

# **Business and Financial Reporting Logical Model Semantics to XBRL Syntax Mapping of Straw Man Implementation**

This document articulates a mapping from the semantic models to the XBRL syntax used by the straw man implementation of the Business Reporting and Financial Reporting Logical Models. Please refer to the mind map of the logical model components:

<http://www.xbrlsite.com/Demos/FRTA/2010-06-15/ LogicalModels.pdf>

This mind map will be converted into a UML model which communicates these relations in a more standard form understandable by software developers.

The following table maps the objects of the business and financial reporting logical models to my specific implementation within the XBRL syntax. As a result, business software users will interact with at the logical model level, not the XBRL syntax level. This makes creating software easier, using software easier for business users, and a robust yet safe environment for extension because: (a) everything is explicit, (b) users have one option rather than having to navigate the XBRL technical quagmire implementation by implementation to figure out the best way to implement XBRL, (c) it requires far less expertise to implement XBRL. What you do give up is some flexibility, but the flexibility which is lost if one looks closely really takes nothing important away from the business user.

Perhaps this implementation is will not meet the needs of 100% of all those who will ever use XBRL. That is not the intent. If a system does not find this type of implementation useful, figure out something different. This implementation provides a working path through XBRL which somewhere between 80% and 98% of business users will find meets their needs "out of the box". The remaining 20% or 2% can be supplemented by taking this implementation as a starting point, then tweaking it to meet specific needs, leveraging the core pieces but then supplementation them as needed.

Finally, realize that this syntax mapping is not created by a software engineer or architect; it is created by a CPA. It is likely that a technical engineer or architect can find better ways of implementing what is being implemented in this straw man implementation. Engineering or architectural changes which improve the technical implementation are expected even though I leveraged (i.e. used the ideas of) several extremely well implemented XBRL systems (i.e. COREP, FINREP, IFRS, US GAAP, SBR, XBRLS, and so forth). The first step to understanding if a better approach exists is understanding why something is implemented in the way that it is within this implementation.

## Semantics to XBRL Syntax Mapping:

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
brm: Report Set	<p>RSS feed which contains links to one or more XBRL instances.</p> <p>DTS which includes all XBRL instances, their XBRL taxonomies, resolved to remove all duplication, for example duplicate contexts.</p> <p>See:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/rss.xml">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/rss.xml</a></p>	<p>Uses the same idea that the SEC uses. XBRL has no means of connecting two or more XBRL instances together into a set.</p> <p>The SEC added some proprietary elements to the RSS. See the SEC RSS here:  <a href="http://www.sec.gov/Archives/edgar/usgaap.rss.xml">http://www.sec.gov/Archives/edgar/usgaap.rss.xml</a></p> <p>XBRL Cloud has a proprietary way of articulating a list of XBRL instances, see:  <a href="http://edgardashboard.xbrlcloud.com/edgar-rss-index.xml">http://edgardashboard.xbrlcloud.com/edgar-rss-index.xml</a></p> <p>For a general list, no added elements are necessary, but they do have their advantages. The Apple iTunes custom elements are becoming a de facto standard (not that business reporting would use them, but heck....maybe some of them. This shows the iTunes RSS tags and how they are used within an interface:  <a href="http://www.apple.com/itunes/podcasts/specs.html#rss">http://www.apple.com/itunes/podcasts/specs.html#rss</a></p> <p>Not sure how ATOM fits into this equation, the technical people can decide, but having a way to articulate lists of XBRL instances has a very clear benefits.</p>

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
brm: Business Report	<p>Implemented as an XBRL instance and its Discoverable Taxonomy Set (DTS).</p> <p>See:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance.xml">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance.xml</a>  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company_TreeView.html">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company_TreeView.html</a></p> <p>This application can be used to generate an XBRL instance:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/InstanceCreator.zip">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/InstanceCreator.zip</a></p>	<p>This includes the entire DTS. The DTS is converted to a usable Info Set within the software, for example:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_FactGroups.xml">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_FactGroups.xml</a>  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_MemberRelations.xml">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_MemberRelations.xml</a></p> <p>Note that the info sets use the logical model terminology, not the XBRL terminology.</p> <p>Here is human readable forms:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_FactGroups.html">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_FactGroups.html</a>  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_MemberRelations.html">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_MemberRelations.html</a></p>
brm: Business Rule	<p>Implemented as an XBRL Formula or an XBRL Calculation</p>	<p>May want to restrict this to disallow XBRL Calculations, only allow XBRL Formulas.</p> <p>Business rules:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/gaap-formula.xml">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/gaap-formula.xml</a>  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/gaap-calculation.xml">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/gaap-calculation.xml</a></p> <p>Results of validating business rules, showing that all computations are correct and all reportability rules are met:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_FormulaTrace.html">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_FormulaTrace.html</a>  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_calctrace.html">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_calctrace.html</a></p>

