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The Dutch Taxonomy Project in a Statistical Context

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Abstract

In this paper the background of the eXtensible Business Reporting Language and the involvement of Statistics Netherlands in the Dutch Taxonomy Project are discussed. The discussion predominantly focuses on the statistical context of using XBRL and the Dutch Taxonomy for expressing data terms to companies.

Key Words: XBRL, Structural business reporting, Administrative data.

1. Introduction

Statistical offices are responsible for the publication of important national economic indicators such as Gross National Product, the National Accounts, structural business statistics and short term indicators. For assessing those indicators statistical offices rely on data provided, either directly or indirectly, by companies and institutions (UN Economic and Social Council, 2004). The received data should reflect the economic activities of those companies.

Relevant data about the economic activities of companies is traditionally collected by statistical offices through paper or electronic forms in which companies provide the requested data. Statistics Netherlands is also increasingly relying on Tax Office data, such as value added tax and profit tax data (Göttgens et. al., 2005). Still, a significant amount of data is provided directly by companies.

For a large part, the economic activities of companies leave an administrative trail. The activity of purchasing stock, for example, is recorded in the ledger administration where individual transactions are balanced. Besides the ledger administration, the activity can also be recorded in a stock administration and in an administration for the accounts payable.

Most of the data that reflect the economic activities of companies which are of interest for statistical offices, can be found in the account book (or general ledger) and the trial balance (Lammers, 2004). Those are kept in the (nowadays largely digital) book keeping systems of companies. Other data of interest for statistical offices can also often be found directly, or in a derived form, in administrative systems (Peltola, 2007). The book keeping system keeps track of the financial transactions of economic actors, whereas administrative systems in general can also record non-financial transactions.

For statistical purposes, companies now often print out the data in their administration systems and then key those figures into the form provided by the statistical office (Giesen, 2007). Linking the data found in the administrating systems to the data terms of the statistical office would provide a more efficient data collection process. It would

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also reduce the administrative burden imposed by a statistical office. A digital data exchange format would provide the computer language for that link.

In the past various attempts have been made by Statistics Netherlands and other statistical offices to supply companies and their software providers with a digital data exchange format. Examples of such attempts are the International Trade Statistic data format, The Teler initiative (Knüppel et. al., 2001), and the EDIsent tool (Piebinga, 1999). The electronic data exchange format could be used by software providers to export the data required by the statistical office out of various administrative systems. Experience has shown that the implementation rates of these initiatives are low. This is probably caused by the fact that software providers do not expect a profitable return on investment.

The business case for implementing those standards is made unattractive by two factors. First of all, the content and layout of the digital formats is often explicitly described in documents called message implementation guides. The software provider has to interpret those guides and implement the requirements into the software. Changes in either content or layout means that those guides and software have to be updated. It takes precious IT-development time to correctly interpret, implement and test the digital exchange format and updates.

Another critical factor in the lack of acceptance of digital exchange formats imposed by statistical offices, is that statistical offices are not the only organisations (regulators) issuing such formats. Customs, the Tax Office, banks and insurance companies are just a few examples of regulators issuing their own, often unique, data exchange formats. Since a statistical office by itself does not always provide enough potential customers (and customer pressure), the urge to implement the statistical digital exchange format is low for software providers.

Crucially, regulators often require similar or partly overlapping sets of data. So, despite a multitude of different layouts for the existing data exchange formats, often the same administrative facts are asked. Standardization of the digital exchange format of the regulators could provide the leverage needed to make the business case for the software providers profitable. It would provide software providers with an opportunity to invest once in a single and flexible data format that could be used to send data to all regulators electronically.

XBRL, short for eXtensible Business Reporting Language, may very well be this standard format (PriceWaterhouseCoopers, 2003). Developed and maintained by a consortium of regulators, accountants and software builders, this open standard can offer a link between the data kept in book keeping systems and the data terms of regulators, such as national statistical and tax offices. In the Netherlands, XBRL is introduced and being used for this purpose. The Dutch Taxonomy Project uses this standard to publish the data requirements of Dutch Tax Office, Chambers of Commerce (responsible for publishing the annual accounts of companies) and Statistics Netherlands. This paper focuses on the background and implications of this project for Statistics Netherlands.

