

XML Technologies

XSL, XPath, XLink, XPointer, Xquery

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What are the XML Technologies?

The **XML technologies** are a set of modules that provides XML users with useful services.

The XML Technologies more used:

- **XSL:** eXtensible Stylesheet Language.
- **XPath:** provides a common syntax and semantics for functionality shared between XSLT and XPointer.
- **XLink:** language that allows elements to be inserted into XML documents in order to create and describe links between resources.
- **XQuery:** query language. It facilitates the data extraction from XML documents.

XSL – More Than a Style Sheet Language

XSL stands for eXtensible Style Language. It was developed by the World Wide Web Consortium.

XSL describes how the XML document should be displayed.

XSL consists of three parts:

- **XSLT:** a language for transforming XML documents.
- **XPath:** a language for navigating in XML documents.
- **XSL-FO:** a language for formatting XML documents.

<http://www.w3.org/>

I. XSLT: XSL Transformations



XSLT is the most important part of **XSL**.

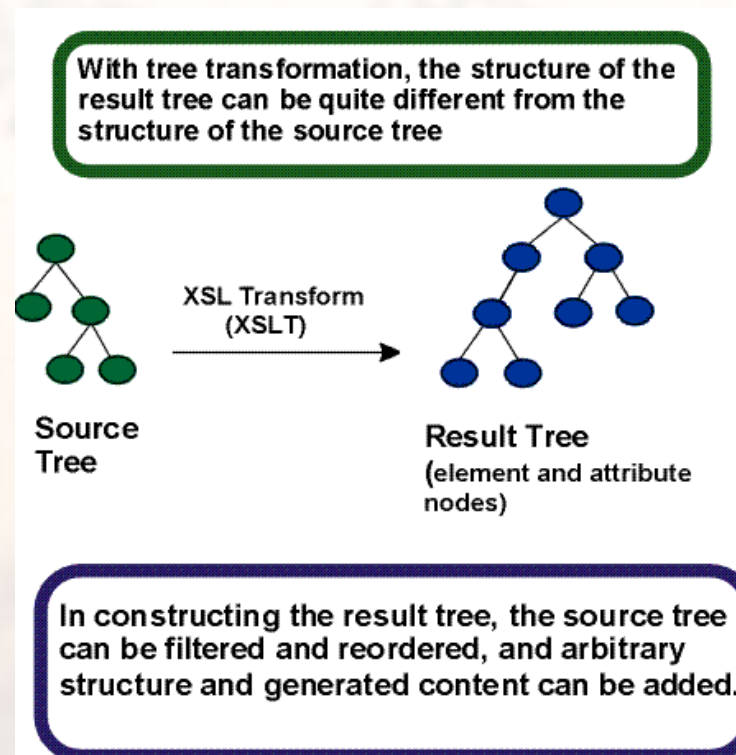
XSLT is used to transform an XML document into another XML document or another type of document that may be recognized by a browser, like HTML and XHTML.

Normally, **XSLT** does this by transforming each XML element into an (X)HTML element.

With **XSLT** you can add/remove elements and attributes to or from the output file.

I. XSLT: XSL Transformations

A common way to describe the transformation process is to say that **XSLT** transforms an XML source-tree into and XML result-tree.



II. Xpath in XSL

XPath is used in **XSL** Transformations to find information in an XML document.

Xpath is used to navigate through elements and attributes in XML documents.

More about **XPath** later...



III. XSL-FO: XSL Formatting Objects

XSL-FO is an XML language describing the formatting of XML data for output to screen, paper or other media.

XSL-FO is formally named **XSL**.

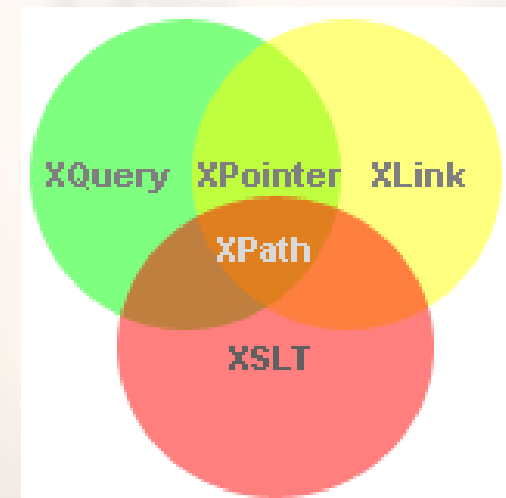
XSL-FO documents are XML files with output information. They contain information about the output layout and output contents.

What is XPath?

Xpath uses path expressions to select nodes or nodes-sets in an XML document.

XPath includes over 100 functions. There are functions for string values, numeric values, date and time comparison, node and QName manipulation and more.

XPath is used in others XML languages.



<http://www.w3.org/>

XLink language allows elements to be inserted into XML documents in order to create and describe links resources.