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
brm: Report Flow	<p>Implemented as an XBRL definition linkbase which has a specific extended link role (<a href="http://www.xbrl.org/frta/brm/roles/Flow">http://www.xbrl.org/frta/brm/roles/Flow</a>) which uses XBRL elements to express a hierarchy of relations between XBRL Dimensions hypercubes. Uses special arcroles to define relations between components of the Report Flow. See arcrole definitions here: <a href="http://www.xbrl.org/frta/brm/roles/Flow">http://www.xbrl.org/frta/brm/roles/Flow</a></p> <p><a href="http://www.xbrl.org/frta/brm/roles/Flow">http://www.xbrl.org/frta/brm/roles/Flow</a></p>	<p>This is nothing more than relations expressed between XBRL elements of specific categories.</p> <p>See Info Set of Report Flow here: <a href="http://www.xbrl.org/frta/brm/roles/Flow">http://www.xbrl.org/frta/brm/roles/Flow</a></p> <p>Human readable rendering: <a href="http://www.xbrl.org/frta/brm/roles/Flow">http://www.xbrl.org/frta/brm/roles/Flow</a></p> <p>The benefit of using this approach is that (a) you can articulate a hierarchy, (b) you can order the list/hierarchy without having to rely on putting numbers into extended link role definitions, (c) you can have different labels because hypercubes are concepts and concepts can have labels in any number of languages, (d) you can change the labels by extending the taxonomy whereas you cannot change extended link role definitions, (e) different users can have different organizations other than alpha sorts.</p> <p>Further, if you have unique hypercubes this has even more advantages because you can totally ignore the extended links from a semantics perspective (you still need them for XBRL syntax purposes). This not only makes things cleaner and clearer, it also makes things safer for a number of reasons.</p>
brm: Schedule	<p>Implemented as an XBRL element with the substitutionGroup value of <b>brm:scheduleItem</b></p> <p><a href="http://www.xbrl.org/frta/brm/roles/Flow">http://www.xbrl.org/frta/brm/roles/Flow</a></p>	<p>See examples in the Report Flow (above)</p> <p>Look at the "Sales Analysis" and you will clearly see what a Schedule does. Lines 2 through 5 on this HTML rendering: <a href="http://www.xbrl.org/frta/brm/roles/Flow">http://www.xbrl.org/frta/brm/roles/Flow</a></p> <p>See how the printed report puts three Fact Groups together to form one report schedule (see first page of this): <a href="http://www.xbrl.org/frta/brm/roles/Flow">http://www.xbrl.org/frta/brm/roles/Flow</a></p> <p>A better name for "Schedule" might be "Table", like the US GAAP Taxonomy uses for the individual hypercubes.</p>

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
<p>brm: Fact Group</p>	<p>Implemented as an XBRL Dimensions Hypercube within an XBRL Network.</p> <p>XBRL Dimensions Hypercube; XBRL element with the substitutionGroup value of "xbrldt:hypercube"; All hypercubes are defined as CLOSED; All hypercubes require explicit members to be on the &lt;segment&gt;; Typed members are not allowed;</p> <p>A Fact Group is every brm:Fact, its brm:Concept, its brm:Measures which participates in a Hypercube. These are all defined in an XBRL Dimensions hypercube within an XBRL Definition linkbase.</p> <p>NOTE: The XBRL presentation linkbase is AUTOGENERATED from the XBRL definition linkbase. The XBRL calculation linkbase and/or XBRL Formula (Business Rules) are AUTOGENERATED from the XBRL definition relations and the information model.</p>	<p>This implementation uses both the Network and the XBRL Dimension hypercube because that is what the US GAAP Taxonomy does. Personally, if I ever suggested how someone should do this, I would say: (1) Use only hypercubes, (2) make every hypercube unique, (3) demote Networks to XBRL syntax and give it no semantics.</p> <p>The options appear to be the following: (a) use ONLY hypercubes and require each hypercube to have a unique name, extended link roles have no semantics; (b) use hypercube plus extended link role to uniquely identify each information grouping. Hypercubes would be REQUIRED under both options (a) and (b).</p> <p>Alternatively, hypercubes would NOT be required, but a "quasi" hypercube exists which every concept that does NOT exist in another hypercube. If this alternative is used, then extended link roles MUST be given semantic meaning of some sort to be used as the information grouping mechanism.</p> <p>See Info Set of Fact Group:  <a href="http://www.xbrl.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_FactGroups.xml">http://www.xbrl.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_FactGroups.xml</a></p> <p>Human readable rendering:  <a href="http://www.xbrl.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_FactGroups.html">http://www.xbrl.com/Demos/FRTA/2010-06-15/company-instance_InfoSet_FactGroups.html</a></p> <p>The US GAAP Taxonomy uses the term [Table] for what this logical model calls a "Fact Group". Fact Group is a funny name to business users. Table causes too many people to thing presentation related thoughts. Cube is not appropriate as Cubes have only three dimensions. These really are Hypercubes, that term is used by XBRL Dimensions but freaks a lot of business users out it seems. I have also heard the terms "Fact Table" and "Data Cube".</p> <p>The \$64,000 question is what is the best term for this.</p>
<p><b>brm: Fact</b></p>	<p>No equivalent</p>	<p><i>This is abstract in the logical model.</i></p>
<p><b>brm: Value (of fact)</b></p>	<p>No equivalent</p>	<p><i>This is abstract in the logical model.</i></p>