2. Introduction into XBRL and XBRL taxonomies

2.1 Introducing XBRL

XBRL is an XML-based computer language specifically developed for the exchange of business facts between computer systems (Hoffman, 2006). Business facts are defined as administrated events that are of economic interest to the company or other related organisations.

The XBRL-standard provides a precise, predictable structure for describing and expressing those business facts in a way that can be used and processed by computer systems. The XBRL standard defines how software should generate and process XBRL documents.

XBRL and XBRL-enabled software make it possible for reporters to define and express the data they (have to) provide in a flexible format that can readily be used and interpreted by receiving parties without the need to agree on a fixed data structure (PriceWaterhouseCoopers, 2003). The actual business facts are contained in an XBRL-instance. The business facts reported in an XBRL-instance are defined in an XBRL-taxonomy. An XBRL taxonomy

defines variables and the relations that may exist between those variables. A taxonomy may also refer to variables defined in other taxonomies.

2.2 XBRL taxonomies and re-using variables

Each variable used in an XBRL-instance must be defined in an XBRL-taxonomy. The XBRL-taxonomy defines a variable by giving it a unique name, a specific data type (e.g. monetary, string, numeric) and a few other attributes. In addition, a taxonomy can also provide a variable with labels in any number of languages, and with references to, for example, legislation textbooks.

The taxonomy also defines variables by relating variables to each other. Housing costs for example can be related to energy costs, rent and cleaning costs. Assets can be related to Property, plant and equipment, receivables, cash and inventories. Business reports are in general organised into identifiable hierarchical data structures such as described above. Those data structures can also be defined in the taxonomy.

A taxonomy will generally be published on a website where it can be accessed directly by XBRL-enabled software. An XBRL-instance may contain variables defined in different taxonomies. This important feature of XBRL enables the re-use of variables defined in existing taxonomies. The International Accounting Standards Board (IASB) for example, publishes an XBRL-taxonomy version of the International Financial Reporting Standards. This XBRL-taxonomy contains numerous variables relevant for the filing of the annual accounts of companies (e.g. balance, profit- and loss account). In an XBRL-instance variables defined in the IFRS-taxonomy can be combined with variables defined in another taxonomy. Usually the latter 'extends' on the already existing taxonomy. Variables not defined in the referenced taxonomy (for example a more detailed breakdown of the Total Cost-structure) should be defined in the extension taxonomy and, if possible, related to variables of the taxonomy it extends on (e.g. Total Costs in the IFRS-taxonomy).

2.3 Publishing taxonomies: regulator driven approach

A regulator is not interested in companies sending in business facts based on 'company-specific' extended taxonomies. Data based on individualized taxonomies is harder to compare and it takes time and effort to interpret the data. Often the knowledge needed to interpret the extension taxonomy of the company is held by the company or its accountant. It is better for regulators to publish their specific data terms in a separate regulator taxonomy, extending an already published taxonomy if necessary. This enables the providers of the business facts to apply the taxonomy to the information contained in their own administrative systems, using their own (XBRL-enabled) software tools. As an example, a statistical office could create and publish a taxonomy that extends on the IFRS-taxonomy with a more detailed and specific definition of the variables contributing to the costs and revenues. The tax office could create a taxonomy for the wages and salaries declarations. Banks could create a taxonomy to assess the solvency of companies. The only thing companies would have to do is map their administrative data to the variables in the regulatory reporting taxonomies. The companies can subsequently produce an XBRL-instance concerning a specific period, containing the mapped variables according to the data terms of the regulator as published in the regulator taxonomies.

Often the taxonomies of different regulators will contain similar (overlapping) information. It would be very convenient for companies if they could map this combined information only once instead of repeating this step for the different (but in principle the same) variables in each regulator taxonomy. A substantive reduction of the administrative burden, depending on the extent of overlap, of companies could be achieved when different regulators would share variables in this way.

