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XBRL and Integrated Reporting: The Spanish Accounting Association Taxonomy approach

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Abstract. Recently, the International Integrated Reporting Council (IIRC) developed a Discussion Paper (DP), offering initial proposals for the development of an International Integrated Reporting Framework, combining and connecting financial and non-financial information, including past and future information and outlining the next steps towards its creation and adoption. Among different aspects and elements of a future integrated report, the DP develops the idea of a report supported by XBRL (*eXtensible Business Reporting Language*). The aim of this article is to explain the proposal made to the IIRC by the Spanish Accounting and Business Administration Association (*Asociación Española de Contabilidad y Administración de Empresas*, AECA) of a taxonomy for integrated reporting. In that proposal, the Association made use of the most recent technical developments of XBRL, which are briefly discussed in the first part of the article.

Keywords: XBRL, dimensions, *formulae*, financial information, integrated reporting.

1. INTRODUCTION

Recently, a new international forum has started to capture global attention: the International Integrated Reporting Committee or Council (IIRC), bringing together world leaders from the corporate, investment, accounting, securities, regulatory, academic, civil society and standard-setting sectors to develop a new approach to reporting. According to their own description, the approach of Integrated Reporting, will meet the needs of the 21st century. It builds on the

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foundations of financial, management commentary, governance and remuneration, and sustainability reporting in a way that reflects their interdependence (IIRC, 2011). After many separate financial and sustainability efforts, at both national and international levels, this is the first time an international organization has aimed to play the role of systematizing corporate reporting, facing several issues like:

- the massive amount of organizational information, both audited and unaudited,
- the lack of connection between financial and sustainability publications,
- the inefficiencies of a PDF-based format for reports delivery.

As the aim of the IIRC is to provide guidelines for companies to prepare efficient, comprehensive and interoperable reports, they announce in their Discussion Paper the need for XBRL-supported developments. The aim of XBRL is exactly to improve the communication of financial and business information, allowing a seamless flow of data across computers and thus facilitating the sharing of data by the users (Valentinetti and Rea, 2011). XBRL is preferred as standard format by regulators, but also by companies that use it on a voluntary basis (Bonsón *et al.*, 2009) and it is perceived today as a consolidated digital language with a growing impact in the academic and professional press since 1998 (Roohani, 2010). The aim of this work is to provide insights on the role of XBRL in such a task, reviewing also specific successful implementation cases from the European financial and supervisory community, given a new set of technical standards available, which increases the efficiency of XBRL reporting for both financial and non-financial information. XBRL, which will presumably have an impact on the accessibility of financial reports, easier regulatory compliance, enhanced availability of financial reports, facilitation of continuous reporting, and improved efficiency in investment and business decision-making in the near future (Baldwin and Trinkle, 2011) is going to play a relevant role in the future of integrated reporting.

2. THE EVOLUTION OF REPORTING: COMPLEX REPORTS

In 2005, the Committee of European Banking Supervisors (CEBS)[1] started a convergence project called COmmon REPorting or COREP, in order to provide a

[1] Today formalized in the European Banking Authority or EBA.

reusable data structure for the 27 EU banking supervisors regarding solvency control of financial institutions and investment firms. XBRL emerged as the most widely known and technically tested digital standard to support this new environment, but XBRL, in 2005, was prepared only to represent a 1-dimensional table as a balance sheet, with a column of labels and several columns for real data, one for each time period. COREP is about solvency reporting. Soon after, a parallel initiative arose, FINREP, to ensure homogeneous financial reporting for the banking sector according to the International Financial Reporting Standards plus specific supervisory requirements. Both initiatives joined to form the Eurofiling project. Clearly, to face this Eurofiling project, XBRL had to evolve, as reported by Boixo and Flores (2005), to ensure both European reporting comparability and respect at the same time for national specifications. It was the starting point of a new era for XBRL: new specifications to adapt the standard to the more demanding reporting requirements worldwide, as shown in Table 1.

Level	**Former status**	**New status**
General architecture	Intuitive	Formalized with **Data Point Model**
Taxonomy	Definition Linkbase	**Dimensions**
	Calculation Linkbase	***Formulae*** Linkbase
	Presentation Linkbase	**Table** Linkbase
Instance	XML coded, machine-readable	**iXBRL**, HTML-friendly view

Table 1. New protocols and standards in XBRL projects

3. NEW SPECIFICATIONS FROM THE XBRL COMMUNITY

XBRL evolved over time as a response to corporate and regulatory challenges. As a result, new specifications have been developed. The first one of these described in this article, *Data Points Model* (DPM) or *Data Points Modelling*, is a first attempt to involve domain experts in IT architecture developments, by means of .xls matrices or similar resources, in order to start formalizing all the requirements of the new reporting and regulatory framework. References for this initiative can be found in working drafts and documentations of the COREP and other Eurofiling projects. The other advances, *dimensions*, *tables*, *formulae* and *iXBRL*, represent the way in which the XBRL 2.1 Specification has been extended to cover real business complexities, and each one of these corresponds to specific recommendations published by XBRL International. The use of the most advanced and rigorous standards in taxonomy development will help to a better

assurance of future XBRL reports, as pointed out by many authors (Boritz and No 2003; Cohen *et al.* 2003; Lymer and Debreceny 2003; Boritz and No 2008; Plumlee and Plumlee 2008; Srivastava and Kogan 2009).

3.1. Data points model (DPM)

DPM is a form of representation of information requirements by identification of reportable information as data points that have a specified nature and can be characterized using consistently applied breakdowns. This approach has been developed for the purposes of the Eurofiling project (2011a). A data point or cell, as a financial concept, is characterized by defining its basic financial meaning (nature) and specifying information on the breakdowns (Eurofiling, 2011b) in which it is described in different tables or paragraphs of the documentation. An outcome of this process is a complete set of data points that are required to be reported. It explicitly describes all characteristics and allows relations to be identified between data points located in different tables or paragraphs of documentation. DPM as a data model introduces the initial distinction into *primary items* (basic financial meaning) and *dimensions* (breakdown) and differentiates the primary items based on the period type property (stocks/flows). Application of the DPM on the formal representation of information requirements (initial conceptual taxonomy) may assume some merging of basic financial meaning with some breakdowns (i.e. primary items are defined as a concatenation of the nature of a financial term with components of a breakdown). This merging must be applied consistently with regard to the nature of a financial concept and the breakdown. Among key points of DPM, it is possible to emphasize that:

- templates, usually .xls files prepared by domain experts, are the starting point,
- every piece of data is analyzed and its properties identified,
- properties/values are arranged as hierarchical trees, in what is called a normalized model,
- properties that are very specific to a particular item can be merged together (de-normalization),
- properties that are common to the model considered as a whole should remain as individual entities.

By means of this protocol, it is possible to model, in a rigorous manner, the way in which business concepts produce values and properties in a digital environment

which concepts are related to which dimensions, and which relationships are prohibited. In this context, additional definitions of dimensions arise, as explained by the Bank of Spain (2010) (Table 2).

FAMILY OF DIMENSIONS	▪ Business/User point of view: Group of "domains/dimensions" that have a similar function in the model (e.g. "Main category " is a family of dimensions of different domains: "Assets", "Liabilities", etc.). ▪ These groups simplify the understanding of the data model from a business/user point of view.
KEY DIMENSIONS	▪ Dimensions that must be fulfilled for all data points (cells) of a reporting framework (e.g. "Main category" and "Amount type"), even though the value to be reported could be "Not specified"/"Not applicable".
OTHER DIMENSIONS	▪ Dimensions that must be fulfilled for those data points (cells) for which they are necessary for identifying specific content, but not for the rest of the data points (e.g, "Remaining maturity" must be included only in the data points (cells) with data on loans for which the remaining maturity is one of their attributes).