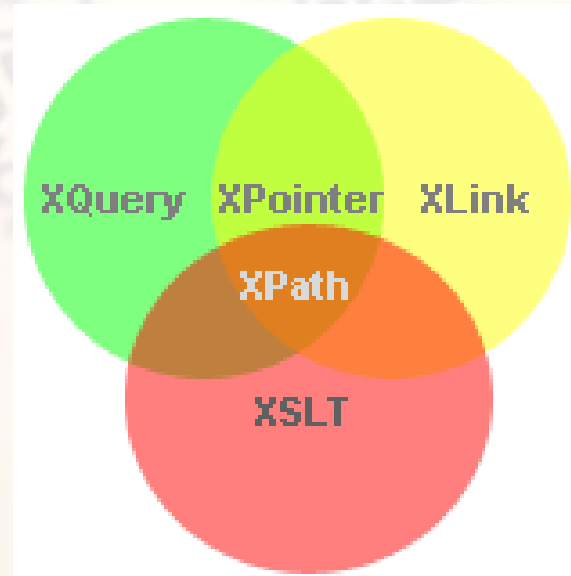
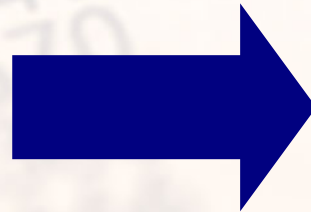
XLink allows XML documents to:

- **Assert linking relationships among more than two resources.**
- **Associate metadata with a link.**
- **Express links that reside in a location separate from the link resources.**

- **Xquery is the language for querying XML data.**
- **Xquery for XML is like SQL for databases.**
- **Xquery is built on Xpath expressions.**
- **Xquery is supported by all the major databases engine (IBM, Oracle, Microsoft...).**

What is the relation between XBRL and XML technologies?

- **XBRL is a language based on XML and therefore all XML technologies may be used in XBRL.**



How can these technologies be used in XBRL?

- **XBRL uses intensively XLink in taxonomies and instances:**

XBRL Taxonomy Schema (.xsd)

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<schema xmlns="http://www.w3.org/2001/XMLSchema" xmlns:xbrli="http://www.xbrl.org/2003/instance"
  xmlns:link="http://www.xbrl.org/2003/linkbase" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:esrs="
  http://www.e-ebs.org/eu/fr/esrs/corep/2005-12-31/d-et-2005-12-31" xmlns:ref="http://www.xbrl.org/2003/role"
  xmlns:ns1="http://xbrl.org/2005/xbrldt" targetNamespace="
  http://www.e-ebs.org/eu/fr/esrs/corep/2005-12-31/d-et-2005-12-31" elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <annotation>
  <appinfo>
  <link:linkbaseRef xlink:type="simple" xlink:href="d-et-2005-12-31-presentation.xml"
  xlink:role="http://www.xbrl.org/2003/role/presentationLinkbaseRef" xlink:arcrole="
  http://www.w3.org/1999/xlink/properties/linkbase" xlink:title="Presentation Links, all" />
  <link:linkbaseRef xlink:type="simple" xlink:href="d-et-2005-12-31-definition.xml"
  xlink:role="http://www.xbrl.org/2003/role/definitionLinkbaseRef" xlink:arcrole="
  http://www.w3.org/1999/xlink/properties/linkbase" xlink:title="Definition Links, all" />
  <link:linkbaseRef xlink:type="simple" xlink:href="d-et-2005-12-31-label.xml"
  xlink:role="http://www.xbrl.org/2003/role/labelLinkbaseRef" xlink:arcrole="
  http://www.w3.org/1999/xlink/properties/linkbase" xlink:title="Label Links, all" />
  <link:linkbaseRef xlink:type="simple" xlink:href="d-et-2005-12-31-reference.xml"
  xlink:role="http://www.xbrl.org/2003/role/referenceLinkbaseRef" xlink:arcrole="
  http://www.w3.org/1999/xlink/properties/linkbase" xlink:title="Reference Links, all" />
  </appinfo>
  </annotation>
</schema>
```

xlink:href

xlink:role

xlink:arcrole

xlink:title

How can these technologies be used in XBRL?



XBRL Instance Document (.xbrl)

```
http://xbrl.org/2005/xbrldt xbrldt-2005-11-07.xsd http://xbrl.org/2005/xbrldt xbrldt-2005-11-07.xsd
http://www.c-eps.org/eu/fr/esrs/corep/2005-12-31/d-rc-2005-12-31 d-rc-2005-12-31.xsd
http://xbrl.org/2005/xbrldt xbrldt-2005-11-07.xsd
http://www.c-eps.org/eu/fr/esrs/corep/2005-12-31/p-mf-2005-12-31 p-mf-2005-12-31.xsd
http://xbrl.org/2005/xbrldt xbrldt-2005-11-07.xsd >
<link:schemaRef xlink:type="simple" xlink:href="t-mc-2005-12-31.xsd" />
<link:schemaRef xlink:type="simple" xlink:href="t-mi-2005-12-31.xsd" />
<link:schemaRef xlink:type="simple" xlink:href="t-mt-2005-12-31.xsd" />
<link:schemaRef xlink:type="simple" xlink:href="t-me-2005-12-31.xsd" />
<link:schemaRef xlink:type="simple" xlink:href="t-mf-2005-12-31.xsd" />
<context id="context-1">
  <entity>
    <identifier scheme="www.mycompany.com">My Company</identifier>
  </entity>
  <period>
    <instant>2006-01-24</instant>
  </period>
  <scenario>
    <xbrldi:explicitMember xlink:type="simple" xlink:href="
t-mf-2005-12-31.xsd#t-mf_PositionsNonReportingCurrenciesDimension">d-rc:Euro</xbrldi:explicitMember>
  </scenario>
```

xlink:href

xlink:type

How can these technologies be used in XBRL?



XSLT is used in XBRL to show instance documents in whatever format you want:

Instance Document (.xbrl)