In the Netherlands, the central government acknowledged this possibility and started the Dutch Taxonomy Project. In the Dutch Taxonomy Project the possibilities of XBRL are used to combine the data terms of the Tax Office, Statistics Netherlands and the Foundation for Annual Reporting (responsible for the content of the annual accounts that are files with the Chambers of Commerce). Combining the data terms of these organizations in a single taxonomy, using one technical standard, could provide the leverage needed for software providers to build in the necessary functionality.

3. Description of the Dutch Taxonomy and its core components

3.1 A modular approach

Each regulator participating in the Dutch taxonomy has a number of reports that companies have to complete periodically. Those reports serve different purposes, such as establishing the turnover tax to be paid, determining the wage tax to be paid, or publishing an overview of business annual accounts. There are significant similarities in the data gathered in those reports.

The main goal of the Dutch Taxonomy Project was to achieve a large reduction in the administrative burden of companies caused by the national government (Nederlands Taxonomie Project, 2007). This goal should be achieved by using a single technical standard for expressing business facts (XBRL) and establishing a common vocabulary by the participating governmental parties (expressed in a combined taxonomy). It hopes to achieve this goal by eliminating or diminishing the need for different 'niche' software and specialized reporting accountants and by minimizing the time needed to complete reporting obligations. By harmonizing legislation, normalizing data terms of regulators and establishing one technical standard, the project expects to reach its targets.

The Dutch taxonomy is built up using a modular approach (Figure 3.1-1). This means that not all the information is put into one single (large) taxonomy, but in a set of small, easier to maintain, taxonomies. The Dutch Taxonomy has an architecture in which common taxonomies (with variables that are shared between parties) and domain specific taxonomies are combined (Dutch Taxonomy Project, 2006). In addition, a distinction is made between taxonomies in which variables are defined, data types are introduced and taxonomies in which variables are related to each other in the presentation- and calculation linkbase. These last taxonomies are the so-called formsets. Formsets closely resemble (parts of) the regular paper forms. In the formsets the relevant variables from the common- and domain taxonomies are selected and grouped together.

The starting point for a company filing a report is the reportset. This is a taxonomy that bundles one or more formsets together. In a reportset all variables required to produce a filing for a specific regulator are combined. Companies obliged to send in a specific regulator report (e.g. the Structural Business Statistic) select the appropriate reportset in the Dutch Taxonomy and create an XBRL-instance on the basis of the information available in that report.

