XBRL As the Data Standard for Corporate Internal Reporting

Avery Starr
Managing Director, Seatig Inc.

The Fate of XBRL

- External vs. Internal
- Passive vs. Active
- Complying vs. Driving

Better Future? Real Practice

- Project driven by business demand instead of government mandate
- Technologists were approached by business problems
- Business problems:
  - Information silo
  - Mismatch of business semantics
  - Traceability of business semantics
  - Atomization of large quantity of data
  - Deep analysis and make business sense of large quantity of data

Solutions Provided by XBRL

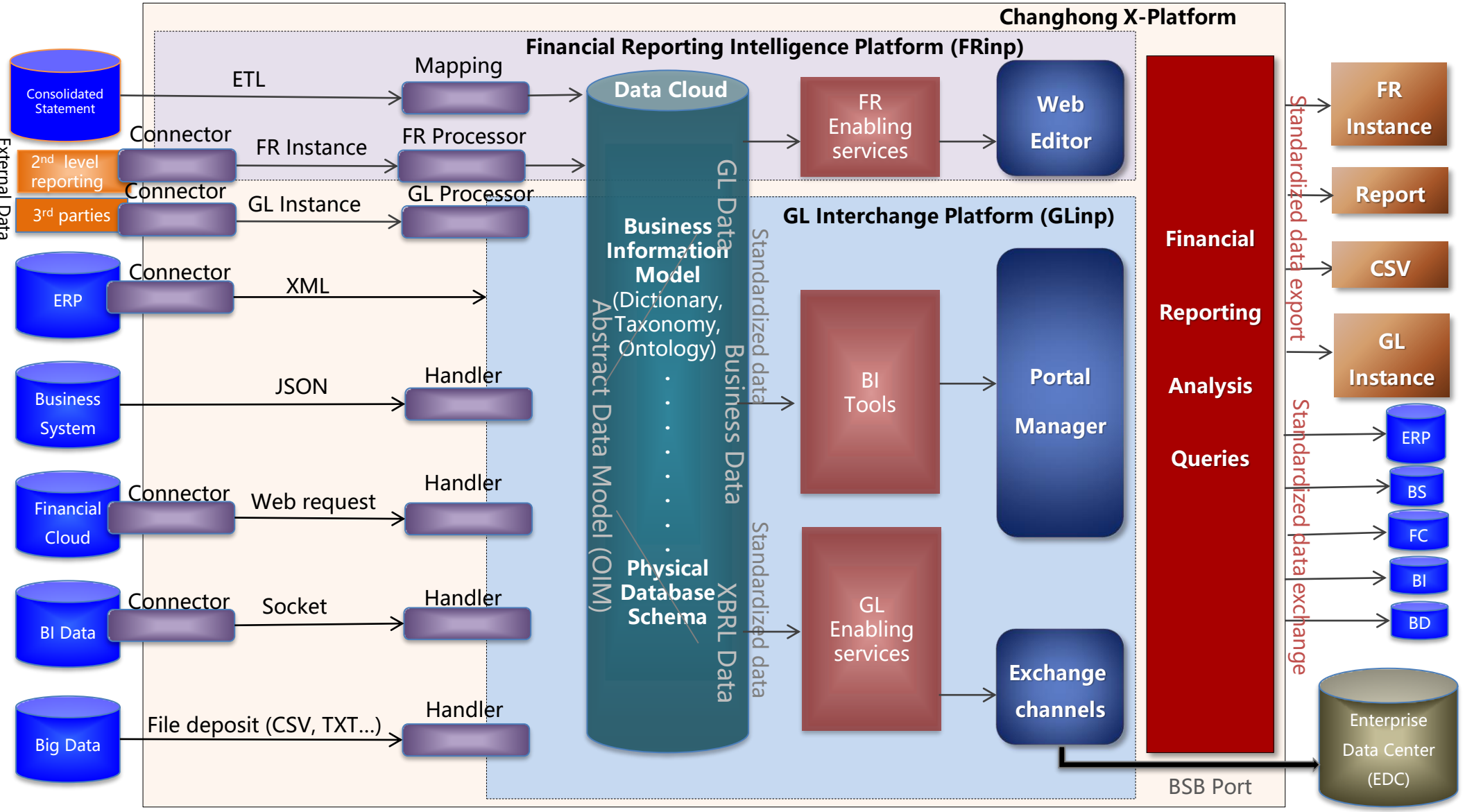
- Business problems and solutions:
  - Information silo
    - XBRL-based data broker and exchanges
    - Centralized atomic data asset depository
  - Mismatch of business semantics
    - Standard XBRL taxonomy
  - Traceability of business semantics
    - Gene trees of atomic data
  - Atomization of large quantity of data
    - BiDAS – Big Data Atomization and Standards based on XBRL
  - Deep analysis and make business sense of large quantity of data
    - Repository of atomic data accompanied by roll-up and drill-down facilities opens up tons of possibilities for analysis

Real World Projects Inspiration

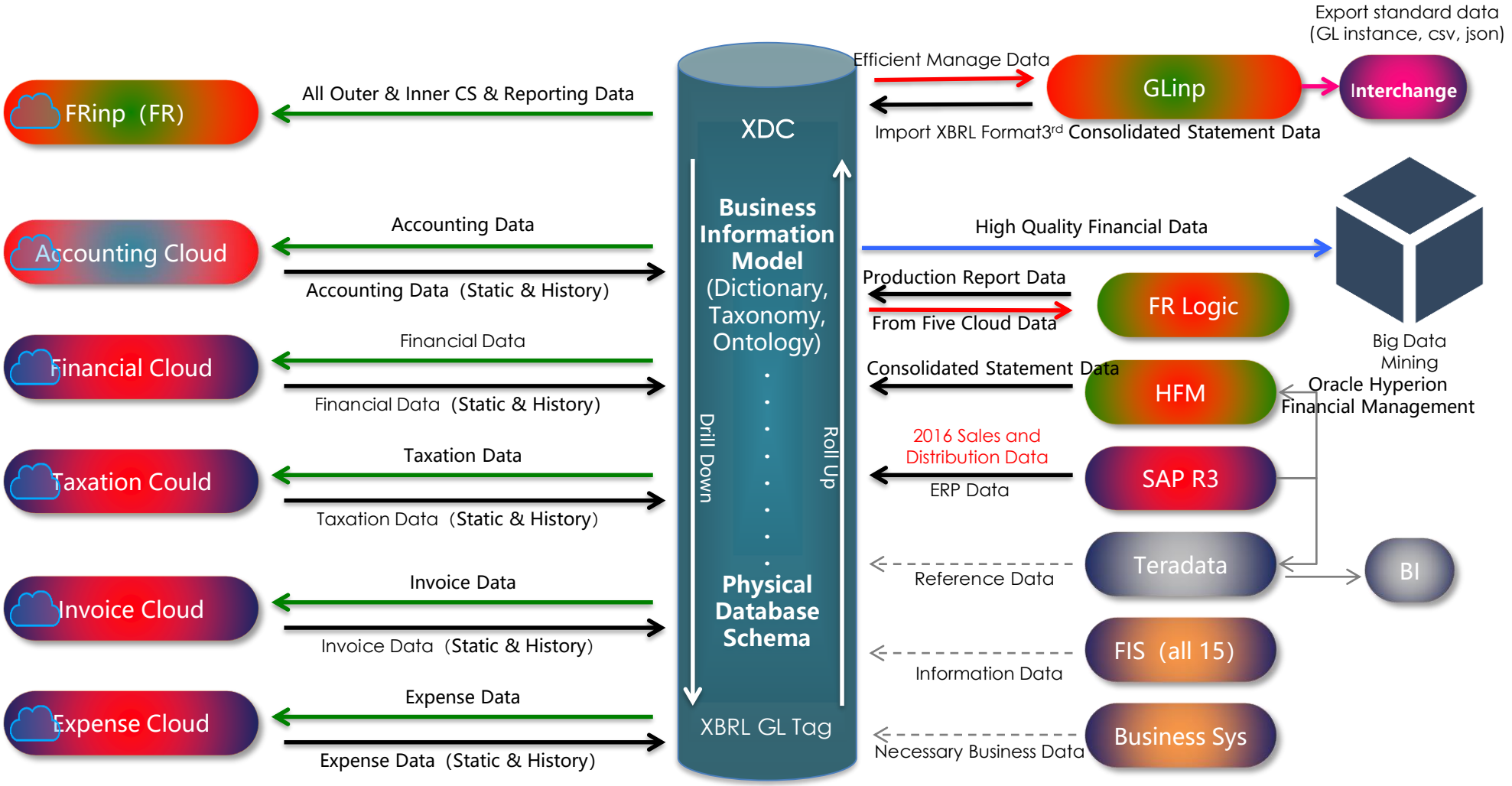
- X-Platform Project
- X-Platform Data Cloud
- Global Ledger Interchange Platform (GLinp)
- X-Platform Analytics