Table 2. DPM in the XBRL projects by the Bank of Spain

3.2. Dimensions

XBRL Dimensions 1.0 (XBRL, 2011a) is a way to represent multi-dimensional data in XBRL, and it is similar in concept to Spreadsheet Pivot Tables[2], once they have been designed by means of the DPM methodology. XBRL Dimensions 1.0 is a module of XBRL 2.1 Specification and it achieved Public Recommendation status in 2005. A new edition of the Dimensions 1.0 Specification with errata corrections was issued on 7 September 2009. The Dimension 1.0 Specification enriches the rules and procedures for constructing dimensional taxonomies and instance documents. It supports the use of XBRL taxonomy Linkbases to define additional, structured contextual information for business facts. Each piece of contextual information is referred to as a "dimension." The base XBRL Specification essentially defines three dimensions: reporting period, reporting entity (i.e. a company or a division thereof), and a loosely-defined reporting scenario, originally intended to distinguish between actual vs. projected facts. Some analysts have opined that dimensions complicate XBRL, but the reality is that the use of dimensions in non-forms-based reporting simplifies tagging and taxonomies (i.e., it reduces the number of elements). Dimensional metadata was not created ad hoc for XBRL reporting purposes. XBRL standardizes the

[2] In data processing, a pivot table is a data summarization tool found in data visualization programs such as spreadsheets or business intelligence software. Among other functions, pivot-table tools can automatically sort, count, total or give the average of the data stored in one table or spreadsheet. Microsoft Corporation has trademarked the specific form PivotTable.

representation of only two dimensions: the time dimension and the entity-company dimension.

Many reporting purposes, both internal and external to organizations, require multiple dimensions. What the XBRL 2.1 Specification created was the principles for this specification to exist while defining two open elements in the context of XBRL instance documents: the segment and scenario elements. XBRL Dimension 1.0 defines the syntax of elements that may occur in the segment and scenario elements and defines standard arcs that define the valid content of those elements. That content should be validated by dimensional XBRL processors, and standard errors are raised if the XBRL instance does not conform with the multidimensional model defined in the taxonomy. XBRL Dimension 1.0 adds a necessary, and a very powerful, feature to XBRL: the ability to articulate, in a global standard way, what is typically seen as "drill down" information for a reporting entity. Having this information expressed as a global standard facilitates the exchange of this information between different software applications, rather than locking users into one software application whose information cannot be exchanged effectively with others without human intervention.

Taxonomies using XBRL Dimensions can define new dimensions, specify the valid values ("domains") for dimensions, designate which dimensions apply to which business concepts through mechanisms called "hypercubes", and relate other taxonomy metadata (labels, presentation information, etc.) to dimensions. Very relevant taxonomies, like the US GAAP Financial Reporting Taxonomy (SEC, 2009) or IFRS Taxonomy 2011, use XBRL Dimensions. To illustrate which kind of reporting problem is solved with the XBRL dimensional architecture, it is possible to conceive a company whose revenue comes from selling several products, which are sold in several countries (Table 3). Additionally, that company applies a complex system of discounts, and it operates by means of different subsidiaries which it creates ad hoc for a business and deletes later. So, for that company its revenue can be a single figure in Euros, but it can also be broken down by means of an $n \times m \times o$ matrix. We can then call *primary items* those elements to which the sale is directly related (n product types). This information can then be disaggregated according to two *explicit dimensions* (m countries or o discount types). Additionally, there is an open or *implicit dimension*, which is the code of the exact subsidiary for which the sales

report is created. The difference here is that we do not have a priori a fixed set of subsidiaries, and their code must be reported every time. This is the type of complexity which is solved using the XBRL dimensional specification, where it is possible to report in an XBRL instance a context element for each Cartesian product cell, so that every real value can be perfectly identified with its coordinates by means of the context ID related to it in the XBRL instance. It is in the Taxonomy where permitted and prohibited products are defined.

	Subsidiary code:	…	
	Country 1	…	Country m
Product 1			
Product 2	*-prohibited match-*		
…			
Product n			
	Subsidiary code:	…	
	Discount 1	…	Discount o
Product 1			
…			
Product n			

Table 3. Example of multidimensional table as a common business case

3.3. Formulae

XBRL Formula 1.0 is also a module of the XBRL 2.1 Specification (XBRL, 2011b). This module allows the users to create analytics and to impose sophisticated validation constraints, with a full set of mathematical functions to produce exactly what is needed. XBRL Formula 1.0 achieved Public Recommendation status on 22 June 2009. Formula Specification 1.0 defines a syntax that can be used to document the rules for deriving new XBRL facts from information obtained from XBRL instances. The transformation rules expressed in a formula serve two purposes. First, they constitute additional documentation about the facts being reported in XBRL instances. Second, *formulae* can be processed to produce XBRL facts. When evaluated successfully against an input XBRL instance, *formulae* produce new XBRL facts. *Formulae* can also be understood as an extension of classical XBRL fact validation. XBRL 2.1 Specification provides different types of validation for instance documents: Basic XBRL validation, XML Schema validation, Calculation Linkbase, XBRL Dimensions, and the final user can produce different outputs using the raw data

contained in the initial XBRL report (Figure 1). But this is not enough in most cases such as basic arithmetic operations (e.g. product, division), arithmetic comparisons (e.g. item A must be equal to item B), and checks for the presence of elements. Finally, following XBRL 2.1 Specification solely, derivation of new facts from existing ones is not possible. The general process for a formula is to apply it against a single input XBRL instance, to produce a single XBRL fact in an output XBRL instance. An output XBRL instance is an XBRL instance that is generated by an XBRL formula processor, and contains, possibly along with other information, facts produced by evaluation of *formulae*. *Formulae* have been designed to be general enough to support a wide range of specific usage patterns, such as validation of XBRL instances against a set of business rules (Figure 2).

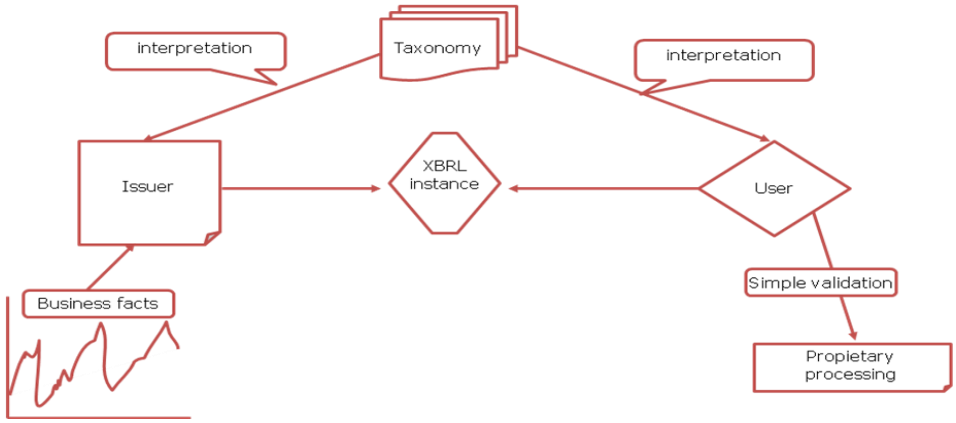

Figure 1. XBRL 2.1.