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
<b>brm: Numeric Fact Value</b>	XBRL simple fact (item) which contains a "unitRef" attribute and "decimals" attribute.  Fractions are not allowed.  Precision attribute is not allowed, only decimals attribute.	<i>This is abstract in the logical model.</i>
<b>brm: Non-numeric Fact Value</b>	XBRL simple fact (item) which does NOT contain a "unitRef" attribute or "decimals" attribute.	<i>This is abstract in the logical model.</i> Safer data types for text are defined: <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/brm.xsd">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/brm.xsd</a> Specific data types for escaped XHTML and JSON are defined.
brm: Amount	Value of the simple fact XBRL item in the XBRL instance.	This is the value of the fact within an XBRL instance. This will always be an xbrl:item.  Fractions are not allowed in this implementation. Fractions are not allowed by the US GAAP/SEC XBRL implementation. It is pretty clear that XBRL fractions are very useful for financial reporting. I cannot think of any case where fractions are useful in business reporting really. It seems like fractions are, therefore, unnecessary complexity and should not be allowed.  Tuples are not allowed in this straw man implementation. Tuples are not allowed in the US GAAP Taxonomy/SEC implementation.  If a tuple were allowed, it could be mapped as follows: The tuple would be a Measure. The key of the tuple (the concept or concepts inside the tuple which make it unique) would be mapped as Members. The other concepts within a tuple would be the Concept Measure. The only tricky part of this is identifying the key concept(s). Seems like software could do this. Because tuples have no hierarchy, the Measure Relations would be a flat list. Also, it may or may not be possible for a tuple to have a Domain (i.e. I can see one way of gleaning the domain using calculation relations).
brm: Unit	Value of the <measure> for the unitRef contained on the item for the fact.	This implementation currently assumes only one measure. Not sure if we need to have support for multiple measure elements.

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
brm: Rounding	Value of the decimals attribute of the item for the fact.	Not sure if any restrictions should be placed on use of the decimals attribute. The US SEC has data showing misuse of this attribute with values such as "7" which are not used very often and downright strange. Most of the time the value is "INF" (what you see is what you get) or "2" (hundredths) or "-3" (thousands) or "-6" (millions).
brm: Text, Narrative, Prose	Value of the simple fact XBRL item in the XBRL instance with specific data types for "text", "narrative", and "prose".	<p><b>Text:</b> We need to specify a data type which eliminates the possibility of leading and trailing spaces, double spaces, line breaks, etc. Maybe a token data type for text.</p> <p><b>Narrative:</b> Not clear here. Perhaps this is a paragraph. This is basically a "Text Block" (truly text, not escaped XHTML).</p> <p><b>Prose:</b> This would be an escaped XHTML data type similar to what ITA has created.</p> <p><b>JSON:</b> I personally believe what we need a JSON data type. This is a useful data type for certain things.</p>
<b>brm: Value Attribute</b>	Implemented as an XBRL Footnote with a specific role to identify the footnote as either a General Comment, Reason Not Reported, or Reclassification.	<p><i>This is abstract in the logical model.</i></p> <p>Not sure if other Value Attributes should be allowed.</p> <p>See the XBRL footnote at the bottom of this instance:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance.xml">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance.xml</a></p> <p>See the role definitions of the different value attributes here:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/brm.xsd">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/brm.xsd</a></p> <p>Alternatively, these should be defined by FRTA, but probably not as they seem useful for general business reporting:  <a href="http://www.xbrlsite.com/Demos/FRTA/2010-06-15/frta.xsd">http://www.xbrlsite.com/Demos/FRTA/2010-06-15/frta.xsd</a></p>
<b>brm: Measure Relations</b>  <b>or brm: Member Relations</b>	No equivalent	<p><i>This is abstract in the logical model.</i></p> <p>This is called Measure Relations in the current model, but this really seems like Member Relations because the relations are between the Members, not the different Measures.</p>