```

http://xbrl.org/2005/xbrldt xbrldt-2005-11-07.xsd http://xbrl.org/2005/xbrldt xbrldt-2005-11-07.xsd
http://www.ebs.org/ef/esrs/corep/2005-12-31/d-rc-2005-12-31 d-rc-2005-12-31.xsd
http://xbrl.org/2005/xbrldt xbrldt-2005-11-07.xsd
http://www.ebs.org/ef/esrs/corep/2005-12-31/p-mf-2005-12-31 p-mf-2005-12-31.xsd
http://xbrl.org/2005/xbrldt xbrldt-2005-11-07.xsd
<link:schemaRef xlink:type="simple" xlink:href="t-mc-2005-12-31.xsd" />
<link:schemaRef xlink:type="simple" xlink:href="t-mf-2005-12-31.xsd" />
<link:schemaRef xlink:type="simple" xlink:href="t-mf-2005-12-31.xsd" />
<link:schemaRef xlink:type="simple" xlink:href="t-mf-2005-12-31.xsd" />
<link:schemaRef xlink:type="simple" xlink:href="t-mf-2005-12-31.xsd" />
<context id="context-1">
  <entity>
    <identifier scheme="www.mycompany.com" My Company</identifier>
  </entity>
  <period>
    <instant>2006-01-24</instant>
  </period>
  <scenario>
    <xbrldi:explicitMember xlink:type="simple" xlink:href="t-mf-2005-12-31.xsd#t-mf_PositionsOnReportingCurrenciesDimension">d-rc:Euro</xbrldi:explicitMember>
  </scenario>

```



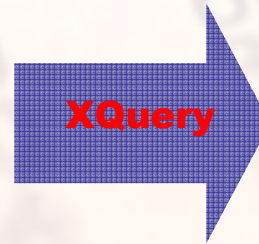
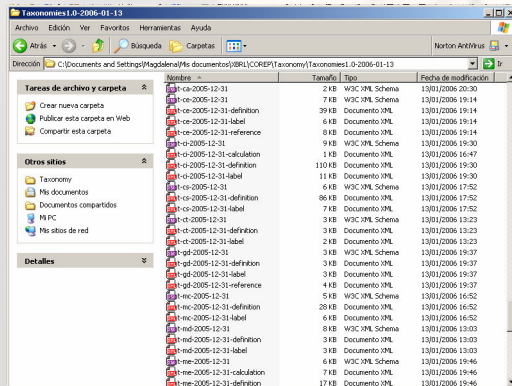
Instance Document (.html)

| XBRL Instance Content | Context Properties | Measure Values |
|-----------------------|---|-----------------------|
| Context | Id: context-1 Entity: My Company Period: 2006-01-24 Scenario: Explicit Dimension Member: Euro | Long 978 Short 867 |
| Context | Id: context-2 Entity: My Company Period: 2006-01-24 Scenario: Explicit Dimension Member: Maturity Ladder Approach Typed Dimension Member: Commodity2 | Long 964 Short 253 |

How can these technologies be used in XBRL?



XQuery is used for retrieving data from XBRL Taxonomy and Instances files.



| Template Names | Dimensions and Primary Taxonomies |
|-------------------------------|-----------------------------------|
| Template: t-ca-2005-12-31.xsd | p-ca-2005-12-31.xsd |
| | d-ee-2005-12-31.xsd |
| Template: t-ce-2005-12-31.xsd | d-rw-2005-12-31.xsd |
| | p-ci-2005-12-31.xsd |
| | d-et-2005-12-31.xsd |
| | d-ex-2005-12-31.xsd |
| Template: t-ci-2005-12-31.xsd | d-ic-2005-12-31.xsd |
| | d-oe-2005-12-31.xsd |
| | d-rw-2005-12-31.xsd |
| | p-ci-2005-12-31.xsd |
| | d-et-2005-12-31.xsd |
| | d-ex-2005-12-31.xsd |
| Template: t-cs-2005-12-31.xsd | d-ic-2005-12-31.xsd |
| | d-rw-2005-12-31.xsd |
| | d-sc-2005-12-31.xsd |
| | p-cs-2005-12-31.xsd |

The End...

It's your time...