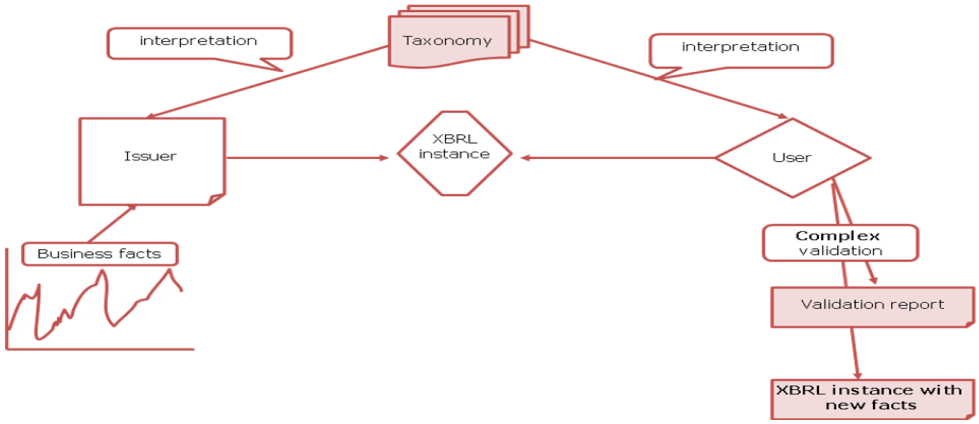

Figure 2. *Formulae*

Among the benefits of using *formulae* it is possible to highlight that:

- it is a powerful and flexible solution,
- it provides better software maintainability,
- it makes taxonomies even more reusable between different actors,
- data is available sooner and with improved quality level and
- commercial tools are available to use it.

Several regulators like the Bank of Spain and the Bank of France, along with commercial banks and other financial actors, are already collecting large amounts of financial and performance information using *formulae* to impose complex validation rules to both improve the quality of data that arrives and automate the promulgation of those rules so that they can be executed in a distributed manner. Professional analysts, broker/dealers, hedge and mutual funds as well as a wide range of financial *infomediaries* can use the formula specification to define proprietary analytics on raw performance information.

3.4. Table Linkbase

Regarding Table Linkbase, it is important to note that standard application of the XBRL 2.1 Presentation Link is not sufficient to reflect the layout of information requirements that is expressed by tables defined in COREP 2012 and FINREP 2012, based on Dimensions and DPM. Table Linkbase is the way to represent COREP 2012 and FINREP 2012 templates through XBRL tables. XBRL tables define subsets of the facts and fact-related information, defined by a Discoverable Taxonomy Set (DTS), and they specify representation of those facts in a Cartesian coordinate system. XBRL Tables can be used alone, by tools and consuming applications, or as part of containers in XBRL documents that generate complete reports. Table concepts are defined by abstract concepts and concrete concepts, in a manner that provides a base for extension specifications. XBRL tables specify the semantics and syntax of hierarchical representations of facts that instantiate the concepts in XBRL taxonomies. These hierarchies are one of the basic building blocks of the specification, but also constitute by themselves a vehicle to communicate the meaning of those reporting concepts in a similar approach to

that of the Presentation Linkbase, but enhanced to cover multidimensional information and more complex models. In other words, Table Linkbase represents the evolution of the classical XBRL 2.1 Presentation Link to allow visualization of Dimensional XBRL instances, where iXBRL was unable to (Figure 3).

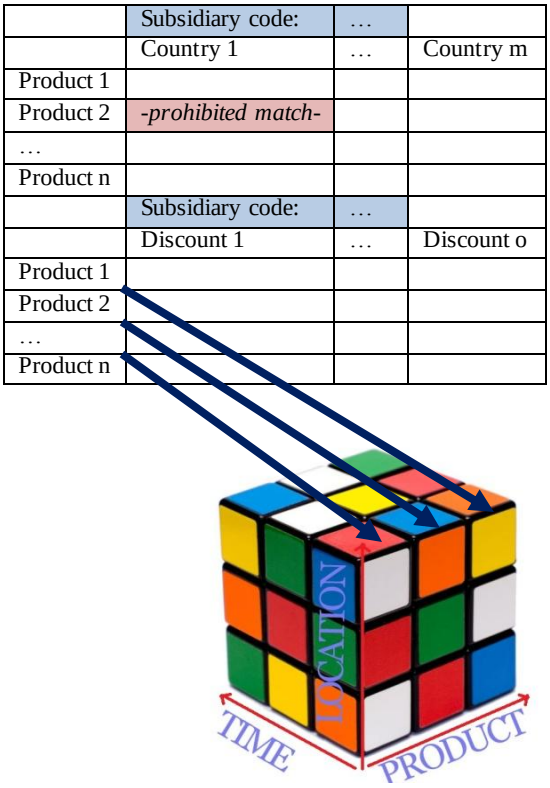

Figure 3. Correspondence between dimensional definition and Table Linkbase

Key points of Table Linkbase are that it:

- fills the gap between the model and the visualization in the XBRL instance,
- improves the understanding of the model,
- provides mapping information from tables to the model for filers,
- improves the way other XBRL standards operate, for instance, *formulae* error messages can be displayed in a more efficient manner, and
- allows the partition of data into subsets; in general, it improves the ability of software and databases to process XBRL instances.

3.5. *Inline XBRL (iXBRL)*

Inline XBRL 1.0 (iXBRL) is the way to visually represent an XBRL report (XBRL, 2011c). It consists in the fact that the metadata of an XBRL instance are embedded within on a well-formed HTML or XHTML document. It responds to the need to have a direct rendering solution for an XBRL report, so that when an instance is open in any computer or mobile device it can be directly understood by humans, along with all its process-ability by applications. So, Inline supposes the solution of publishing an XBRL report. Among the benefits of using *iXBRL,* it is possible to highlight that:

- an Inline XBRL report may be opened and viewed with a standard web browser, because it is HTML, and the same document is suitable for processing with an XBRL processor, because it contains XBRL metadata,
- visual data are prepared for internal consolidation and other complex purposes with intensive human intervention,
- comparative corporate information can be almost immediately published on a web-page.

Regarding its usage, it is relevant to cite that, in the UK, from 1st April 2011, for any accounting period ending after 31st March, HM Revenue and Customs requires businesses to submit their report and accounts and tax computations in iXBRL format when making their Corporation Tax return.

Despite its advances, several problems of compatibility were identified when XBRL Working Groups tried to combine Dimensions and iXBRL. This is one of the main reasons why the XBRL Consortium developed the third standard already mentioned, Table Linkbase (XBRL, 2011d), at the taxonomy level. Both standards can be combined, as the complex visual structure can be defined at the taxonomy level and then represented in visual format by means of iXBRL.