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
brm: Hierarchy	Implemented as XBRL definition relations within the primary items of an XBRL hypercube. Each of these has a "domain-member" arcrole and can be organized into a hierarchy just like the XBRL presentation linkbase. The XBRL presentation linkbase, if desired, can be AUTOGENERATED from the XBRL definition linkbase using software.	<p>If both XBRL presentation relations and XBRL definition relations are used, then there needs to be some sort of rule or mechanism to address inconsistencies between the presentation and definition relations. What does the inconsistency mean? Or, FRTA needs a rule to say that inconsistencies MUST NOT exist.</p> <p>If hypercubes are REQUIRED, then presentation relations would not really be necessary. If hypercubes are NOT REQUIRED, then XBRL presentation linkbase would be necessary to use most likely. Although, you could actually still use definition relations and abandon presentation relations.</p>
brm: Roll Up	XBRL calculations linkbase OR XBRL Formulas expressing calculations. In addition, concepts must exist as part of XBRL Dimensions hypercube as primary items.	This raises the issue of supporting XBRL calculations plus XBRL Formulas or only XBRL Formulas.
brm: Roll Forward	<p>XBRL Formula with a relation between a beginning balance, changes, and an ending balance.</p> <p>Beginning balance concept MUST be an instant. Beginning balance concept MUST be the same concept as the ending balance concept. Changes MUST be a duration. Changes MAY have a Roll Up.</p>	<p>This has a dependency on the Roll Up as this includes a Roll Up plus an XBRL Formula which expresses the relation between the beginning balance, changes, and ending balance.</p> <p>ISSUE: Do you want to allow multiple changes in the roll forward or define a roll forward as having only one changes concept. In reality, there is not really a difference in that you can always add another changes concept which groups any number of changes concepts together into one change concept.</p>
brm: Other Relations	A Hierarchy with a set of XBRL Formulas which define any set of numeric relations between a set of concepts.	Any set of complex relations can be created using XBRL Formula to the extend XBRL Formula supports expressing such relations. An XBRL Formula editor would be used, these cannot be auto-generated. Basically, the Business Rules express relations between the Concepts within the Hierarchy.
<b>brm: Measure</b>	No equivalent	<i>This is abstract in the logical model.</i>



Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
<b>brm: Measure Concept (for Fact)</b>	No equivalent. A class of Measure.	<i>This is abstract in the logical model.</i>
brm: Concept	XBRL element (i.e. contains a substitutionGroup value of "xbrli:item" or something which resolves to xbrli:item)  This Measure is REQUIRED.	We need to exclude xbrldt:hypercube, xbrldt:dimension, brm:domainMember, link:part
<b>brm: Measure Context</b>	No equivalent. A class of Measure.	<i>This is abstract in the logical model.</i>
brm: Calendar Time [Measure]	Expressed as <period> element of an XBRL instance context.  This Measure is REQUIRED.	Note that there is no way to express labels or references on a <period> in XBRL 2.1. Do we want to allow generic linkbase labels and/or references?  Note that there is no "domain" for calendar time defined.  Note that there is no "Measure relations" for calendar time.
brm: Reporting Entity [Measure]	Expressed as within the <entity> <identifier>. Reporting entity is the combination of the schema attribute and the <identifier> value.  This Measure is REQUIRED.	Note that there is no way to express labels or references on a <identifier> in XBRL 2.1. Do we want to allow generic linkbase labels and/or references?  Note that there is no "domain" for reporting entity defined.  Note that there is no "Measure relations" for reporting entity.

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
<p><b><i>brm: Measure Characteristics</i></b></p>	<p>No equivalent. A class of Measure.</p>	<p><i>This is abstract in the logical model.</i></p> <p>Typed members are not allowed in this implementation. Typed members are not allowed in the US GAAP/SEC XBRL implementation. Simple typed members are not really a problem, they have two negative characterises when compared to explicit members: (1) typed member cannot have a hierarchy, they are a flat list; (2) typed members cannot have a label or labels in different languages.</p> <p>There are two advantages that typed members provide: (1) they make it so no physical extension taxonomy needs to be created; (2) if the list of members is really long type members provide an advantage because you don't have to articulate the complete list; rather you only articulate the "pattern" of the member in a schema.</p> <p>There is zero difference between the semantics of typed members and explicit members, this all boils down to the characteristics of the implemented syntax.</p>
<p>Report Date [Measure], Fiscal Period [Measure], Legal Entity [Measure], Business Segment [Measure], Operations Breakdown [Measure], Measurement Basis [Measure], Restatement [Measure], Reporting Scenario [Measure], Third Party Verification [Measure], Other Properties of Measure</p> <p>[CSH: Restatement probably does not belong here. Should use Report Date [Measure]. I can explain.]</p>	<p>Implemented as an XBRL Dimensions dimension.</p> <p>XBRL Dimension (i.e. XBRL concept which contains a substitutionGroup value of "xbrldt:dimension")</p> <p>MUST have an immediate child which is an XBRL Dimension domain. (i.e. there must be on and only one domain)</p> <p>All children MUST be members (i.e. XBRL concept which contains a substitutionGroup value of "brm:domainMember".</p>	<p>Some people believe that rather than using substitution groups to define Members, data types should be used. XBRL Dimensions uses substitutionGroups to define a hypercube and dimensions. As such, I believe that sets the precedent to do the same for domains and members.</p> <p>However, I am no expert and would defer to technical experts who understand the pros and cons of using the XML Schema substitutionGroup or the type attribute.</p> <p>Also, I don't think there should be separated substitionGroups or types for domain and member; members could be also used as domains it seems and domains also used as members. The US GAAP Taxonomy follows this approach.</p>

