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What standard requirements should be placed on the financial data flow from transaction to final report?

How does the chain of documents appear that are included in the financial reporting data flow?

Transaction => Coding => Statement of balance => Final report

Transaction, Coding and Final report are self-evident documents, but why statement of balance? All software platforms for corporate financial management are based on the fact that coded data is periodically summarized as statements of balance. As such, they are sent e.g. to auditors or accounting consultants and used in the companies' internal financial analysis and management. All accounting financial platforms are built according to that method.

A. The transaction standards

Business documents (from product catalog to delivery receipt) are all defined in the UBL 2.0 or UBL 2.1 standard. Among these business documents there are e.g. order and invoice documents that will create transactions. Svefaktura (Swedish invoice) is e.g. a Swedish UBL application.

Submitting transactions to government authorities requires that the transactions are readable and that they can be signed. Transactions defined in UBL are so complex that they are difficult to read. For that reason, they should not be submitted to authorities without any form of presentation. A type iXBRL solution (see below) would be appropriate, but to export transactions to authorities is questionable, since such documents contain business secrets. According to the principle of public access, such documents will become public documents in Sweden for anyone to download if they are submitted to an authority.

In addition, many business events that occur **within** the company are coded to posts, so it is difficult to get a good picture of the company only based on the external transactions.

Summing up, the transactions are already defined in format, but should not be sent to an authority.

B. Standard requirements for the statements of balance and the final reports

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For the posting, the software companies' platforms each have their metadata and their own structure. They have therefore widely different formats. Here a standard would force the software companies to completely redesign their platforms. What standard requirements could be set for the other document types outside the transactions and the posting, i.e. for the statements of balance and the final reports?

1. It should connect metadata (concepts) to data.
2. It should be able to have a schema for such connections.
3. It should be able to split concepts into subgroups (dimensions).
4. It should be able to link connections between different concepts (metadata). In order to be able to present a report, the standard must be able to link order and hierarchy for in-depth concepts (metadata). It must be able to link presentation text to the digital name of the concept. Ex: The digital concept "Nettoomsattning" should be able to connect to "Net sales" in a presentation in English or "Netttoomsättning" in Swedish.
5. The reports sent from the companies to the report recipient must be made in a format that can be signed, i.e. a format that is both readable and is downloadable in the recipient's databases.

What formats of the statement of balance and the final report are current?

Comma Separated Values (CSV), Tab Separated Values (TSV) or Excel do not meet points 1, 2, 3, 4 or 5.

JSON (Javascript Object Notation) meets pionts 1 and 3. The standard has currently drafts for point 2 (schema) and 4 (linkbase), but lacks point 5.

XML with the framework standard XBRL 2.1 and with the iXBRL as report format meets all five points. But is it relevant even for statements of balance?

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XBRL — instance/ report document

Income statement by nature

Operating income	2014-01-01—2014-12-31	2013-01-01—2013-12-31
Net sales	3230700	2822000
Capitalized work	209000	198500

```
<?xml version="1.0">
<xbrl ...>
<link:schemaRef xlink:type="simple"
  xlink:href="http://taxonomi.xbrl.se/se/fr/k2/..."/>
  <context id="RES-1">
    <entity scheme="http://www.bolagsregistret.se">AB Bygg</entity>
    <period>
      <startDate>2013-01-01</startDate>
      <endDate>2013-12-31</endDate>
    </period>
  </context>
  <context id="RES0">
    <entity scheme="http://www.bolagsregistret.se">AB Bygg</entity>
    <period>
      <startDate>2014-01-01</startDate>
      <endDate>2014-12-31</endDate>
    </period>
  </context>
...
  <NetSales ... contextRef="RES0">3230700</NetSales>
  <CapitalizedWork ... contextRef="RES0">209000</CapitalizedWork>
  <NetSales... contextRef="RES-1">282200</NetSales>
  <CapitalizedWork ... contextRef="RES-1">198500</CapitalizedWork>
</xbrl>
```

1. Period start/end

2. Amounts associated with rows & periods

SIE — instance/report document

Statement of balance in SIE format:

```
…
#FORMAT PC8
#SIETYP 1
#ORGNR 5566440000
#FNAMN ""verby F”retagsby AB"
#RAR 0 20130101 20131231
#RAR -1 20120101 20121231
…
#UB 0  1210 13360
#UB 0  1220 121754.55
#UB -1 1229 -73815
#UB -1 1242 -8085
…
#RES 0  3040 -1619620.4
#RES -1 3041 -498729
#RES 0  3500 -576
#RES 0  3520 -2054
#RES 0  3610 -487077
```

1. Period start/end

2. Amounts associated with rows & periods

Same metadata
Different syntax

In the XBRL file, the concepts of an income statement are linked to a period via the `contextRef` attribute. In the SIE file, a fiscal year date is stated on the line beginning with `#RAR` with the addition of `0` for the current year and `-1` for the previous year. The rows that start with `#RES` links each accounting year to account and amounts in the accompanying columns. (`#UB` stands for outgoing balance.)

This shows that metadata object-wise is structured **exactly the same way** in both document types, but with different syntax (characters between different data and metadata).

Summing up, XBRL can be used for statements of balance, assuming a given chart of accounts taxonomy in the XBRL standard. Thus, XBRL can be used for all documents in the data flow after the coding. Other Nordic countries, that do not use the SIE standard in their statements of balance, can use XBRL instead.