Copyright 2018

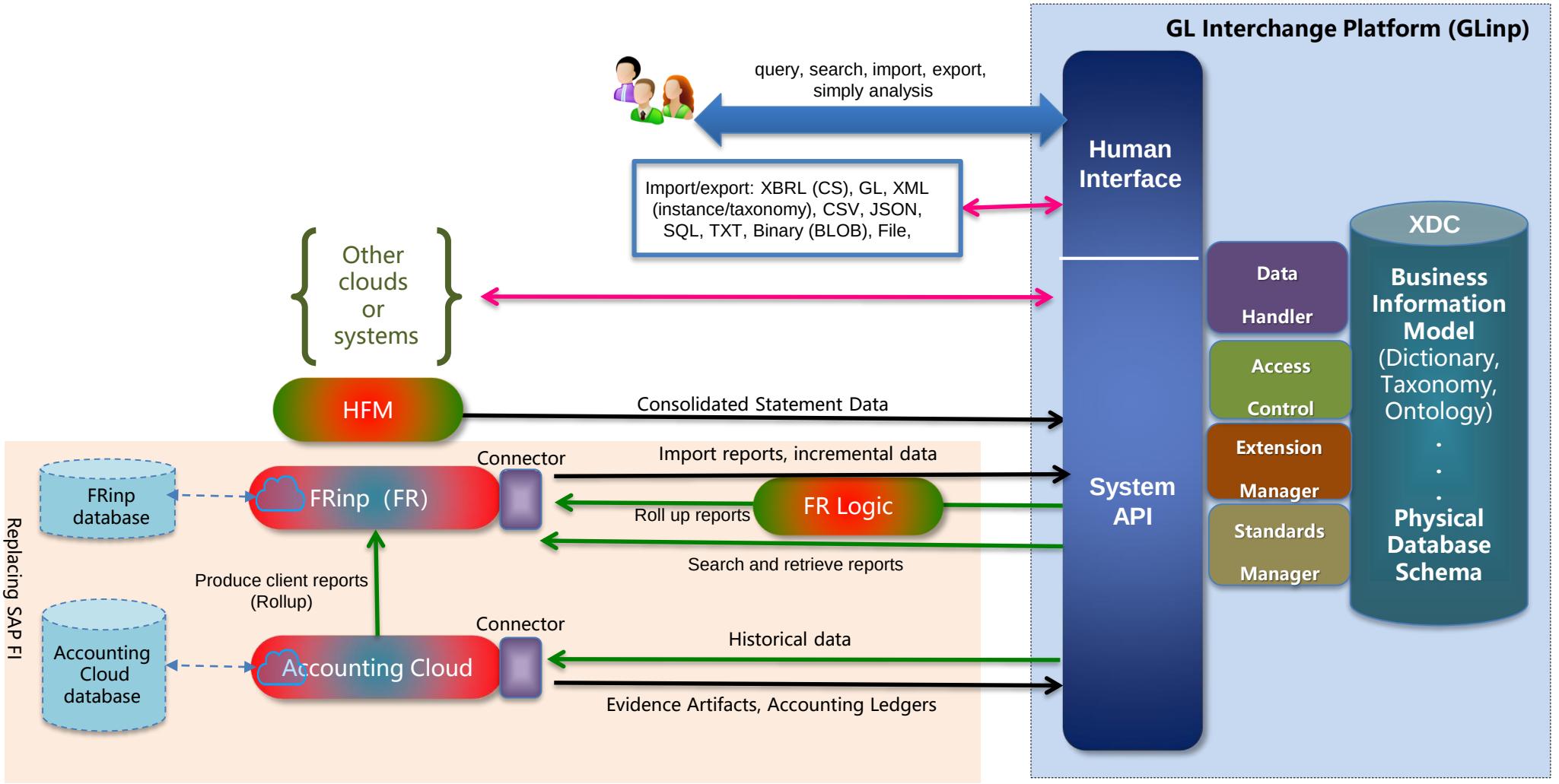
X-Platform Project



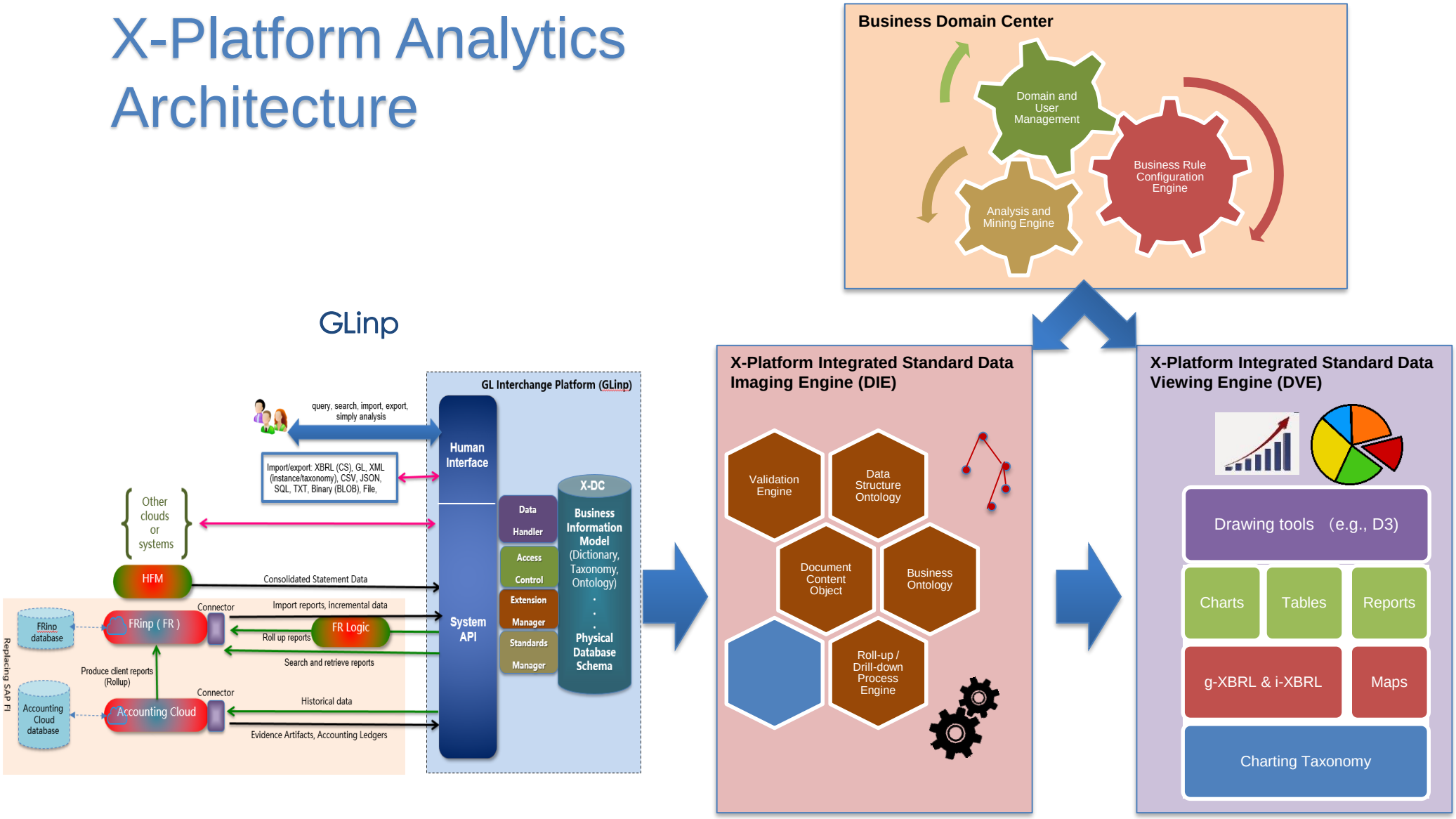
Data Cloud Providers & Consumers



GLinp Architecture

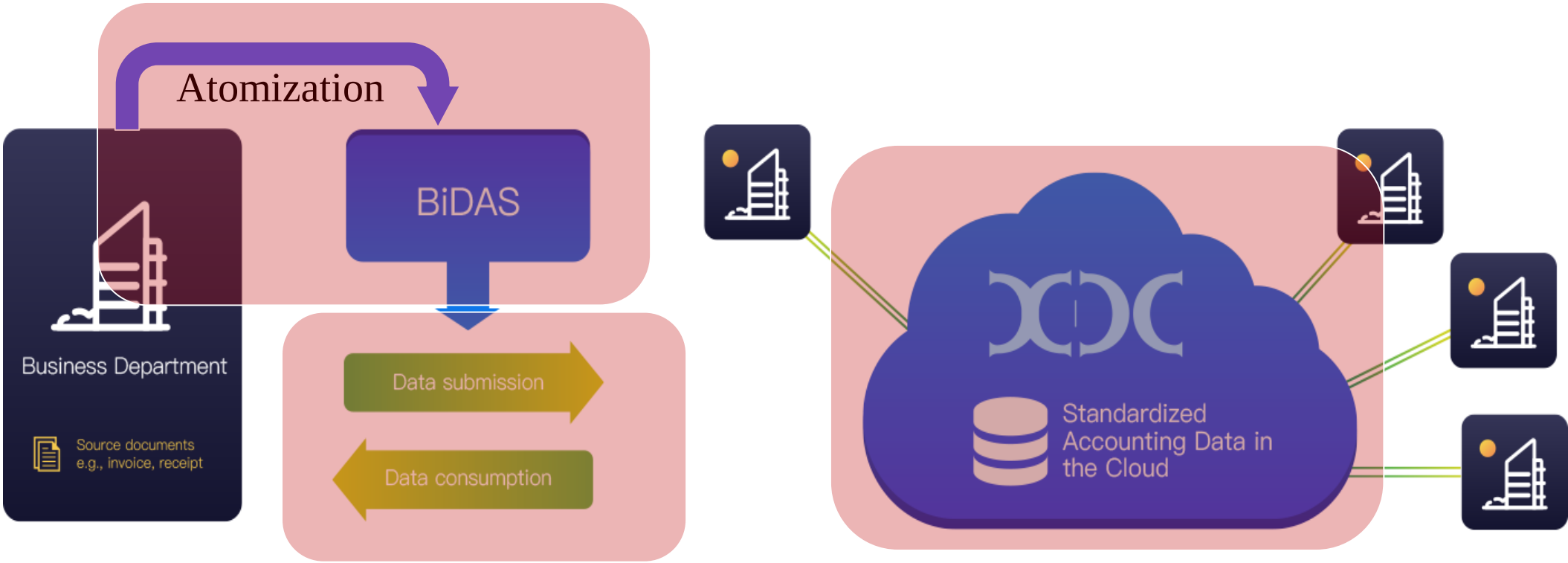