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
brm: General Comment	<p>Class of Value Attribute.</p> <p>The XBRL footnote would have a specific role for a General Comment. Business Report creators can provide general comments associated with a specific Fact.</p>	See Value Attribute above.
brm: Reason Not Reported	<p>Class of Value Attribute.</p> <p>XBRL instance item which has (a) an attribute "nil" with a value of true; (b) an ID with a reference to an XBRL footnote.</p> <p>The XBRL footnote would have a specific role which distinguishes the 14 different reasons we know of that a value may not have been reported. Then, the instance creator would provide a comment in the value of the footnote resource.</p>	See Value Attribute above.
brm: Reclassification	<p>Class of Value Attribute.</p> <p>XBRL Footnote connected to XBRL fact via ID attribute. The footnote has a specific role defined in order to identify the XBRL Footnote as describing the footnote as an explanation of a financial statement reclassification.</p>	<p>Note that there is something very important going on here. If reclassifications are implemented in this manner, they have no impact on the processing of the XBRL Dimensions as the XBRL fact ID is not part of the processing of dimensions. The point is, this is a way to have other pieces of information articulated about a fact without goofing up the set of measures. Another way of saying this is that we might want another type of object called something like "Fact Attribute" rather than "Measure".</p>

Logical Model Object Class	XBRL Syntax Instantiation	Comments, explanations, observations
xbrl: Domain	<p>Implemented as an XBRL Dimensions Domain.</p> <p>Total or other placeholder for a Measure. A Domain is required, only one Domain is allowed.</p> <p>The Domain may, more may not, be useable within a Business Report.</p>	<p>Note that a Measure implemented as a context &lt;entity&gt; or &lt;period&gt; does not have a Domain.</p> <p>Note that the Measure Concept does not have a Domain.</p>
xbrl: Member	<p>Implemented as an XBRL Dimensions Member, XBRL context value or XBRL Dimensions Primary item depending on the type of Member Relation.</p> <p>A Member is a value of a Measure. Measures can only exist within a Domain. Members can have other Members.</p>	<p>This is the name of the XBRL Dimension member, the value of the &lt;entity&gt;&lt;identifier&gt; and &lt;identifier scheme=""&gt;, the value of the &lt;period&gt;&lt;startDate&gt; or &lt;endDate&gt; or &lt;instant&gt; or &lt;forever&gt;; or the name of the XBRL element which is a primary item.</p>

## **Prototype Application:**

The following Excel application uses the Business Reporting and Financial Reporting Logical Models to create the following renderings of information within the XBRL instance and XBRL taxonomies (i.e. no additional information is used). This is achievable for two reasons: (1) the information model is adhered to, (2) everything is explicit (i.e. there is no guess work necessary).

You can download an Excel spreadsheet with the extracted information here (this Excel spreadsheet is useful in reverse engineering how the logical model components are used:

[http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance\\_Extracted.xls](http://www.xbrlsite.com/Demos/FRTA/2010-06-15/company-instance_Extracted.xls)

You can grab and run the prototype Excel application here (note that this Excel spreadsheet contains macros):

<http://www.xbrlsite.com/Demos/FRTA/2010-06-15/HypercubeViewer.zip>

The following pages contain the screen shots should you not be able to download the spreadsheet examples or run the sample Excel application. As you look at the screen shots, you can see how the Measures are used to organize the Fact Groups. You can probably imagine that not only can one extract information from the XBRL instance, one can also generate an XBRL instance by simply doing this process in reverse. Further, it is not hard to imagine creating a taxonomy by editing the rows and columns of the Excel spreadsheet (or other application) which would generate the XBRL taxonomy (i.e. create an extension).