4. XBRL TAXONOMY FOR INTEGRATED REPORTING

The new specifications discussed above were incorporated in the design of a new version of existing taxonomies in the financial arena. Additionally, they are present in a new taxonomy for financial and non-financial information, which is

for Corporate Social Responsibility reporting purposes. They were especially taken into account when developing a taxonomy which combines financial and non-financial information: the Integrated Scoreboard for Financial, Environmental, Social and corporate Governance reporting (IS-FESG) by the Spanish Accounting and Business Administration Association (*Asociación Española de Contabilidad y Administración de Empresas*, AECA). AECA has been the first global institution to promote the use of the XBRL standard for the production and submission of Corporate Social Responsibility information on the Internet, with internationally acknowledged taxonomies and an online repository with real XBRL instances created by both listed corporations and SMEs (AECA, 2011). As was mentioned earlier, the aim of the IIRC is to create a globally accepted integrated reporting framework which brings together financial, environmental, social and governance information in a clear, concise, consistent and comparable format. The aim is to help with the development of more comprehensive and comprehensible information about organizations, prospective as well as retrospective, to meet the needs of a more sustainable, global economy. For that, one of the most important items to be incorporated into the reporting framework is the set of International Financial Reporting Standards, issued also in XBRL format by the IFRS Foundation (IFRS Foundation, 2011). Both IFRS and XBRL are intended to standardize financial reporting in order to promote transparency and to improve the quality and comparability of business information; therefore the two form a perfect partnership. Also, the US GAAP and the Spanish GAAP are considered, as both are under strong convergence with the IFRS.

With previous international experience of AECA also applying XBRL to CSR reports, there exists a great opportunity to develop this integrated reporting framework also in the best digital format, free of royalties and using open technologies. The aim of the IIRC is to focus initially on listed companies, for which IFRS are compulsory in the EU at the group level. But, while this scenario is becoming a reality, first for listed companies, there is a big concern in Europe regarding the competitive situation of small and medium sized companies (SMEs) which generate a major stake of welfare and employment.

With the aim of providing a realistic first step in the proposed direction, and to contribute with a scenario in which SMEs could gradually acquire the skills that

will be needed in the new framework, the aim of AECA is to perform an international XBRL project that will provide an integrated reporting toolkit for both listed companies and SMEs, based on:

- the availability of International Financial Reporting Standards for both listed and small and medium-sized companies, along with national equivalent XBRL taxonomies for financial data,
- the existence of an internationally acknowledged framework of Corporate Social Responsibility for both listed companies and SMEs proposed by AECA, and acknowledged by XBRL International,
- the advantages of XBRL and open source applications to promote integrated reporting and an efficient validation, reutilization, rendering, sharing and analysis from corporate data.

This contribution will be divided into two parts: a conceptual proposal for KPIs (financial, social, environmental, corporate governance and remuneration Key Performance Indicators), a proposal that will be made public in 2012; and on the other hand, being firstly applied to that, a tested XBRL architecture, by means of an Integrated Scoreboard Taxonomy, or IS Taxonomy, that will also be available for use in the forthcoming IR XBRL Taxonomy, if so required by the IIRC. Concerning the proposal for KPIs, it is worth explaining that, in an integrated report, there will be three different layers of indicators. In fact, for a single KPI, it is possible to determine if it refers to flow or stock data, if it is historical or prospective, if it contains quantitative or qualitative data, if it is reported by a company or about a company but by any of its stakeholders. Of course, it is possible to divide KPIs by nature as mentioned (FESG breakdown, or the popular triplet, *profit*, *people* and *planet*, to which could be added a fourth: *pilots*, to refer to corporate governance issues). Paying attention to this last FESG breakdown, and if we go up in complexity, then it is possible to present:

- basic indicators: they will be expressed in absolute value, and will belong to the financial, social, environmental or corporate governance arenas,

- composed indicators: will also belong to any of the four specific areas, but will be expressed in relative terms, once divided by a reference of its area, (i.e., revenue for financial indicators),
- complex indicators: will put in relation drivers from different areas (i.e., financial vs. environmental ones) (Figure 4). .

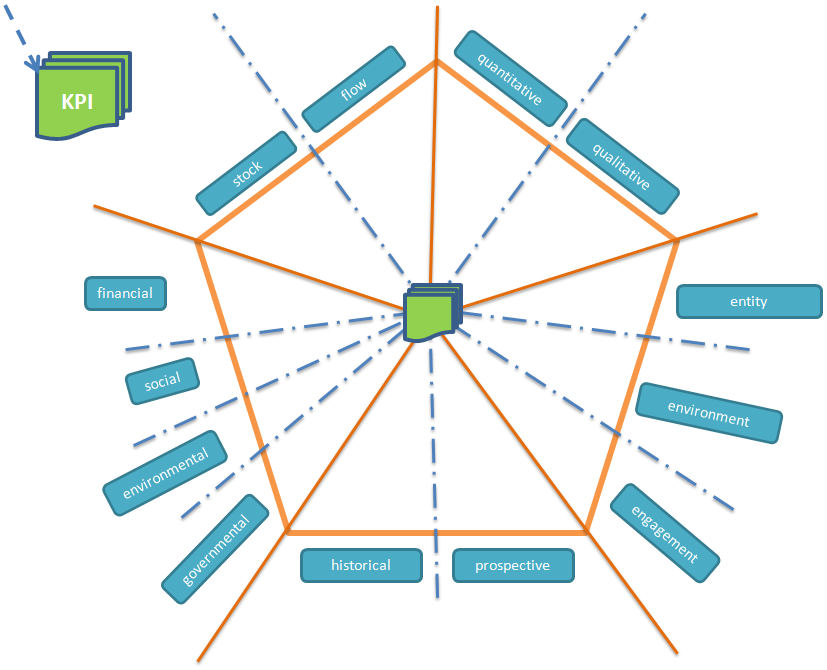

Figure 4. Hierarchy of indicators in an integrated report

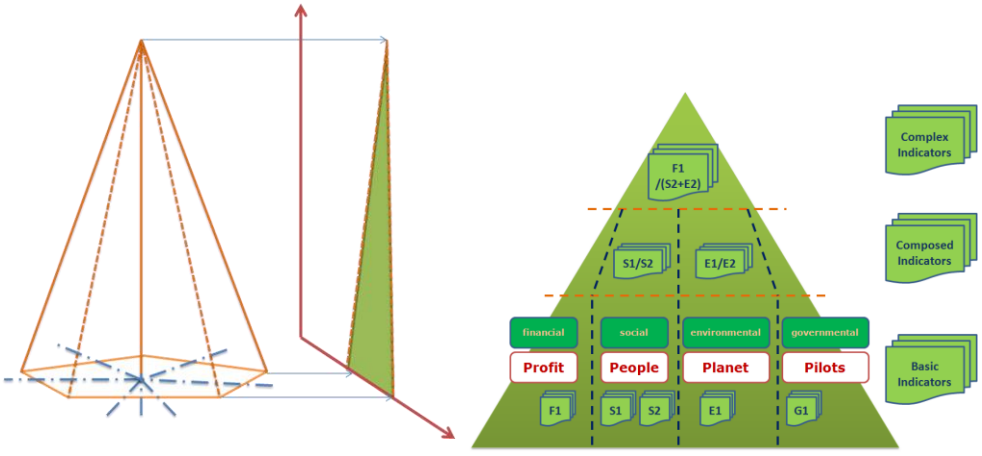

Figure 4. Hierarchy of indicators in an integrated report (continued)

To solve this challenge, and regarding the technical architecture, it is worth noting the role that both dimensions and *formulae* will play. *Formulae* will allow us to verify if the real facts reported by a given issuer will respect the complex indicator definition, and if these values are coherent with those reported for the composed and basic ones (Figure 5).