Figure 3.1-1
An overview of the modular approach of the Dutch Taxonomy

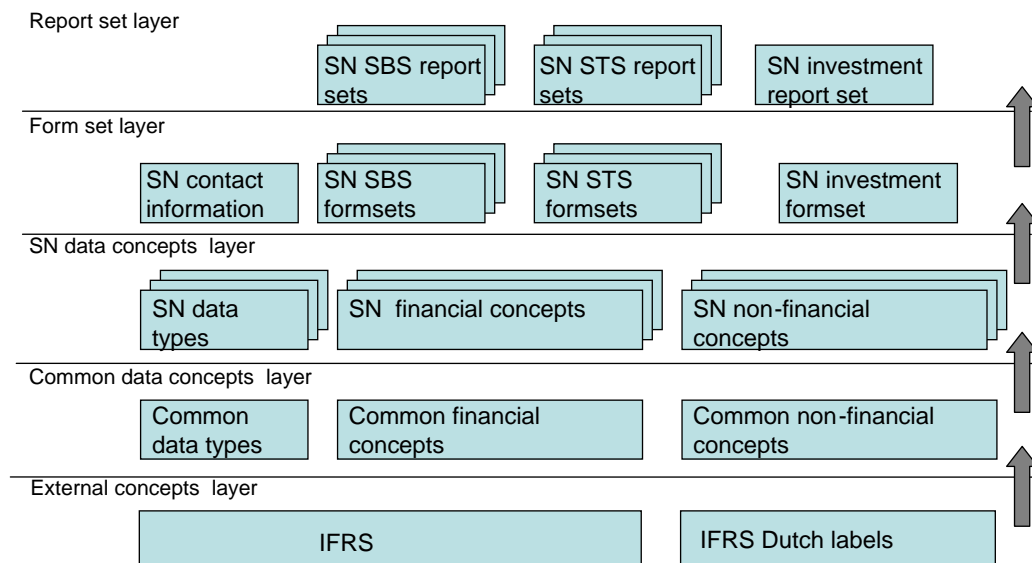


Figure 3.1-1 displays an overview of this approach. The bottom layer is the IFRS layer, in which variables are defined that are used by all regulators. The layer above that extends on the IFRS taxonomy and adds variables and data types that are used by more than one regulator. The layer above the common layer extends on the common taxonomy and defines variables unique for Statistics Netherlands (SN). In the formset layer the variables that are relevant for a specific reporting obligation (Short term statistic: STS, Structural Business Statistic: SBS and Investment statistic) are selected and grouped together. In the reportset layer the formset 'contactinformation' and a formset for a specific reporting obligation are grouped together.

3.2 Harmonization and normalization processes

As discussed in the previous section, regulators use variables out of their respective 'domain bases' (taxonomies containing only regulatory- specific variables) and variables that are shared with other parties in their formsets. The most important shared taxonomy is the IFRS-taxonomy. Other shared taxonomies are the NL-gen ('Dutch generic') taxonomy and the NL-cd ('Dutch common data') taxonomy. The NL-gen base taxonomy contains the shared financial variables. The NL-cd taxonomy contains the shared non-financial data such as the address and contact person information.

In the Dutch Taxonomy Project there are two separate processes of achieving as many shared variables as possible. They are called the normalization- and the harmonization process. In the normalization process content matter experts of various domains compare definitions of variables, and decide which variables to move to the shared base. In the harmonization process, legislation is adapted to overcome legal obstacles towards cross-domain reporting. The normalization and harmonization processes form an essential part for achieving the goals set for the reduction of administrative burden.

4. Relating the book keeping systems to the Dutch Taxonomy

A report set in the Dutch Taxonomy defines which variables can be present in a specific report. The report itself, containing the actual business facts, is called an XBRL instance document. As was explained earlier, an instance document contains the values of the variables directly related to the variable name, the context of a value (the period and company or entity it describes) and the unit on which it is based (e.g. dollars, euros, square meters) (Daas et. al., 2005).

The instance document will usually be created by XBRL enabled software. Ideally administration software (book keeping and other) with built-in XBRL functionality at the core of the system would be used. On a general ledger level, all accounts should be mapped to taxonomy variables and in combination with XBRL Global Ledger technology, an aggregation of the accounts will lead to the desired business facts (Prather et. al. 2003). Once that is the case, reporters are able to create an XBRL instance document directly from their journal entries (where individual transactions are recorded) covering a certain period. To achieve this a mapping of the taxonomy variables to the accounts they use, a unit definition and a selection of the period the reporters have to report about is needed. For more complex companies additional consolidation information could also be required. Unfortunately, as to date there are no systems available that have XBRL functionality at the core of their systems. In addition, the majority of the report sets in the Dutch Taxonomy are a more or less direct translation of the traditional paper filings and variables defined in those filings. As such they are not always directly relatable to the accounts used by companies (Hilvoorde, 2005).

Bookkeeping software builders are now beginning to implement XBRL functionality. Traditionally in the software market external reporting is often a separated module from the book keeping software. On a whole, most software builders who build in XBRL functionality by adding XBRL-enabled reporting modules do not include XBRL in the core of their book keeping system. The functionality is limited to a translation of the financial report into an XBRL instance. In addition, many software builders have traditionally specialized in either fiscal reporting or annual accounting and very often 'hard-coded' a fiscal filing report into their reporting module. This is a labour-intensive process from which especially fiscal reporting software builders derive a substantial percentage of their added

value. So, although a number of software builders will have XBRL reporting functionality in their systems and will be able to generate XBRL instances, the existing external reporting modules will be mainly aimed at fiscal or annual reporting and not on statistical reporting. The pick-up rate on the latter thus lags behind.