X-Platform Analytics Architecture

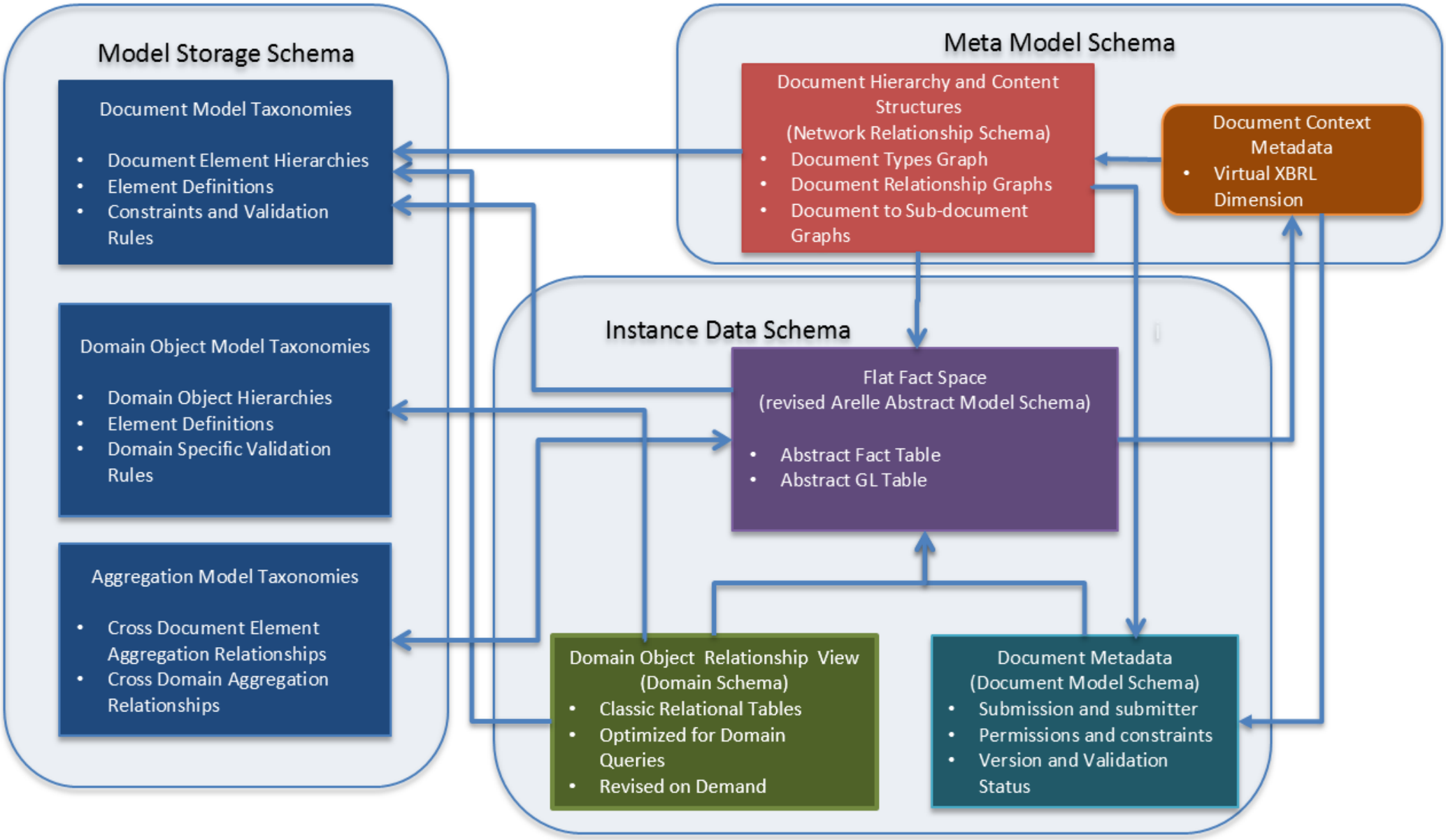


The XBRL approach

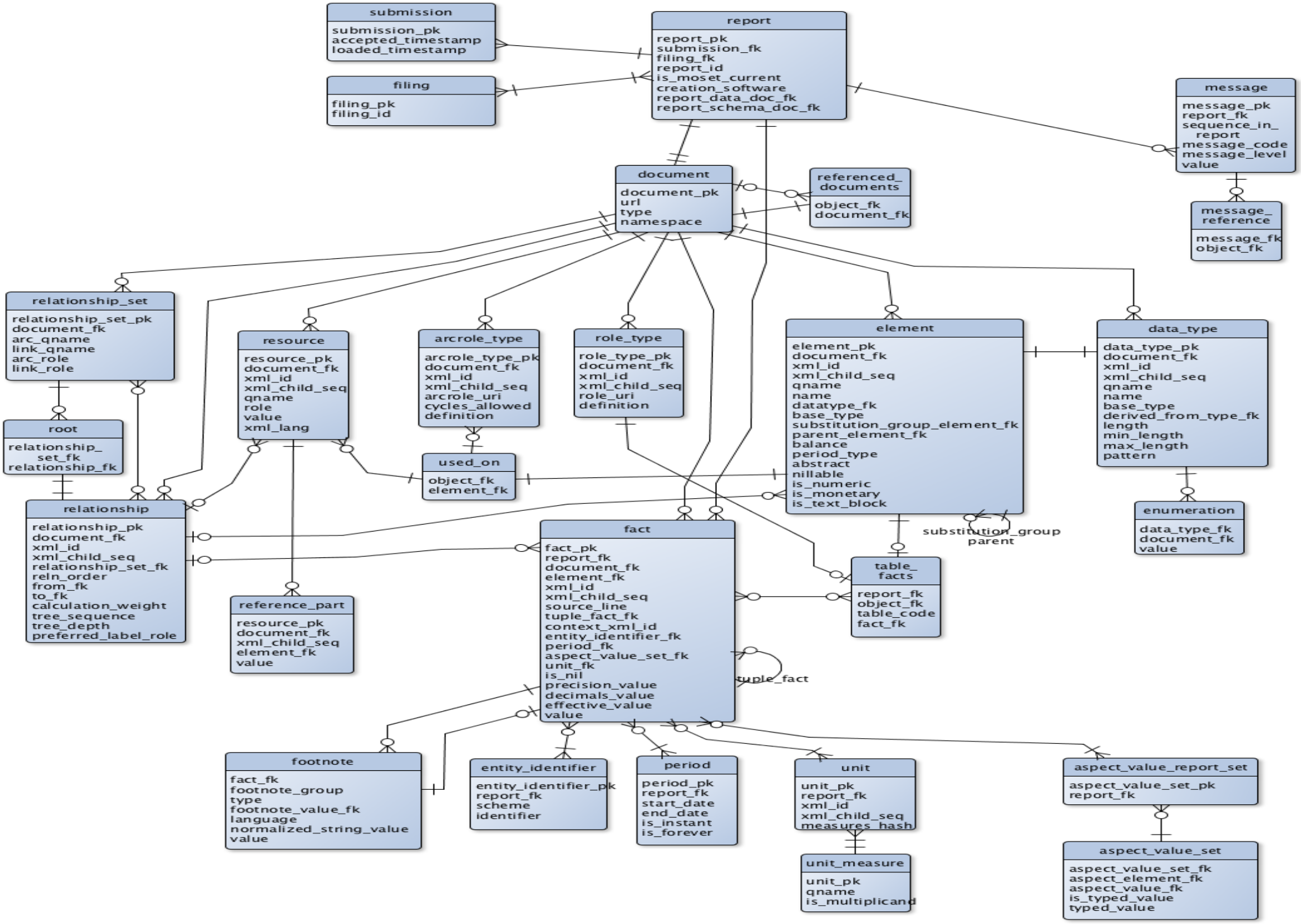
- Database
- Data Exchanger
- Atomization
  - Big Data Atomization and Standards (BiDAS), the Process