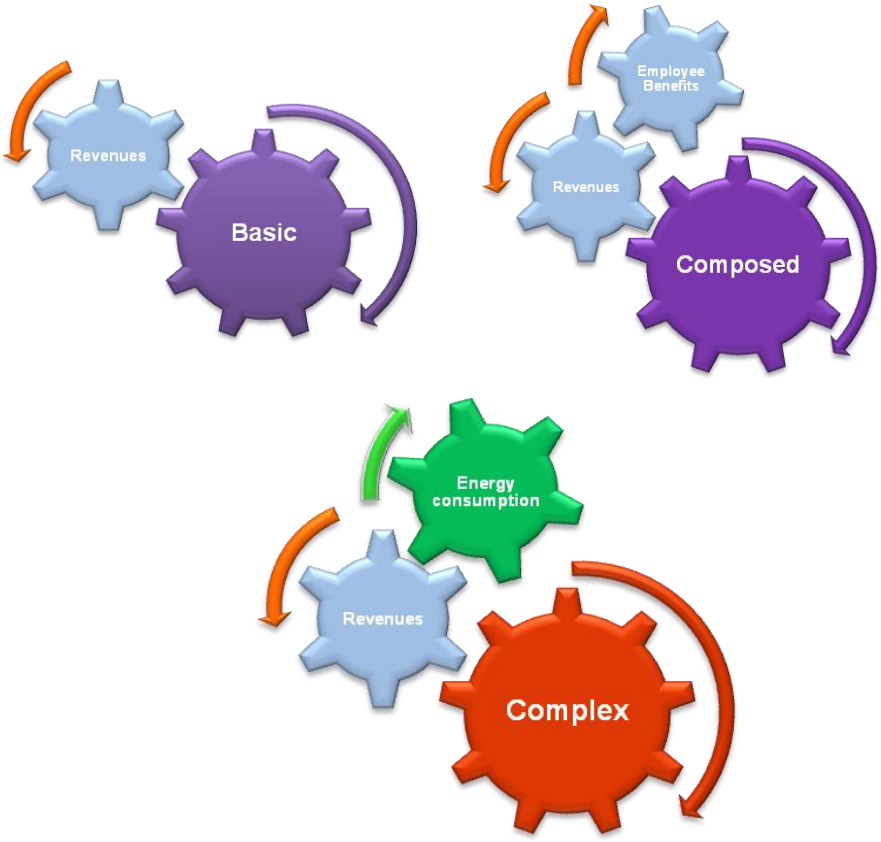

Figure 5. Hierarchy of indicators in an integrated report

By means of the dimensional definitions, the integrated report will provide multidimensional representation of the main company drivers, such as:

- KPI + strategic objectives: economic efficiency, energy consumption efficiency, emissions reduction, waste processing, increase in human and social capital and fair corporate governance. Each of these strategic

objectives can be quantified by means of an expected value of a correspondent KPI or by means of a favourable trend in successive KPI values period after period.

- Basic frames for KPIs, ordered by nature as:
    - Financial,
    - Environmental,
    - Social,
    - Corporate Governance ones,
    - Composed Complex Integrated Frame: where the values of composed and complex indicators are reported.

The general architecture for KPIs can be observed in Figure 7c.

- KRI (Key Risk Indicators): ordered by nature as described for KPIs, plus classified by means of a breakdown of loss type. Specifically, a KRI is a type of loss which is recorded in order to generate a database that allows companies to assess their risk levels.

Although KPIs are defined in the taxonomy to a certain level, KRIs are entirely to be decided by each company. Initially, it is not expected that companies will be seen reporting KRIs to the public, as this information is traditionally reserved for the supervisory authorities, but, when designing the IS-FESG taxonomy, the Working Group decided to incorporate them in order to fulfill all the DP requirements.

Thanks to the dimensional definitions, it is possible to represent the different possibilities to combine dimensional domains (Figure 6). In the case of the four basic KPI frames, the representation of the dimension is defined by:

- Performance measuring indicators: *reported*, *expected*, *fulfillment*, *change*. *Expected* values represent prospective information as required by the IIRC DP, along with the fact that they constitute a commitment for the company to apply policies and actions to reach these expected values in their KPIs. *Fulfillment* (quotient between *reported* and *expected* values) is a simple but powerful tool to evaluate deviations. When companies do not declare

expected values, the *change* rates allow users to check if the company is successfully reaching its strategic objectives.

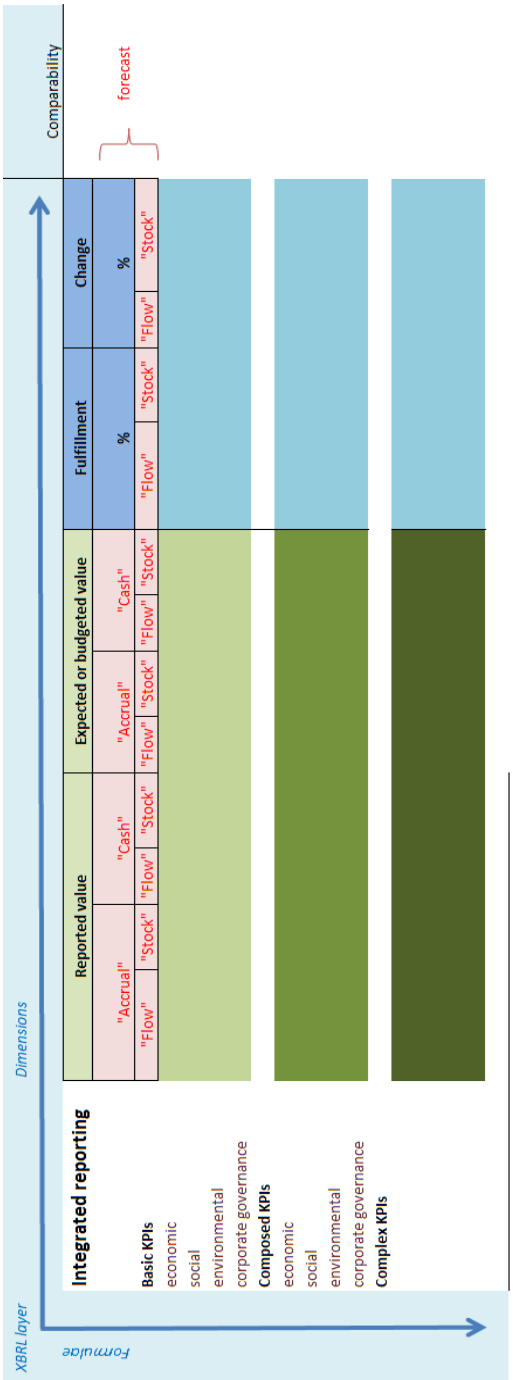

Figure 6. Dimensions and *formulae* for an integrated report

- Coverage context indicators: flow, stock.
- FESG indicators: financial, environmental, social, corporate governance.
- Definition value: data, not available, not applicable.

Comparability is enabled in two different ways:

- using composed and complex indicators, users can compare two or more companies,
- using fulfillment and change, it is possible to compare a company with itself over time.

The dimensional representation is based on the Data Point Model (DPM), described above. Conceptually, the complexity is increased when the composed and complex indicators need to be defined (Figure 7). They are expressed in relative terms, meaning that specific relationships between the same area (composed) or different areas (complex) appear. Screenshots are provided by *Fujitsu Interstage XWand* software (Fujitsu, 2011) with several points highlighted by the authors.