This is all done by interacting with the Info Set of the XBRL instance DTS after the XBRL processor has created that Info Set. See the Processing Model document which discusses that process.

	A	B	C	D	E	F
1	<b>Fact Group: gaap:SalesAnalysisSummaryFactGroup</b>					
2	<b>Slices:</b>					
3	brm:ReportingEntityMeasure	ACME (http://www.ACME.com)				
4	frta:LegalEntityMeasure	company:ACMECompanyMember				
5	frta:BusinessSegmentMeasure	frta:BusinessSegmentsAllDomain				
6	frta:GeographicAreaMeasure	frta:GeographicAreasAllDomain				
7						
8						
9		<b>Label</b>	<b>Name</b>	<b>2010-01-01/2010-12-31</b>	<b>2009-01-01/2009-12-31</b>	<b>2008-01-01/2008-12-31</b>
10		Sales Analysis [Measure Concepts]				
11		Sales Analysis [Hierarchy]	gaap:SalesAnalysisHierarchy			
12		Sales	gaap:Sales	32,038,000	35,805,000	32,465,000
13						

	A	B	C	D	E	F
1	<b>Fact Group: gaap:SalesAnalysisByBusinessSegmentFactGroup</b>					
2	<b>Slices:</b>					
3	brm:ConceptMeasure	gaap:Sales				
4	brm:ReportingEntityMeasure	ACME (http://www.ACME.com)				
5	frta:LegalEntityMeasure	company:ACMECompanyMember				
6	frta:GeographicAreaMeasure	frta:GeographicAreasAllDomain				
7						
8						
9		<b>Label</b>	<b>Name</b>	<b>2010-01-01/2010-12-31</b>	<b>2009-01-01/2009-12-31</b>	<b>2008-01-01/2008-12-31</b>
10		Business Segment [Measure]				
11		<b>Business Segments, All [Domain]</b>	frta:BusinessSegmentsAllDomain	32,038,000	35,805,000	32,465,000
12		<b>Pharmaceuticals Segment [Member]</b>	company:PharmaceuticalsSegmentMember	20,181,000	18,150,000	15,275,000
13		<b>Consumer Health Segment [Member]</b>	company:ConsumerHealthSegmentMember	6,675,000	6,514,000	5,752,000
14		<b>Generics Segment [Member]</b>	company:GenericsSegmentMember	2,433,000	1,973,000	1,823,000
15		<b>Other Segments [Member]</b>	company:OtherSegmentsMember	2,749,000	9,168,000	9,615,000
16						

	A	B	C	D	E	F
1	<b>Fact Group: gaap:SalesAnalysisByGeographicAreaFactGroup</b>					
2	<b>Slices:</b>					
3	brm:ConceptMeasure	gaap:Sales				
4	brm:ReportingEntityMeasure	ACME (http://www.ACME.com)				
5	frta:LegalEntityMeasure	company:ACMECompanyMember				
6	frta:BusinessSegmentMeasure	frta:BusinessSegmentsAllDomain				
7						
8						
9		<b>Label</b>	<b>Name</b>	<b>2010-01-01/2010-12-31</b>	<b>2009-01-01/2009-12-31</b>	<b>2008-01-01/2008-12-31</b>
10		Geographic Area [Measure]				
11		<b>Geographic Areas, All [Domain]</b>	frta:GeographicAreasAllDomain	32,038,000	35,805,000	32,465,000
12		<b>US and Canada Region [Member]</b>	frta:USAndCanadaRegionMember	10,214,000	12,649,000	10,137,000
13		<b>Europe Region [Member]</b>	frta:EuropeRegionMember	11,901,000	10,374,000	10,396,000
14		<b>Asia Region [Member]</b>	frta:AsiaRegionMember	5,639,000	4,371,000	3,210,000
15		<b>Other Regions [Member]</b>	frta:OtherRegionsMember	4,284,000	8,411,000	8,722,000
16						