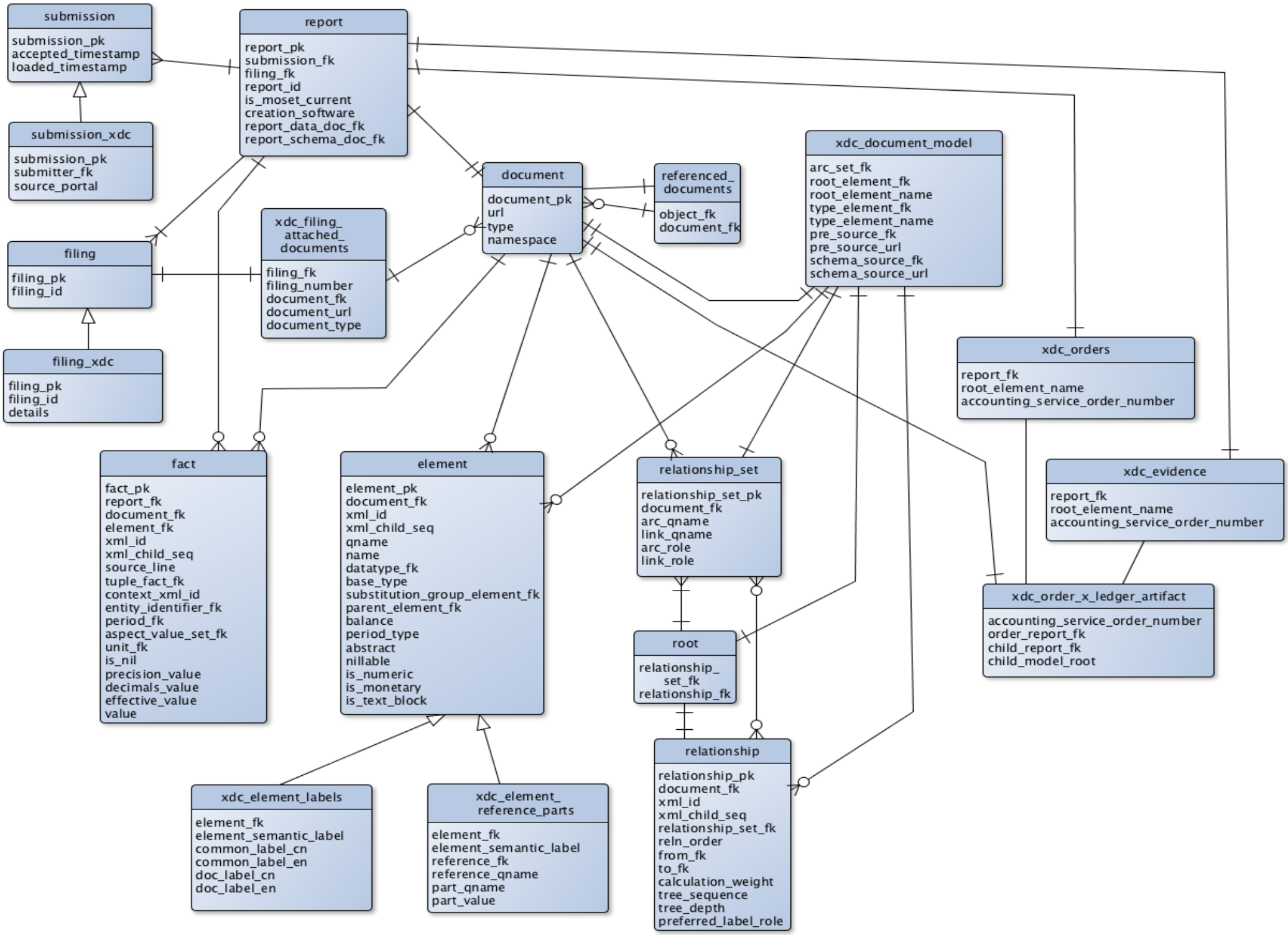
Database Overview



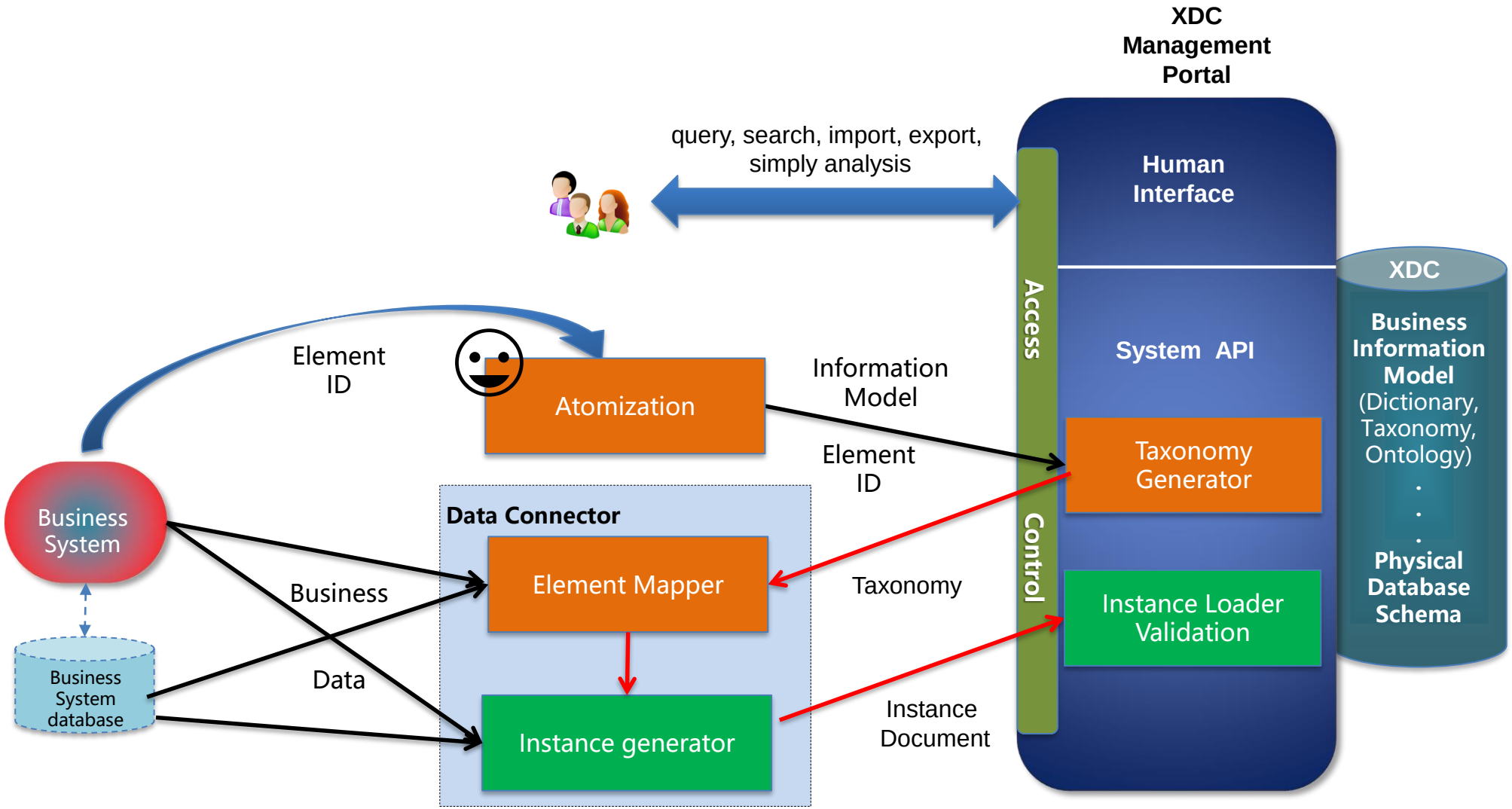
Database – core tables



Database – XDC extension



Data Exchanger

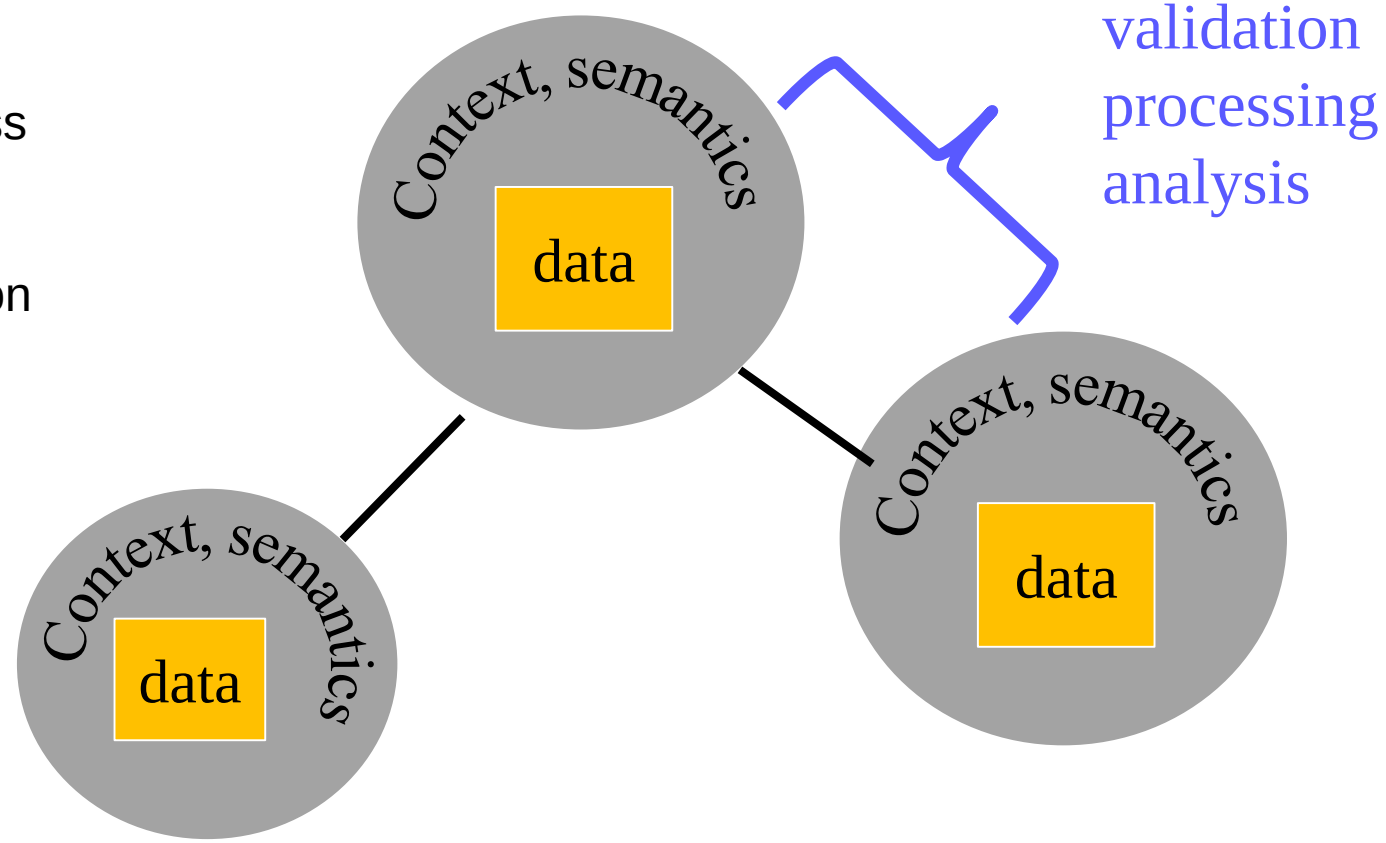


Atomization

- Standardization
