerEquipment" name="ComputerEquipment" type="xbrli:monetaryItemType"
  substitutionGroup="xbrli:item" nilable="true" xbrli:balance="debit" xbrli:periodType="instant" />
<element id="ci_FurnitureFixtures" name="FurnitureFixtures" type="xbrli:monetaryItemType" substitutionGroup="xbrli:item"
  nilable="true" xbrli:balance="debit" xbrli:periodType="instant" />
<element id="ci_Land" name="Land" type="xbrli:monetaryItemType" substitutionGroup="xbrli:item" xbrli:balance="debit"
  nilable="true" xbrli:periodType="instant" />
<element id="ci_Other" name="Other" type="xbrli:monetaryItemType" substitutionGroup="xbrli:item" xbrli:balance="debit"
  nilable="true" xbrli:periodType="instant" />
  
```

Why not get freaked out? Because you will never have to actually see this, unless you want. This is what a taxonomy looks like, the "guts" if you will. We've highlighted one section to focus your attention on "Buildings" showing that it's typical

balance is a debit and it is measured in a point in time (“instant”). This information is familiar to accountants, and is very powerful because a computer can also read this information.

We just want to show this to you so you can see that a computer can read structured, discrete pieces of information **as long as the structure is agreed to**.

But, again, users will never need to look at XBRL in this way; as one never uses Excel at this level, but this level does exist in Excel.

2.2.3 Create manually or auto-generate instance document (business report)

Second, we create the information in the same old way we did before perhaps; we use Excel, filling in the data, or having the spreadsheet auto-populated from a database application or maybe even from the accounting system.

We next assign the information in the Excel spreadsheet, which we are using in our case, to a taxonomy concepts and other meta data business people who need to use the information might like to know. For example:

- What entity is reporting this information?
- What period is the information for?
- Is the information actual or budgeted?

Then we generate XBRL. For this exercise, an Excel macro was created to generate this information. That Excel macro had only 300 lines of code, not that many really.

The screenshot shows a Microsoft Excel spreadsheet titled 'Basic Calculation.xls'. The spreadsheet contains the following data:

| | | 2003 | 2002 |
|------------------------|--|---------|---------|
| | | €000 | €000 |
| Land | | 5,347 | 1,147 |
| Buildings | | 244,500 | 366,375 |
| Furniture and Fixtures | | 34,457 | 34,457 |
| Computer Equipment | | 4,169 | 5,313 |
| Other | | 8,702 | 6,149 |
| Total | | 295,183 | 413,441 |

The Document Actions pane on the right shows the following structure:

- Basic Calculation
 - Property, Plant and Equipment
 - Land
 - Building
 - Furniture and Fixtures
 - Computer Equipment
 - Other
 - Total Property, Plant and Equipment

The context is set to 'PY2003n'.

We need to assign the information in the Excel spreadsheet to the meta-data in our taxonomy and other XBRL meta-data such as which entity, which period, etc. Again,

you will never really have to use the XBRL at this level, but this is what the XBRL looks like:

```

- <<context id="Context-2002">
- <entity>
  <identifier scheme="http://www.SampleCompany.com">SAMP</identifier>
</entity>
- <period>
  <instant>2002-12-31</instant>
</period>
- <scenario>
  <gcd:actual />
</scenario>
</context>
- <unit id="Units-Monetary">
  <measure>iso4217:EUR</measure>
</unit>
<ci:Land contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">5347000</ci:Land>
<del><ci:Land contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">1147000</ci:Land></del>
<ci:Building contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">244508000</ci:Building>
<ci:Building contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">366375000</ci:Building>
<del><ci:FurnitureFixtures contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">34457000</ci:FurnitureFixtures>
<ci:FurnitureFixtures contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">34457000</ci:FurnitureFixtures>
<ci:ComputerEquipment contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">4169000</ci:ComputerEquipment>
<ci:ComputerEquipment contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">5313000</ci:ComputerEquipment>
<ci:Other contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">6702000</ci:Other>
<ci:Other contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">6149000</ci:Other>
<ci:TotalPropertyPlantEquipment contextRef="Context-2003" unitRef="Units-Monetary" decimals="-3">295183000</ci:TotalPropertyPlantEquipment>
<ci:TotalPropertyPlantEquipment contextRef="Context-2002" unitRef="Units-Monetary" decimals="-3">413441000</ci:TotalPropertyPlantEquipment>
</xbrl>

```

For example, we see that in the red box we see the concept "Buildings" for 2003 and 2002, and the values of 244,508,000 and 36,637,500, respectively. We know other information about those concepts because of the information in the taxonomy; for example, we know that "Buildings" are DEBITS.

2.2.4 Validate instance document (report) to be sure it is accurate

Next, we validate the information, making sure it adds up before we send it to someone else. We get the following report.