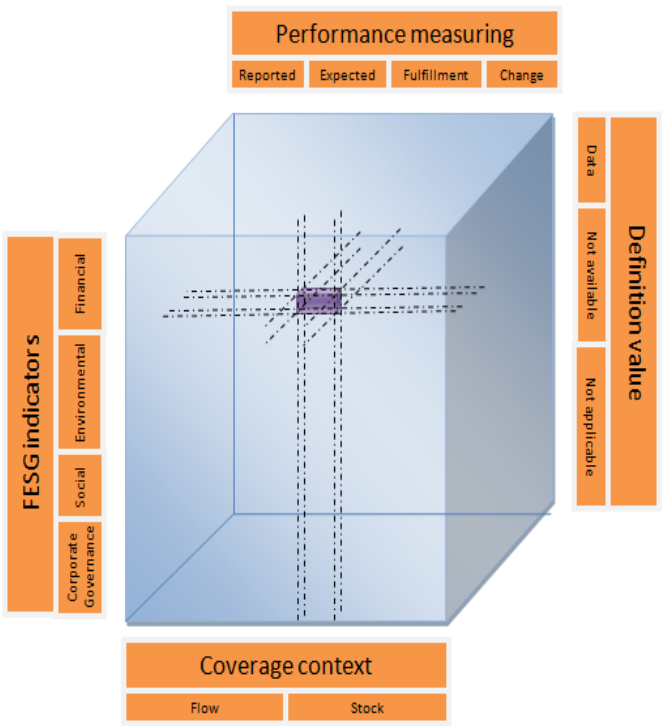

Figure 7. Integrated Scoreboard dimensional structure

Additionally, thanks to the *formulae* implementation, a real integration of indicators can be outlined, since the *formulae* specification offers the tools to define business rules in the XBRL taxonomy, adding the validation capacity in the instance. This capacity is essential for the integrated reporting means. The possibility to integrate all these indicators using mathematical rules is the real essence of the integration. A total of 33 *formulae* are included, divided into three categories: basic, composed and complex. Figure 8 presents a visualization of how Dimensions operate, to allow the reporting of a composed indicator, by coordinates of some of the basic KPIs with another KPI which is used as a pivot (e.g. Suppliers' expenses / Revenue). This Table also contains complex indicators if financial and environmental indicators are combined (e.g. Energy consumption / Revenue). In most cases, the value of one of these composed or complex indicators will not be significant itself, but its evolution will be, as a direct way to check the achievement of strategic objectives, via trend analysis or via fulfillment analysis –when the outcomes are published.

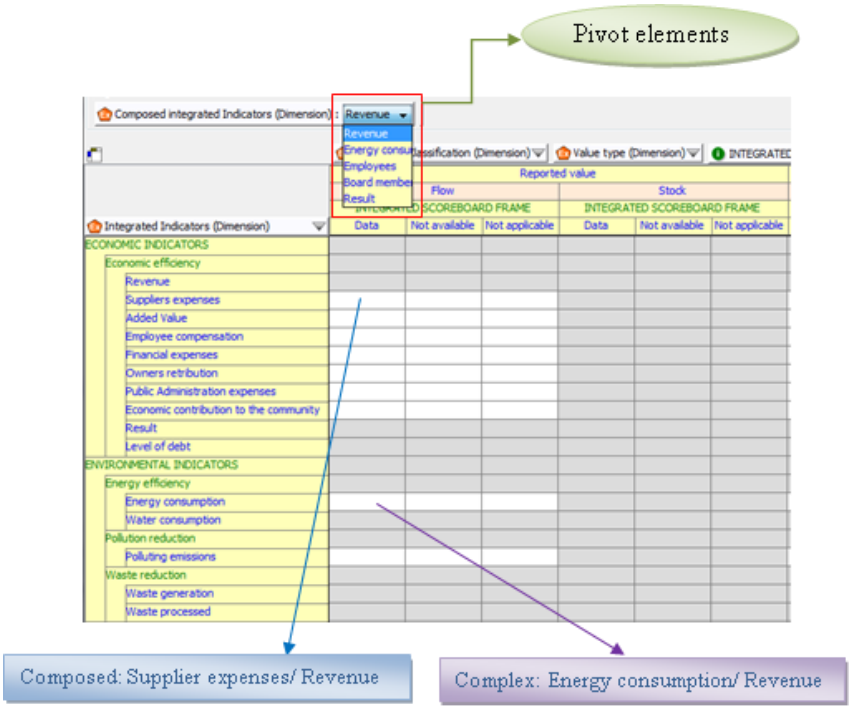

Figure 8. Generation of composed and complex indicators

Formulae allow the verification that this relative calculation is coherent with the basic absolute values reported in the basic frames (Figure 9):

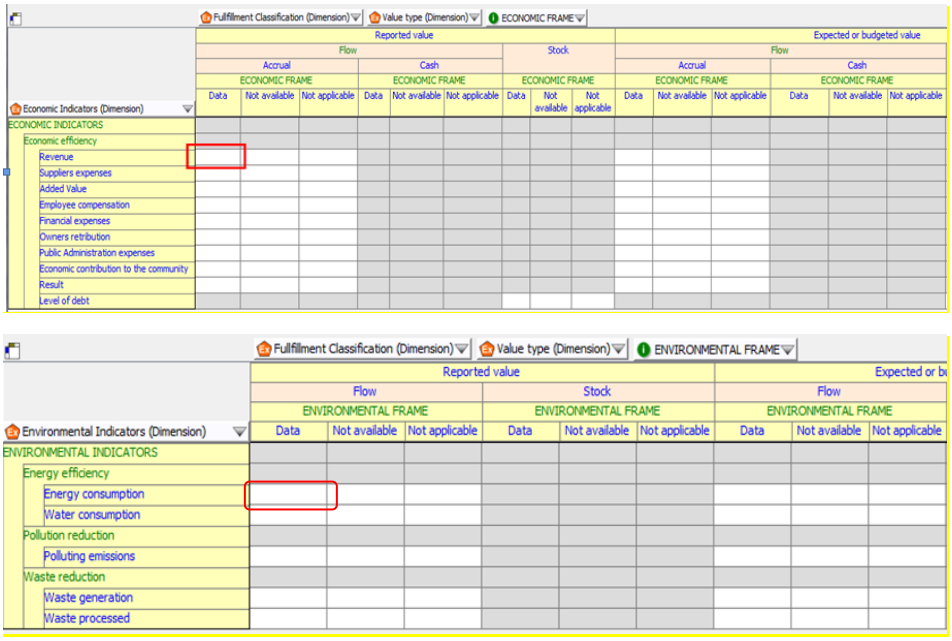

Figure 9. Basic financial and environmental frames with facts in absolute terms

This proposed IS-FESG taxonomy architecture is clearly devoted to promoting taxonomy extensions, for a double purpose:

- from the issuer´s perspective: there is an interesting possibility to extend the taxonomy, by adding new columns (dimensions) or validation rules (*formulae*), in order to increase the complexity of publishable reports, and to adapt to the behaviours that both stakeholders and entity managers will be required to monitor,
- from the analyst´s perspective: it is possible to use additional dimensional relationships and/or *formulae* to perform specific treatments on entity data, at the taxonomy layer, without the need for software re-programming.

Regarding the use of iXBRL in this IS taxonomy, there will be available, for every instance, a friendly visual version, suitable for HTML browsers like Internet Explorer, Mozilla Firefox or Google Chrome. The report regarding the KPIs, once completed and visualized, will have the columns and properties reflected in Figure 10.