  - Standardize at the semantic level (e.g., RMB, CNY,¥，Renminbi, Yuan, 元，圆, 人民币)
- Big -> Small: Atomization
  - Big Data has to be **small** to be **BIG**!

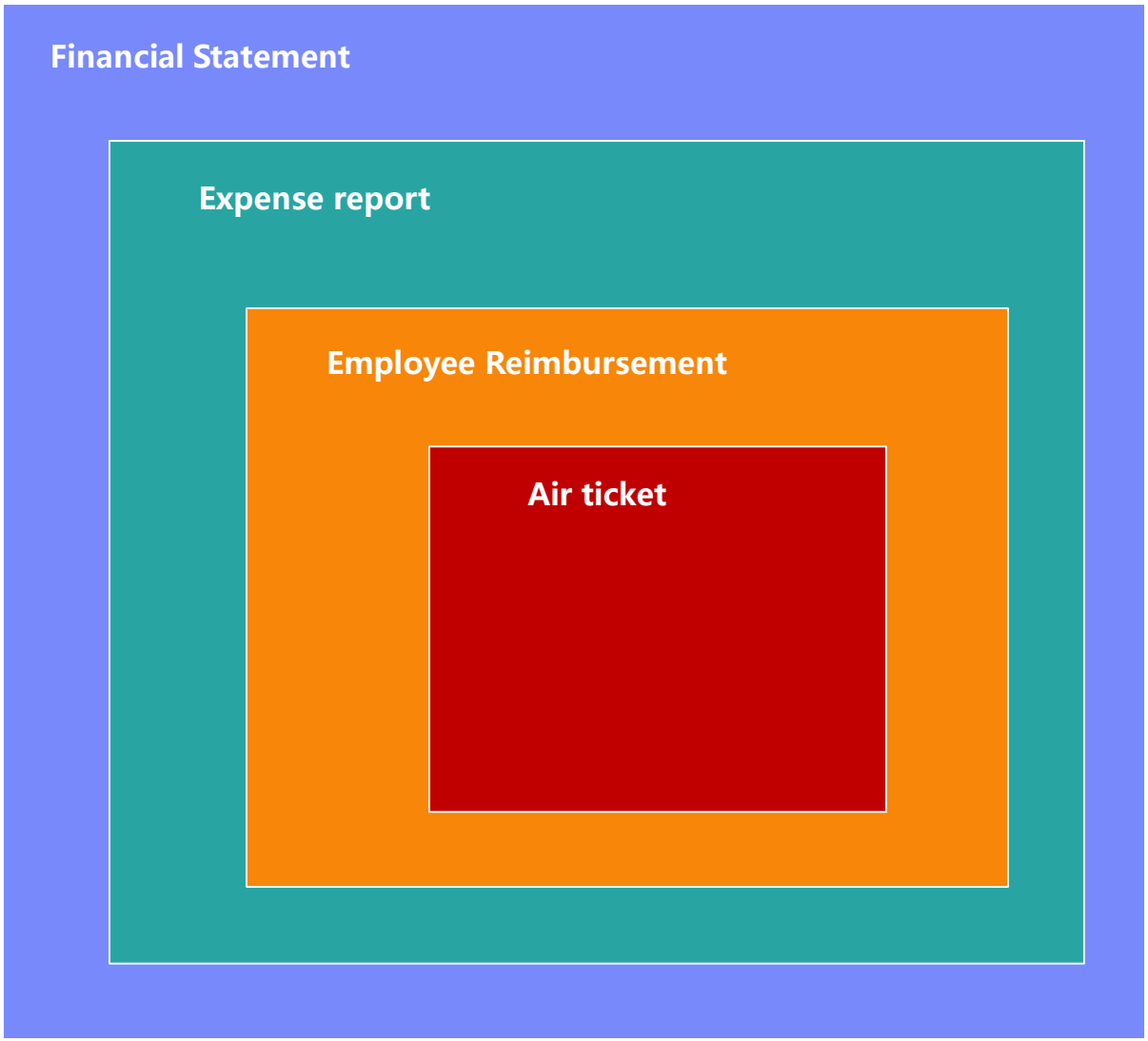
Atomization

Atomization is the process to model and drill down through model hierarchy, providing