As an alternative for generating XBRL instance documents with administrative software, reporters could use XBRL-enabled (web)forms to generate valid XBRL instances. This approach is taken by the Central Bank of Belgium. In Belgium companies are obliged to file their annual accounts in XBRL-format and are offered XBRL enabled web forms. In these forms they can both import XBRL instances *and* they can also key in the requested data (Vanderhaegen, 2006). The underlying web service then creates a complete XBRL instance document, which can be used by both the reporter as the regulator. Because the accounting system for companies is standardized in Belgium, a company can directly relate his administration to the government-prescribed accounts.

At Statistics Netherlands a proof of concept was carried out in cooperation with Adobe systems to demonstrate functionality to import and export XBRL data in and out of Adobe forms. Once implemented, this would facilitate a flexible environment in which companies can import XBRL data generated by their external reporting modules and complete the missing information with the aid of the Adobe form.

5. Using XBRL data in the statistical context: the practical approach

5.1 The ideal situation

In the ideal situation, companies map the complete content (all the variables used in the form sets) of the Dutch taxonomy to their general level accounts used in their book keeping systems (using both XBRL-GL and the Dutch Taxonomy). Such book keeping systems could be used to file all, for reporting available, consolidated data on a monthly basis (and why stop there?) to a governmental gateway. The gateway would make the data available to all government agencies that are allowed to make use of the data. Those agencies would translate or map the information contained in the reports into their own variables. All governmental agencies would use a single company identification methodology including consolidation and deconsolidation information. The consolidation and deconsolidation information would be used to aggregate company data to the desired company structure (e.g. Kind of Activity Unit). In this way, instead of information based on samples, information for the complete population would be available.

Besides the ethics of the 'Big Brother' aspect, the current practice is still a number of obstacles away from the ideal situation described above. In this paragraph the obstacles are described. The practical approach developed by Statistics Netherlands carefully avoided the obstacles and allowed the use of the Dutch Taxonomy without large problems.

The choices made by Statistics Netherlands at first hand may seem to be limiting the full use of all XBRL possibilities. When XBRL and the Dutch Taxonomy become more established, however, those choices are not irreversible. With sufficient market acceptance there will be enough leverage to implement the more challenging aspects of XBRL.

5.2 Reports

First of all, a reporter does not send in a single XBRL instance document to cover the needs of all regulators and all regulator's reporting obligations. Instead, a reporter is required to send in an XBRL instance document for each reporting obligation. The instance document is sent in via a Governmental gateway and the gateway relays the instance document to the designated regulator only. Other regulators are not able to use the information contained in that regulator specific document.

At Statistics Netherlands six different reports for version 1.1 of the Dutch taxonomy were defined, instead of the 189 activity specific forms. Four are activity specific Short-term Statistic reports and the others are the Investment- and Lease Statistic report and a Structural Business Statistic (SBS) report. A significant number of detailed, form

specific variables were dropped from the Statistics Netherlands part of the Dutch Taxonomy. It was decided for 2008 not to compensate the loss in detail by an additional demand of data from companies who had already sent in XBRL data. As the XBRL mode becomes more established it is very well possible to make more detailed and specific taxonomies for companies.

5.3 Definition of a company

Statistic Netherlands requests data from companies that reflect the economic activities of the company as defined by Statistic Netherlands. The definition of Statistics Netherlands of a company is based upon homogeneity, market orientation and independency in the decision making process. A company as defined by SN is called the Enterprise. Often the Enterprise is comprised of one or more legal units, the number largely depending on the size of the company. (Struijs, 1995).

A company's book keeping system will not necessarily reflect the transactions of the Enterprise. In some cases a company might be keeping the books of more legal units than those included in the Enterprise, and in some cases the book keeping system will only contain a part of the legal units (Claessen, 2004).