| Line | Label | B | D | P | Value | Source | Message |
|------|---|---|---|----|-------------|--------|---------|
| 1 | Calculations, All [http://www.xbrl.org/2003/role/link] | | | | | | |
| 2 | Context Context-2002[at 2002-12-31 for SAMP Scenario 1] | | | | | | |
| 3 | Units-Monetary | | | | | | |
| 4 | Total Property, Plant and Equipment | D | D | -3 | 413,441,000 | both | OK |
| 5 | (1) Land | D | D | -3 | 1,147,000 | inst | |
| 6 | (1) Building | D | D | -3 | 366,375,000 | inst | |
| 7 | (1) Furniture and Fixtures | D | D | -3 | 34,457,000 | inst | |
| 8 | (1) Computer Equipment | D | D | -3 | 5,313,000 | inst | |
| 9 | (1) Other | D | D | -3 | 6,149,000 | inst | |
| 10 | Context Context-2003[at 2003-12-31 for SAMP Scenario 1] | | | | | | |
| 11 | Units-Monetary | | | | | | |
| 12 | Total Property, Plant and Equipment | D | D | -3 | 295,183,000 | both | OK |
| 13 | (1) Land | D | D | -3 | 5,347,000 | inst | |
| 14 | (1) Building | D | D | -3 | 244,508,000 | inst | |
| 15 | (1) Furniture and Fixtures | D | D | -3 | 34,457,000 | inst | |
| 16 | (1) Computer Equipment | D | D | -3 | 4,169,000 | inst | |
| 17 | (1) Other | D | D | -3 | 6,702,000 | inst | |

SOURCE: UBmatrix Taxonomy Designer

Note that here we are using the SAME VALIDATOR, an off-the-shelf piece of software which is used by the FDIC to validate their data. There are validators on the market for as low as \$495, and many of them are free to use. The FDIC spent hundreds of thousands of dollars creating their proprietary validator, it used a proprietary format to express the validation rules which few people understood how to use.

2.2.5 Exchange the instance document (send the report so someone else)

Next, we transfer the information to the recipient. The files we have created are nothing more than text files which contain a specific type of XML called XBRL. The files have all the same characteristics as any other text file and therefore can be easily transferred from one type of computer to another type of computer as they are simply text. There are many different ways to transfer the information: HTTP, FTP, SMTP (email), TCP-IP, parcel post, CD, DVD, or WSDL (web services).

2.2.6 Recipient validates instance (verifies the report is accurate before they use the information it contains)

The recipient of the data would want to validate the data to be sure it is accurate when they receive it. They can use the same business rules as the preparer, the same or a different validator (as long as it supports XBRL), they can add additional business rules or do whatever they need, manually or electronically, to ensure the data is valid before sending it off to some automated or human process.

2.2.7 Reuse information (manually or within an automated process)

XBRL is an "instantly consumable format. Why are we sending the data in the first place? Well, likely it will be reused for something.

XBRL is about automatically, reliably, and instantaneously being able to reuse that information.

The process in which the information received is reused may be a process operated by a human (as was the only option in the past) but could now also be a process operated by a computer (as is now possible). The computer process may generate exception reports which only a human can deal with, but if there are no exceptions, the process could be 100% automated. The extent of automation is determined by the user of the information.

The data may be:

- Transform/Convert to any other format by whatever means (because it is structured)
- XSLT, programmatically using other method, etc.
- Render as any format
- HTML, PDF, Excel spreadsheet, Word document, RTF, text, etc for human consumption
- Rows in a table in of a database application for use in that application
- Data in an Excel analysis model
- Combined/merged with another XBRL document to create a bigger document

2.2.8 *Bottom line*

The bottom line is data portability:

- XBRL is a means to an end; it is NOT an end
- XBRL is an agreed upon method of achieving something basically every business needs to achieve
- Global, standard, agreed upon way (not proprietary)
- 70% of all information technology spending is to integrate one application with another
- "Plug-and-play" integration by business users (theoretical goal, may be achievable)
- Data portability (without re-keying data)

3 Additional Resources

In the sections above we referenced a number of additional sources for obtaining information about XBRL. The following is a summary of additional resources available to learn and understand more about XBRL:

| Resource | Description and Location |
|-------------------------------------|---|
| XBRL International | International consortium which builds the XBRL Specification. General information: http://www.xbrl.org |
| XBRL US | The United States jurisdiction for XBRL: http://xbrl.us |
| US Security and Exchange Commission | The following is the SEC's spotlight on XBRL web page: http://www.sec.gov/spotlight/xbrl.htm |

4 About the Author

Charles Hoffman is credited as being the "father of XBRL." Charlie, a member of the American Institute of Certified Public Accountants (AICPA), brought the idea of what was to become XBRL to the AICPA. Charlie is author of the books "XBRL Essentials", a non-technical guide to XBRL and "Financial Reporting Using XBRL: IFRS and US GAAP Edition", a comprehensive guide to using XBRL in financial reporting. He was co-editor of the first XBRL taxonomy. He is playing a major role in creating the taxonomy for financial reporting under International Financial Reporting Standards (IFRS-GP). He is a member of the XBRL International Specification and Domain working groups. Charlie is co-author of the "Financial Reporting Taxonomies Architecture" (FRTA) 1.0 specification, the "Financial Reporting Instance Standards" and a significant contributor to the XBRL 2.1 specification.

Charlie is also co-editor of the US GAAP Taxonomy Architecture and part of the team creating expressing US GAAP within XBRL for financial reporting by public companies which is being funded by the US Security and Exchange Commission.

Prior to his involvement with XBRL, Charlie served as an auditor for what was then Price Waterhouse, as financial officer for a number of companies, and as an accounting software implementation consultant. In 1997, Charlie was the recipient of the AICPA Innovative User of Technology award. He was named by Accounting Technology as one of the one hundred most influential people in the accounting profession. Charlie is Director of Innovative Solutions for UBmatrix LLC.

Charlie is a graduate of Pacific Lutheran University with both a BA in Business Administration with a concentration in accounting and an MBA with a focus on management information systems and world class manufacturing techniques.