KPIs frame

					Basic	Composed	Complex	Reported value (Present period)			Composed	Complex	Reported value (Past period)			Composed	Complex	Expected or budgeted value			Composed	Complex	Fulfillment			Composed	Complex	Change			Composed	Complex
								Flow		Stock			Flow		Stock			Flow		Stock			%	%			%	%			
								Accrual	Cash				Accrual	Cash				Accrual	Cash				Flow		Stock			Flow		Stock		
Financial Indicators																																
	Economic efficiency																															
KPI_F1	Revenues	€																														
KPI_F2	Suppliers	€	%																													
KPI_F3	Added Value	€	%																													
KPI_F4	Employee benefits	€	%	F4/S1																												
KPI_F5	EBITDA	€	%																													
KPI_F6	Financial expense	€	%																													
KPI_F7	Shareholders/Owners retribution	€																														
KPI_F8	Public Administration expenses	€	%																													
KPI_F9	Economic contribution to the community	€	%																													
KPI_F10	Result	%																														
KPI_F11	Level of debt	%																														
Environmental indicators								Flow		Stock			Flow		Stock			Flow		Stock			Flow		Stock			Flow		Stock		
	Energy efficiency																															
KPI_E1	Energy consumption	GJ		E1/F1 E1/F10																												
KPI_E2	Water consumption	m³	%																													
	Pollution reduction																															
KPI_E3	Polluting emissions	GEI	%	E3/F1 E3/F10																												
	Waste reduction																															
KPI_E4	Waste generation	t	%																													
KPI_E5	Waste processed	t	%																													
Social indicators								Flow		Stock			Flow		Stock			Flow		Stock			Flow		Stock			Flow		Stock		
	Increase in Human Capital																															
KPI_S1	Employees	num																														
KPI_S2	Gender diversity of employees	num	%																													
KPI_S3	Gender diversity of top employees	num	%																													
KPI_S4	Job stability	num	%																													
KPI_S5	Accidents and diseases at workplace	num																														
KPI_S6	Absentee	num																														
KPI_S7	Employee turnover	num	%																													
KPI_S8	Seniority	num	%																													
KPI_S9	Employees training	num	%																													
	Increase in Social Capital																															
KPI_S10	Non-compliance with legal regulation concerning customers	num																														
KPI_S11	Locally-based suppliers		%																													
KPI_S12	CSR certified suppliers		%																													
KPI_S13	Payment period to suppliers	num																														
Corporate Governance indicators								Flow		Stock			Flow		Stock			Flow		Stock			Flow		Stock			Flow		Stock		
	Fair corporate governance																															
KPI_CG1	Board members	num																														
KPI_CG2	Independent board members	num	%																													
KPI_CG3	Executive Committee	num	%																													
KPI_CG4	Audit Committee	num	%																													
KPI_CG5	Nominations Committee	num	%																													
KPI_CG6	Meetings of the Board	num																														
KPI_CG7	Total remuneration of the Board	€		GE7/F10																												
KPI_CG8	Gender diversity at Management Board	num	%																													

Figure 10. Integrated report. KPI frame

Regarding the potential impact and implementation of the IS-FESG taxonomy, it is relevant to note that it is expected to receive acknowledgement status from XBRL International, and that AECA will elaborate test cases with real information from the top five Spanish listed companies taking part in the IIRC 2012 Pilot Program (Table 4).

Company	Country	Industry
AB Volvo – Volvo Group	Sweden	Automobiles
AEGON NV	Netherlands	Financial Services
Akzo Nobel N.V.	Netherlands	Chemicals
ARM Holdings plc	United Kingdom	Technology Hardware & Equipment
Association of Chartered Certified Accountants	United Kingdom	Accounting
Atlantia S.p.A.	Italy	Industrial Transportation
BAM Group	Netherlands	Construction and materials
BBVA	**Spain**	**Banks**
BWise b.v.	Netherlands	Support services
Chartered Institute of Building, The	United Kingdom	Professional Organization
Charted Institute of Management Accountants, The	United Kingdom	Accounting
Cliffs Natural Resources	United States of Ameri	Industrial Mining & Metals
CLP Holdings Limited	China	Electricity
CNDCEC	Italy	Accounting
DANONE	France	Food Producers
Deloitte LLP	United Kingdom	Accounting
Deloitte Netherlands	Netherlands	Accounting
Diesel & Motor Engineering PLC	Sri Lanka	Industrial Engineering
Edelman	United States of Ameri	Media
ENAGAS, S.A	**Spain**	**Gas, Water & Multi-utilities**
EnBW Energie Baden-Württemberg AG	Germany	Electricity
Enel S.p.A	Italy	Electricity
eni S.p.A.	Italy	Oil & Gas Producers
Ernst & Young Nederland LLP	Netherlands	Accounting
Ernst & Young ShinNihon LLC	Japan	Accounting
Eskom Holdings SOC Limited	South Africa	Electricity
Eureko (Achmea)	Netherlands	Insurance
Flughafen München GmbH	Germany	Transportation Services
Gold Fields	South Africa	Mining
Grant Thornton UK LLP	United Kingdom	Accounting
HSBC Holdings plc	United Kingdom	Banks
Indra	**Spain**	**Software & Computer Services**
Industria de Diseño Textil, S.A. (Inditex)	**Spain**	**General Retailers**
KPMG International	Switzerland	Accounting
LeasePlan Corporation N.V.	Netherlands	Financial Services
Marks and Spencer Group plc	United Kingdom	General Retailers
MASISA S.A.	Chile	Forestry & Paper
mecu Limited	Australia	Banks
Microsoft Corporation	United States of Ameri	Software & Computer Services
N.V. Luchthaven Schiphol	Netherlands	Transportation Services
National Australia Bank Limited	Australia	Banks
Natura	Brazil	Personal goods
Novo Nordisk	Denmark	Pharmaceuticals &Biotechnology
PricewaterhouseCoopers N.V.	Netherlands	Accounting
Prudential Financial, Inc.	United States of Ameri	Financial Services
Randstad Holding N.V.	Netherlands	Support Services
Rosneft	Russian Federation	Oil and Gas
Sainsbury's	United Kingdom	Food retail
SAP	Germany	Software & Computer Services
Showa Denki Co Ltd.	Japan	Household Goods & Home Construction
Solvay	Belgium	Chemicals
State Nuclear Energy Corporation ROSATOM	Russian Federation	Utilities / Aerospace & Defense
Stockland	Australia	Real Estate Investment & Services
Takeda Pharmaceutical Company Limited	Japan	Pharmaceuticals &Biotechnology
Telefónica S.A.	**Spain**	**Telecommunications**
Terna SpA	Italy	Electricity
The Coca-Cola Company	United States of Ameri	Beverages

Table 4. Top global listed companies participants in 2012 IIRC Pilot Program

5. FINAL CONSIDERATIONS

The most recent developments from the XBRL community, also with an increase in international presence (XBRL, 2011e), have made it possible to exploit the functionalities of the standard to its true potential. Both dimensions and *formulae* specifications are answers to business challenges and demonstrate how the XBRL consortium and jurisdictions are sensitive to corporate and regulatory needs worldwide.

With the urgent requirement for EU integration and along with the emergence of proposals such as those from the IIRC, XBRL will provide concrete and tested solutions for a more efficient reporting environment. The Spanish Accounting and Business Administration Association proposed to the IIRC a full XBRL taxonomy, using all the technical advances available. This proposal is expected to be tested by major Spanish and international companies during 2012 and 2013. Further research will be required following this study, in order to check potential implementation issues and avenues for the improvements of the specifications described here.