Then the document flow (with format in parentheses) looks as follows:

Transaction =>	**Coding =>**	**Statement of balance =>**	**Final report**
(UBL)	(Unknown format)	(SIE or XBRL)	(iXBRL)

Where is metadata defined?

However, the **correct format** does not suffice to unambiguously define the data flow. Somewhere in the data flow, metadata/concepts must be defined for the entire infrastructure in order to be able to extract meaningful data from the flow. (For example, the amount 130,760 must be linked to "Raw materials and supplies", as well as to the currency "SEK", as well as to the period 2018-01-01--12-31 etc. in order to make the figure meaningful.)

Metadata from the final reports?

In Australia, concepts (about 9600) were collected from all government reports and the taxonomy authors succeeded (through a comprehensive harmonization procedure) in reducing the number to 2800 (reducion with 71 %). In the Netherlands, a similar harmonization work was done, but where they could not agree, the concepts were put into different namespaces.

A big drawback for metadata defined in the authority reports is that other recipients have other concepts/metadata profiles in their databases than the public concepts, e.g. banks, insurance companies and credit institutions. If the latter organizations want to receive meaningful data, they have to stick to authority profiles. Otherwise, the new concepts/profiles of these organizations must be defined in each software platform. (The software companies cannot anticipate what the new concepts will be.) This makes it very hard for these organizations to have their own profile. Therefore, there is a lot to be said for the fact that metadata should **not** be defined in the government

reports. Futhermore, the software companys will then have to manually map all the account codes from each chart of accounts to each report.

Metadata from the account codes?

Should metadata (the concepts) be defined on the code level, i.e. a standardized chart of accounts?

The companies **are obliged to** record external and internal transactions into their coding. After all, **the coding concepts must be defined in their accounting**. What are the reasons for defining concepts that they will not use later? What are the reasons for defining account code concepts that are not comparable to the account code concepts defined for other companies? There are major advantages for example in mergers and other financial co-operation or in comparisons between companies to use **common** account code concepts.

Since the software companies' platforms must be able to adapt to different charts of accounts, especially in countries with a variety of charts of accounts, they easily should be able to receive a standard chart of accounts and also be able to make mappings against it.

How is metadata passed from a standard XBRL chart of accounts to the final reports?

The summing from the accounts coding in the statements of balance reports based on a standard chart of accounts to the concepts of the recipient report is generated with calculation linkbases instead of, as today (in Sweden), with reference linkbases. Thus, the reports can be generated automatically (M2M, machine to machine). Note that the report concepts are precisely defined in relation to the chart of accounts. Compromises forming the final report concepts, as in Australia, need not be done. If a report recipient wants to exclude or add account codes to their concepts relative to the authorities in their taxonomy, this is easily made.

But can summaries be made between different taxonomies? In today's taxonomies, summaries occur only between the concepts **within** a report. The locator element (<loc>) in the calculation linkbase has, according to the XBRL standard, a href attribute, pointing to the definition in taxonomy schema. The attribute has the data type *anyURI* i.e. it can point to any address on the internet. This also opens for industry charts of accounts.

Everything speaks in favor of a standardized chart of accounts, primarily adapted so that the regulatory requirements are met, but it should also be so diversified that other report recipients can create their own concepts based on summations from standard account codes.

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How do software companies handle a chart of accounts other than the standard one? They can make mappings between their own and the standard chart of accounts. This mapping needs only to be done **once** per software platform, regardless of how many different reports it will deliver.

Finally, a standard chart of accounts in XBRL and calculation linkbases that link account codes to concepts in the recipient reports will mean that the software companies do not have to map account code for account code to the right concept in their report generators. The mapping is automized and, thus, a source of error disappears. It also means that the report recipients define and can take full responsibility for **their** summations from the standard chart of accounts.

The issue of nodes for receiving reports: Whereto should reports be submitted?

The issue of recipient nodes is solved by having address metadata to which the report is to be submitted in the receipient taxonomies (in the common data section) by default. Thus, the report is automatically sent to the correct address by standard programming (only once) of the software platforms for any address.

Thus, the authorities do not have to build common nodes from which different data will later be distributed to each authority. The so-called technique of "all in" or "one stop shop" becomes unnecessarily complicated. Using to the technique of standard receiving address metadata, every receipient will get exactly the desired data in accordance with the receipient's taxonomy and calculation linkbases sent **directly** to the recipient's address. Reporting with the iXBRL standard means that the reports are readable and can be signed while they also can be stored directly in the recipient's databases. With today's technology, the download into the recipient's database will then be elementary.

We still need to link transactions to the coding

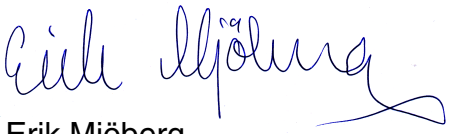
Within the UBL standard it is possible to specify how a transaction can be coded. If there are several alternatives to code, the UBL transaction may include these. In that case, the user of the software platform may select the correct account code from the proposed codes. Otherwise, with **one** proposed account code, the coding could be made automatically.

Summary

With the proposed infrastructure, the programming time for the software companies making final reports will reduce by at least 90 %. APIs can be used to generate completed iXBRL code instead of manually making links

between account codes and report concepts. Quick reports to new recipients are easily created via the APIs from XBRL. An infrastructure with quick and accurate reporting based on the account coding is thus made possible.

In summary, this could be a good start for the development of Nordic Smart Business.



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1st in the world to be certified by
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