As XBRL is expected to enable extraction of data out of book keeping systems, those data will not necessarily reflect the economic activity of the Enterprise, but rather a superset or subset of the legal units making up the Enterprise. For this reasons, the decision was made that *for now*, only companies with 50 or less employees can send in XBRL data based upon the Statistics Netherlands part of the Dutch Taxonomy. Beyond this size, companies tend to have complex enterprise structures. In the communication describing the XBRL document instance structure, it is also stated that the (consolidated) data have to be based on the enterprise as defined by Statistics Netherlands.

6. Relating the Dutch Taxonomy to the European XBRL taxonomy

Within the scope of the X-DIS project (XML for Data Interoperability in Statistics), Eurostat carried out the XBRL Pilot Project which included, *inter alia*, the development of a European statistical taxonomy. This taxonomy also features a modular approach and for a large part extends on the IFRS-taxonomy. The XBRL Pilot Project (Eurostat, Software AG, 2008), besides developing the taxonomy, also related the Statistics Netherlands part of the Dutch Taxonomy to the European taxonomy. One of the results of the project was that it is possible to map certain concepts. Mapping at higher levels of aggregation however, becomes difficult because of differences in definitions. Within the context of a national taxonomy covering several governmental agencies, the choice between a concept from a European statistical taxonomy and a concept from the national taxonomy becomes an issue.

7. Conclusion

Data derived directly from company administrations reflect the administrative reality of companies more precisely than paper forms would. Defining and publishing data terms of statistical offices and receiving matching data directly from company administrations has been a goal of statistical offices for a long time. Those data could be more accurate and more timely and could quite possibly reduce the administrative burden imposed by statistical offices significantly.

In the introduction of this article it was argued that relating statistical data terms to the electronic administration of companies using a specific unilaterally imposed electronic format will not work. The reason for this being that there is no profitable business case for builders of administrative software.

A standard for defining data terms that would both be generic and would provide an extensive market should make the business case for software builders more attractive. With XBRL such a standard seems to be available.

Besides offering a standard electronic format for defining and publishing regulatory (financial) data terms it also offers the possibility of re-using data and data-terms. This makes it possible that the regulatory reporting requirements of several regulators are combined in one taxonomy (or set of taxonomies).

For this reason the Dutch Government started the Dutch Taxonomy Project. It aims at a reduction of the administrative burden of companies imposed by the Dutch Government. It combined the data terms of the Dutch Statistical Office, the Dutch Tax Office and the Foundation for Annual Reporting in a set of XBRL taxonomies (called 'The Dutch Taxonomy'). The data terms went through a normalization and harmonization process which resulted in a substantial reduction of the number of variables in the taxonomies. Together with the creation of the taxonomy, an infrastructure for sending in XBRL data was established.

The 1.1 version of the taxonomy, published in March 2007, did not result in many XBRL instances. Despite the signing of a covenant, software providers seemed to be hesitant and perhaps somewhat intimidated by the requirements of the XBRL technology. The prospects for 2008, however, seem to be improving. Some accountancy firms are requesting XBRL enabled software. The larger software builders now all claim to be implementing the Dutch Taxonomy and XBRL technology.

For Statistical Offices, this could mean quite a change in the data collection process. If XBRL is widely implemented, larger numbers of administrative data become available and much faster than in the traditional methods (including register-based data). Also data on a larger number of companies becomes available. Measuring the 'real-time economy' gets one step closer.

There are a number of pitfalls and obstacles. Those are the way variables are defined (using smaller building blocks on the one hand or more uncalibrated on the other), the way companies are defined and the way missing data is handled.

XBRL and the Dutch Taxonomy approach could eventually lead to a paradigm shift in regulatory reporting: the Dutch Government defines collectively and univocally all required regulatory variables (with probably divisions in branches and company sizes). Software builders 'XBRL-enable' their General Ledger software and integrate the (different) Financial Reporting modules. Companies and accountancy firms adjust their accounting systems so that they can be mapped well defined to the Dutch Taxonomy variables. Such a paradigm shift would in the long run benefit all parties involved. The more parties become involved, the more likely the paradigm shift becomes.

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