contextualization of data at each level, so that it can be used as a data point / fact.

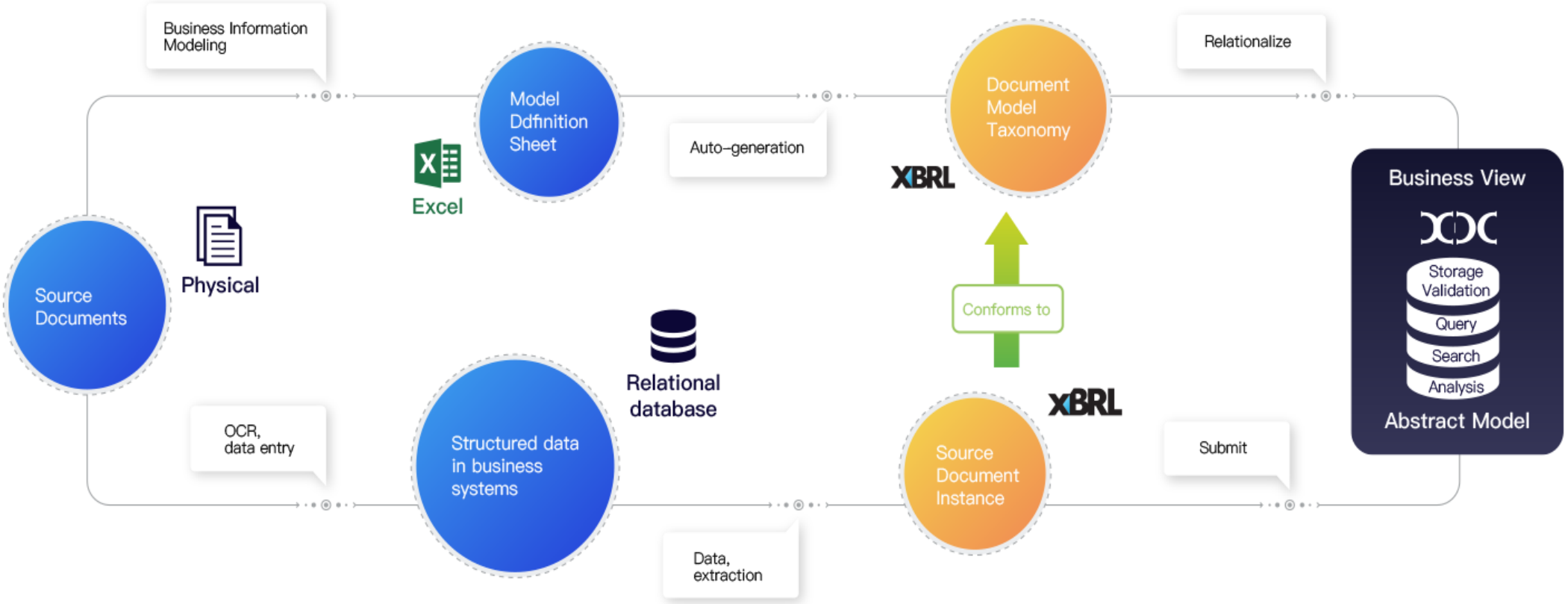


Atomization

Report structure and data containment relationship are analyzed during atomization and documented in the information model