	A	B	C	D
1	<b>Fact Group: gaap:AccountingPoliciesFactGroup</b>			
2	<b>Slices:</b>			
3	brm:ReportingEntityMeasure	ACME (http://www.ACME.com)		
4	frta:LegalEntityMeasure	company:ACMECompanyMember		
5	frta:BusinessSegmentMeasure	frta:BusinessSegmentsAllDomain		
6				
7				
8				
9		<b>Label</b>	<b>Name</b>	<b>2010-01-01/2010-12-31</b>
10		Accounting Policies [Measure Concepts]		
11		<b>Accounting Policies [Hierarchy]</b>	<b>gaap:AccountingPoliciesHierarchy</b>	
12		<b>Basis of Presentation [Text Block]</b>	<b>gaap:BasisOfPresentationTextBlock</b>	The financial statements have been prepared on the historical cost basis, except for the revaluation of land and buildings and certain financial instruments. The principal accounting policies adopted are set out below.
13		<b>Basis of Presentation</b>	<b>gaap:BasisOfPresentation</b>	Historical Cost
14		<b>Inventory Policy [Text Block]</b>	<b>gaap:InventoryPolicyTextBlock</b>	Inventories are stated at the lower of cost and net realisable value. Cost comprises direct materials and, where applicable, direct labour costs and those overheads that have been incurred in bringing the inventories to their present location and condition. Cost is calculated using the weighted average method. Net realisable value represents the estimated selling price less all estimated costs to completion and costs to be incurred in marketing, selling and distribution. Inventories are comprised of raw materials and work in progress.
15		<b>Inventory Valuation Method</b>	<b>gaap:InventoryValuationMethod</b>	Cost
16		<b>Description of Inventory Components</b>	<b>gaap:DescriptionOfInventoryComponents</b>	weighted average method
17		<b>Inventory Cost Method</b>	<b>gaap:InventoryCostMethod</b>	FIFO
18		<b>Description of Net Realizable Value</b>	<b>gaap:DescriptionNetRealizableValue</b>	This is a description of the net realizable value.
19		<b>Financial Instruments Policy [Text Block]</b>	<b>gaap:FinancialInstrumentsPolicyTextBlock</b>	Financial assets and liabilities are recognised on the Group's balance sheet when the Group has become a party to the contractual provisions of the investment.
20		<b>Trade Receivables Policy</b>	<b>gaap:TradeReceivablesPolicy</b>	Trade receivables are stated at their nominal value as reduced by appropriate allowances for estimated irrecoverable amounts.
21		<b>Investments in Securities Policy</b>	<b>gaap:InvestmentsInSecuritiesPolicy</b>	Investments in securities are recognised on a trade-date basis and are initially measured at cost.
22		<b>Bank Borrowings Policy</b>	<b>gaap:BankBorrowingsPolicy</b>	Interest-bearing bank loans and overdrafts are recorded at the proceeds received, net of direct issue costs. Finance charges, including premiums payable on settlement or redemption, are accounted for on an accrual basis and are added to the carrying amount of the instrument to the extent that they are not settled in the period in which they arise.
23		<b>Provisions Policy</b>	<b>gaap:ProvisionsPolicy</b>	Provisions are recognised when the Group has a present obligation as a result of a past event which it is probable will result in an outflow of economic benefits that can be reasonably estimated.

	A	B	C	D	E	F
1	<b>Fact Group: gaap:PropertyPlantEquipmentByComponentFactGroup</b>					
2	<b>Slices:</b>					
3	brm:ReportingEntityMeasure	ACME ( <a href="http://www.ACME.com">http://www.ACME.com</a> )				
4	frta:LegalEntityMeasure	company:ACMECompanyMember				
5	frta:BusinessSegmentMeasure	frta:BusinessSegmentsAllDomain				
6						
7						
8						
9		<b>Label</b>	<b>Name</b>	<b>2010-12-31</b>	<b>2009-12-31</b>	<b>2008-12-31</b>
10		Property, Plant and Equipment, by Component, [Measure Concepts]				
11		Property, Plant and Equipment, Net [Roll Up]	gaap:PropertyPlantEquipmentNetRollUp			
12		Land	gaap:Land	5,347,000	1,147,000	1,147,000
13		Buildings, Net	gaap:BuildingsNet	244,508,000	366,375,000	
14		Furniture and Fixtures, Net [Roll Up]	gaap:FurnitureFixturesNetRollUp			
15		Furniture, Net	gaap:FurnitureNet	34,000,000	34,000,000	
16		Fixtures, Net	gaap:FixturesNet	457,000	457,000	
17		Furniture and Fixtures, Net	gaap:FurnitureAndFixturesNet	34,457,000	34,457,000	
18		Computer Equipment, Net	gaap:ComputerEquipmentNet	4,169,000	5,313,000	
19		Other Property, Plant and Equipment, Net	gaap:OtherPropertyPlantAndEquipmentNet	6,702,000	6,149,000	
20		Property, Plant and Equipment, Net, Total	gaap:PropertyPlantAndEquipmentNet	295,183,000	413,441,000	
21						