BiDAS, the Process

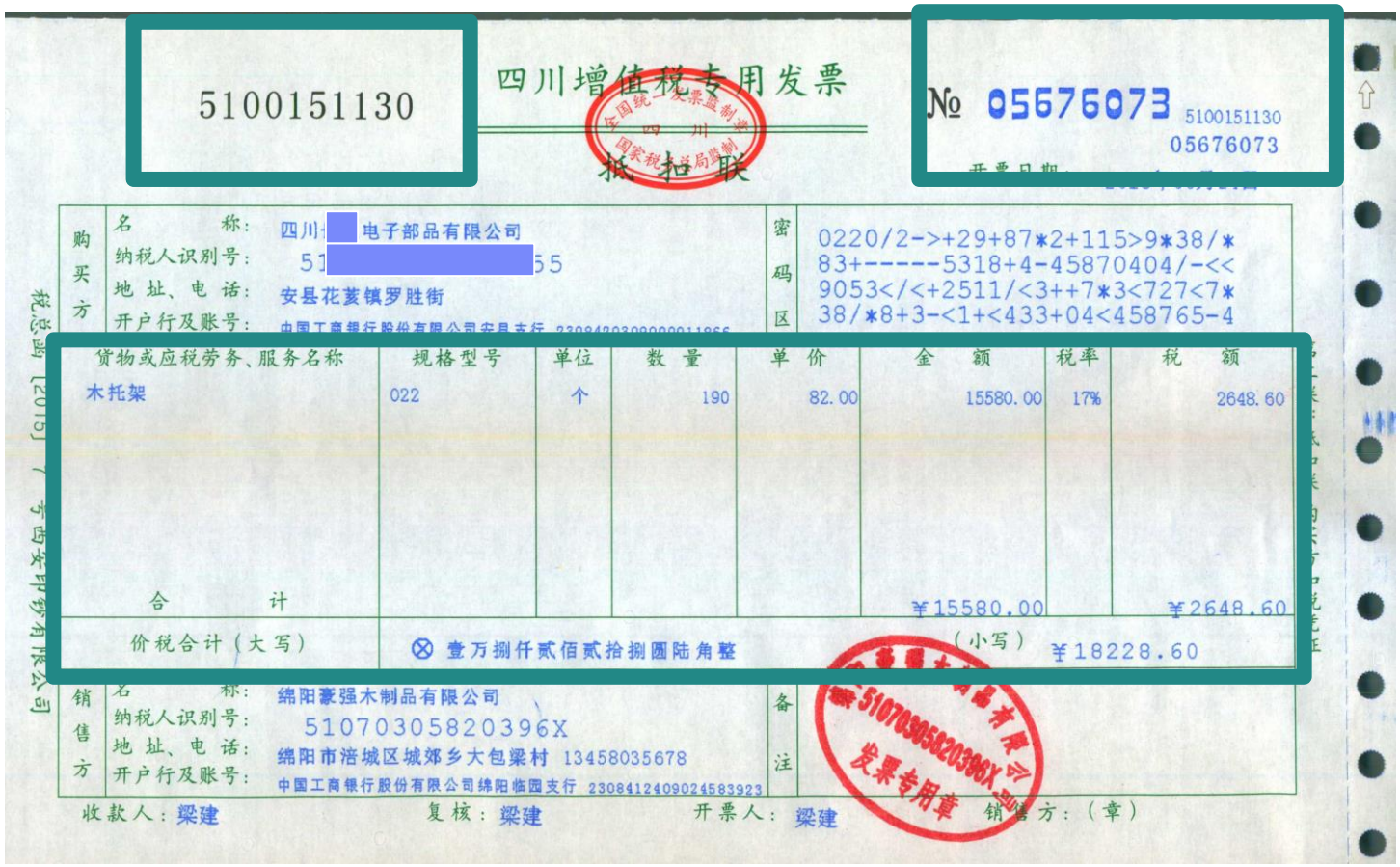


BiDAS, Model Definition Spreadsheet

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Sort Order GO	Update Status	Status Change Date	Default Template Order	Default Template Depth	Default Template Calc	Default Template Calc	Semantic Label Base	Abstract Marker (Model Structure Types)	Logical Element Type - Usage	Full Semantic Standard Label	Full Label Len	Common Label - CH System (Chn)	Common Label - CH Sys	Common Label (Chn)
2	Content														
3	0.5			1	1			XDC Document Model	Root	Root Container	XDC Document Model [Root]	25		0	
7	1.1							Evidence Document - Fapiao - Special VAT	Subroot	Root Container	Evidence Document - Fapiao - Special VAT [Subroot]	50		0	
8	2			10	3	3	3	Document Model Attributes	Heading	Container	Document Model Attributes [Heading]	35		0	
9	3			10.1	4	4	4	Document Model Id		Identifier	Document Model Id	17		0	
10	4			10.2	4	5	4	Document Model Name		Attribute - identifyir	Document Model Name	19		0	
11	5			20	3		3	Document Template Attributes	Heading	Container	Document Template Attributes [Heading]	38		0	
12	6			10.3	4	6	4	Document Model Category Id		Identifier	Document Model Category Id	26		0	
13	7			28	4			Document Taxation Validation Seal	Heading	Container	Document Taxation Validation Seal [Heading]	43		0	
14	8			28.1	5			Document Taxation Validation Seal Name		Attribute - identifyir	Document Taxation Validation Seal Name	38	发票监制章	5	发票监制章
	9			28.2	5			Document Publishing Mode		Attribute	Document Publishing Mode	24	发票监制章	5	发票监制章

Copyright 2018

BiDAS, an Example, Evidence Artifacts



5100151130

四川增值税专用发票

抵扣联

№ 05676073 5100151130 05676073

购买方	名称：四川[redacted]电子部品有限公司	密码区	0220/2->+29+87*2+115>9*38/* 83+-----5318+4-45870404/-<< 9053</<+2511/<3++7*3<727<7* 38/*8+3-<1+<433+04<458765-4
	纳税人识别号：51[redacted]55		
	地址、电话：安县花荄镇罗胜街		
	开户行及账号：中国工商银行股份有限公司安县支行 2308[redacted]		

货物或应税劳务、服务名称	规格型号	单位	数量	单价	金额	税率	税额
木托架	022	个	190	82.00	15580.00	17%	2648.60
合计					¥15580.00		¥2648.60
价税合计（大写）	⊗ 壹万捌仟贰佰贰拾捌圆陆角整				（小写）		¥18228.60

销售方	名称：绵阳豪强木制品有限公司	备注	
	纳税人识别号：51070305820396X		
	地址、电话：绵阳市涪城区城郊乡大包梁村 13458035678		
	开户行及账号：中国工商银行股份有限公司绵阳临园支行 2308412409024583923		

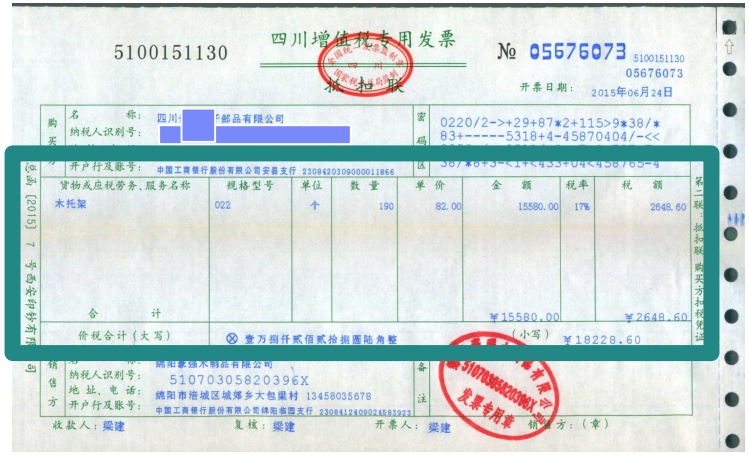
收款人：梁建　　复核：梁建　　开票人：梁建　　销售方：（章）

51070305820396X 发票专用章

税总函〔2015〕[illegible]号四安印务有限公司

BiDAS, an Example, Line Items

Item	Unit Price	Unit	Line Total
Pen	5.00	2	10.00
Eraser	4.00	3	12.00

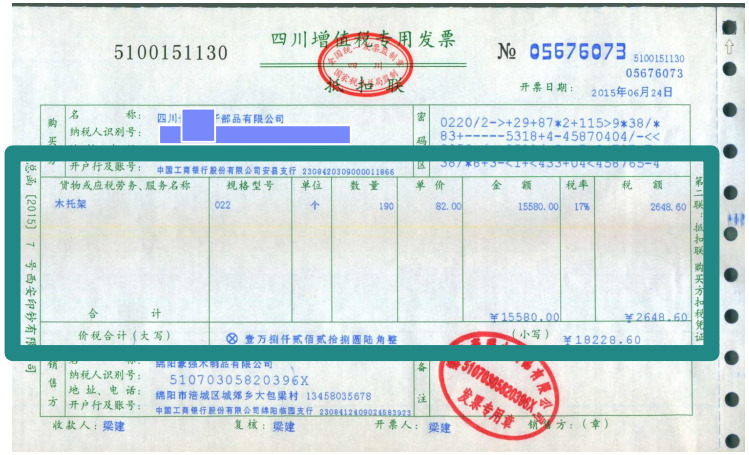


Sub Total	22.00
Tax	3.74
Grand Total	25.74

17%

BiDAS, an Example, Line Items Taxonomy

Item	Unit Price	Unit	Line Total
Pen	5.00	2	10.00
Eraser	4.00	3	12.00



Sub Total	22.00
Tax	3.74
Grand Total	25.74

17%

BiDAS, an Example, Line Items Taxonomy in XBRL

Taxonomy (semantic meta-data definition)

▼ Fapiao - VAT Invoice-1 [Line Items]	String	Reference - Element Atomization Schema 销售明细表，19
Taxable Goods or Service Name	String255	47 Taxable Goods or Service Name，Reference - Element Atomization Schema 货物
Goods or Service Model Number	String255	Fapiao Properties 子类型字段 02 - 20170417-Wei | NotFapiao Categories _非发票所
Description of Unit	String60	46 Description of Unit，Reference - Element Atomization Schema 计量单位 59000
Number of Units	Integer	Reference - Element Atomization Schema 数量 560079，44
Unit Price	Monetary	Fapiao Properties 子类型字段 02 - 20170417-Wei.xlsx | Properties Artifacts-Ledg
Value Net Of Tax Amount	Monetary	Reference - Element Atomization Schema 金额_不含税 560039，Fapiao Properties
Fapiao - VAT Tax Rate	FapiaoTaxRatePerc	Fapiao Properties 子类型字段 02 - 20170428-Wei 41，Reference - Element Atomi
Fapiao - VAT Tax Amount	Monetary	Fapiao Properties 子类型字段 02 - 20170417-Wei Sheet1 37 39，Reference - Elem

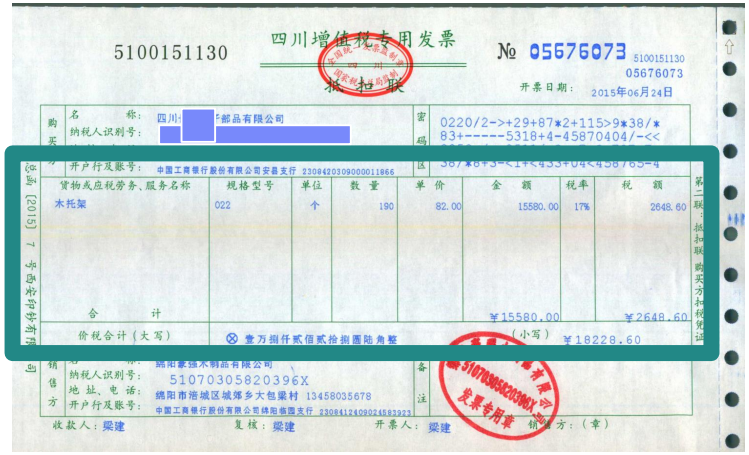
<xs:element id="xdc-core_taxable_goods_or_service_name" name="taxable_goods_or_service_name" substitutionGroup="xbrli:item" …

<xs:element id="xdc-core_taxable_goods_or_service_model_number" name="taxable_goods_or_service_model_number" …model_number

<xs:element id="xdc-core_description_of_unit" name="description_of_unit" …model_number

BiDAS, an Example, Line Items Instance Data

Item	Unit Price	Unit	Line Total
Pen	5.00	2	10.00
Eraser	4.00	3	12.00



Sub Total	22.00
Tax	3.74
Grand Total	25.74

17%

BiDAS, an Example, Line Items Instance Data in XBRL

Instance document (valid data governed by taxonomy)

```
<xdc-core:taxable_goods_or_service_name contextRef="c-01">Pen</xdc-core:taxable_goods_or_service_name>
<xdc-core:goods_or_service_model_number contextRef="c-01">00023542</xdc-core:goods_or_service_model_number>
<unit id="u-pure">
      <measure>pure</measure>
</unit>
<xdc-core:number_of_units contextRef="c-03" decimals="0" unitRef="u-pure">2</xdc-core:number_of_units>
<unit id="u-CNY">
      <measure>iso4217:CNY</measure>
</unit>
<xdc-core:unit_price contextRef="c-01" decimals="2" unitRef="u-CNY">5.00</xdc-core:unit_price>
<xdc-core:value_net_of_tax_amount contextRef="c-01" decimals="2" unitRef="u-CNY">10.00</xdc-core:value_net_of_tax_amount>
<unit id="u-rate">
      <measure>pure</measure>
 </unit>
<xdc-core:fapiao_vat_tax_rate contextRef="c-01" decimals="0" unitRef="u-rate">0.17</xdc-core:fapiao_vat_tax_rate>
<xdc-core:fapiao_vat_tax_amount contextRef="c-01" decimals="2" unitRef="u-CNY">3.74</xdc-core:fapiao_vat_tax_amount>
```

Contact

Avery Starr
Seatig Inc.
32 Broadway, Suite 1701, New York, NY 10004
Tel: (914) 584-0979
zhaow@seatig.com
www.seatig.com