	A	B	C	D	E	F	G	H
1	<b>Fact Group: gaap:LandChangesFactGroup</b>							
2	<b>Slices:</b>							
3	brm:ReportingEntityMeasure	ACME (http://www.ACME.com)						
4	frta:LegalEntityMeasure	company:ACMECompanyMember						
5	frta:BusinessSegmentMeasure	frta:BusinessSegmentsAllDomain						
6								
7								
8								
9		<b>Label</b>	<b>Name</b>	<b>2009-01-01/2009-12-31</b>	<b>2010-01-01/2010-12-31</b>	<b>2010-12-31</b>	<b>2009-12-31</b>	<b>2008-12-31</b>
10		Land Changes [Measure Concepts]						
11		<b>Movement in Land [Roll Forward]</b>	<b>gaap:MovementInLandRollForward</b>					
12		Land, Beginning Balance	gaap:Land			5,347,000	1,147,000	1,147,000
13		Land, Period Increase (Decrease), Total [Roll Up]	gaap:LandPeriodIncreaseDecreaseTotalRollUp					
14		Land, Additions [Roll Up]	gaap:LandAdditionsRollUp					
15		Land, Additions, from Purchase	gaap:LandAdditionsFromPurchase	100,000	1,000,000			
16		Land, Additions, from Acquisition	gaap:LandAdditionsFromAcquisition	300,000	992,000			
17		Land, Additions	gaap:LandAdditions	400,000	1,992,000			
18		Land, Disposals	gaap:LandDisposals	200,000	193,000			
19		Land, Translation Difference	gaap:LandTranslationDifference	(200,000)	2,401,000			
20		Land, Period Increase (Decrease), Total	gaap:LandPeriodIncreaseDecrease	0	4,200,000			
21		Land, Ending Balance	gaap:Land			5,347,000	1,147,000	1,147,000
22								

Note that this is not formatted as desired. It should look more like this, I just have not coded this yet:

*	A	B	C	D
1	brm: Concept [Measure]	brm: Calendar Time [Measure]	app: Scale	brm: Fact Value
2	<b>gaap: Land Changes [Measure Concepts]</b>			
3	<b>gaap: Movement in Land [Roll Forward]</b>			
4	gaap: Land, Beginning Balance	2008-12-31	1000	1,147
5	<b>gaap: Land, Additions [Roll Up]</b>			
6	gaap: Land, Additions, from Purchase	2009-01-01/2009-12-31	1000	100
7	gaap: Land, Additions, from Acquisition	2009-01-01/2009-12-31	1000	300
8	gaap: Land, Additions, Total	2009-01-01/2009-12-31	1000	400
9	gaap: Land, Disposals	2009-01-01/2009-12-31	-1000	-200
10	gaap: Land, Translation Difference	2009-01-01/2009-12-31	1000	-200
11	gaap: Land, Period Increase (Decrease), Total	2009-01-01/2009-12-31	1000	0
12	gaap: Land, Ending Balance	2009-12-31	1000	1,147
13				
14	<b>gaap: Land Changes [Measure Concepts]</b>			
15	<b>gaap: Movement in Land [Roll Forward]</b>			
16	gaap: Land, Beginning Balance	2009-12-31	1000	1,147
17	<b>gaap: Land, Additions [Roll Up]</b>			
18	gaap: Land, Additions, from Purchase	2010-01-01/2010-12-31	1000	1,000
19	gaap: Land, Additions, from Acquisition	2010-01-01/2010-12-31	1000	992
20	gaap: Land, Additions, Total	2010-01-01/2010-12-31	1000	1,992
21	gaap: Land, Disposals	2010-01-01/2010-12-31	-1000	-193
22	gaap: Land, Translation Difference	2010-01-01/2010-12-31	1000	2,401
23	gaap: Land, Period Increase (Decrease), Total	2010-01-01/2010-12-31	1000	4,200
24	gaap: Land, Ending Balance	2010-12-31	1000	5,347

	A	B	C	D	E	F	G	
1	<b>Fact Group: gaap:DirectorCompensationFactGroup</b>							
2	<b>Slices:</b>							
3	brm:ReportingEntityMeasure	ACME (http://www.ACME.com)						
4	brm:CalendarTimeMeasure	2010-01-01/2010-12-31						
5	frta:LegalEntityMeasure	company:ACMECompanyMember						
6	frta:ReportingScenarioMeasure	frta:ActualMember						
7	frta:ThirdPartyVerificationMeasure	frta:AuditedMember						
8								
9		<b>Label</b>	<b>Name</b>	<b>gaap:DirectorSalary</b>	<b>gaap:DirectorBonuses</b>	<b>gaap:DirectorFees</b>	<b>gaap:DirectorOptionsGrantedAtFairValue</b>	
10		Director [Measure]						
11		Directors, All [Domain]	frta:DirectorsAllDomain	2,000	2,000	2,000	2,000	
12		Jane Doe [Member]	company:JaneDoeMember	1,000	1,000	1,000	1,000	
13		John Doe [Member]	company:JohnDoeMember	1,000	1,000	1,000	1,000	
14								
15								