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Spanish Accounting and Business Administration Association

INTEGRATED SCOREBOARD OF FINANCIAL, ENVIRONMENTAL, SOCIAL AND CORPORATE GOVERNANCE KEY PERFORMANCE INDICATORS (Public Working Draft as of 2012-03-31)[3]

GENERAL DATA ABOUT THE ENTITY:

- **Identification data**
  - Entity name
  - Identifier code
  - Address
  - Province
  - Municipality/Locality Name
  - Country (1)
  - Zip Postal Code
  - Phone number
  - Email
  - Contact Person
- **Activity**
  - Activity Code (2)
- **Scope of the information**
  - Period covered :
    - Start period
    - End period
  - Coverage perimeter (3)

(1) Complete list of countries

(2) Several lists available: i.e. NACE v2

(3) Indicate if the information is individual or in a consolidated basis, and the geographical scope it covers.

[3] Additional indicators, alternative definitions and references, including ones to IFRS and IAS will be expected in the final public version.

1. FINANCIAL INDICATORS (11)

CODE	DENOMINATION	DEFINITION	PRESENTATION AND CONSIDERATIONS	REFERENCES
Economic efficiency				
KPI_F1	**Revenues**	Total revenues of the year	Presentation: Addition of all revenues coming from sales and services provided, from financial and non-financial investments and from selling intangible and tangible assets	EC1,1(UN)
KPI_F2	**Suppliers**	Expenses related to purchases and services	Presentation: Expenses related to purchase by suppliers and other operations Considerations: Includes acquisition of raw materials, components, fixed assets, installations, services contracted, rents, licenses, taxes, royalties, freelance and sub-contracted workforce, training expenses (when the training is provided by a third party), payments to external capital providers, liabilities expenses (financial expenses), protection equipment for the workforce, etc.	EC1, 4(UN)
KPI_F3	**Added value**	Addition of outflows to all stakeholders	Presentation: Distributed Economic Value Considerations: DEV is calculated adding: Employee compensation, suppliers' expenses, owner retribution, Public Administration expenses and economic contribution to the community	EC1 (GRI)
KPI_F4	**Employee benefits**	Expenses related to employee compensation	Presentation: Employee expenses Considerations: Includes salaries and Social Security expenses	EC1, 6(UN)
KPI_F5	**EBITDA**	Earnings Before Interest, Taxes, Depreciation and Amortization	Addition of profit or loss after taxes, plus financial expenses, income taxes and depreciation-amortization	
KPI_F6	**Financial expense**	Financial costs	Presentation: Expenses related to liabilities Considerations: Includes all interests and commissions to be paid to financial and non-financial institutions	
KPI_F7	**Shareholders'/owners' retribution**	Dividends to owners/investors (Dividends	Presentation: Dividends and similar retribution to investors	EC1

		to all shareholders)	Considerations: Dividends and similar amounts whose distribution has been agreed during the year	
KPI_F8	**Public administration expenses**	Expenses related to taxes	Presentation: Taxes Considerations: Includes all the taxes, such as income taxes, taxes on properties, and to the different administrations (local, regional, national and supra-national agencies)	EC1,14(UN)
KPI_F9	**Economic contribution to the community**	Donations and financial help, of altruist character, for the reported period	Presentation: Amount of contribution to the community Considerations: Includes all kind of donations, directly or by means of any foundation	EC1,15(UN)
KPI_F10	**Result**	Profit or loss after taxes divided by equity	Presentation: Profit or loss after taxes	
KPI_F11	**Level of debt**	Level of debt at the end of the year, divided by equity	Presentation: (Short term debt + Long term debt) / Equity	

2. ENVIRONMENTAL INDICATORS (5)

CODE	DENOMINATION	DEFINITION	PRESENTATION AND CONSIDERATIONS	REFERENCES
Energy efficiency				
KPI_E1	**Energy consumption**	Direct energy consumption in gigajoules (GJ).	Presentation: GJ of energy consumption Considerations: Will include renewable + non-renewable energy consumption See table of equivalences*	EN3, IC (UN)
KPI_E2	**Water consumption**	Water consumption in cubic meters (m^3)	Presentation: Water consumption in cubic meters (m^3) Considerations: The sum of all water drawn into the boundaries of the reporting organization from all sources (including surface water, ground water, rainwater, and municipal water supply) for any use over the course of the reporting period.	EN8 (GRI), IA (UN)
KPI_E3	**Polluting emissions**	Greenhouse gases emissions, directly deductible from energy consumption	Presentation: Greenhouse gasses in CO_2 equivalent tons Considerations: To transform energy consumption into CO_2 emissions, the ECODES** framework will be used	EN16 (GRI) IB (UN)
Waste reduction				
KPI_E4	**Waste generation**	Waste generation, hazardous and non-hazardous	Presentation: Waste generation in tons Considerations: Weight in tons of hazardous waste (as defined by national legislation at the point of generation); and non-hazardous waste (all other forms of solid or liquid waste excluding wastewater).	EN22 (GRI) IE (UN)
KPI_E5	**Waste processed**	Waste processed, over total residues generated	Presentation: Tons of waste processed Considerations: Processed waste is waste that has been re-used, recycled or re-valued.	EN10, EN22 (GRI)

3. SOCIAL INDICATORS (13)

CODE	DENOMINATION	DEFINITION	PRESENTATION AND CONSIDERATIONS	REFERENCES
Increase in Human Capital				
KPI_S1	**Employees**	Employees with a labour contract	Presentation: Number of employees with a contract at year end	LA2 (GRI) 5 (NU)
KPI_S2	**Gender diversity of employees**	Women with a labour contract	Presentation: Number of women with a contract at the year end	LA2, LA13 (GRI)
KPI_S3	**Gender diversity of top employees**	Women with a labour contract, that have a position in the top level	Presentation: Number of women at the top level of the entity Considerations: Management, such as the Management Board, the General Direction and Deputy Directors are not included here.	
KPI_S4	**Job stability**	Employees with a permanent contract	Presentation: Number of employees with a permanent contract	LA1 (GRI) 5 (NU)
KPI_S5	**Accidents and diseases at workplace**	Time ('days') that could not be worked (and is thus 'lost') as a consequence of a worker or workers being unable to perform their usual work because of an occupational accident or disease.	Presentation: Number of lost days Considerations: Occupational accidents include those that take place in: (i) workplaces; (ii) travel while working (iii) home/workplace travel. A disease arising from the work situation or activity (e.g., stress or regular exposure to harmful chemicals), or from a work-related injury. Lost days are those that could not be worked (and are thus 'lost') as a consequence of a worker or workers being unable to perform their usual work because of an occupational accident or disease.	LA7 (GRI) 13 (UN)
KPI_S6	**Absentee**	Lost days through non-justifiable causes	Presentation: Number of days lost by absentee Considerations:	LA7 (GRI)

			An employee absent from work for any reason that is not the result of work-related injury or disease. Permitted leave absences such as holidays, study, maternity/paternity, and compassionate leave are excluded.	
KPI_S7	**Employee turnover**	Employees who abandon the organization	Presentation: Total number of employees leaving employment during the reporting period. Considerations: Employees who leave the organization voluntarily or due to dismissal, retirement, or death in service. All employees must be included in this calculation, regardless of contract type.	LA2 (GRI) 7 (UN)
KPI_S8	**Seniority**	Years of permanence of employees in the company	Presentation: Number of years of permanence of all employees	
KPI_S9	**Employee training**	Training received by the employees	Presentation: Number of training hours for the year Considerations: Refers to all kind of professional training and education, provided internally or externally (if it is paid totally or partially by the entity). Does not include regular training provided during work by supervisors.	LA10 (GRI) 10 (UN)
Increase in Social Capital				

KPI_S10	**Non-compliance with legal regulation concerning customers**	Number of incidents of non-compliance with regulation concerning customers	Presentation: Incidents of non-compliance with regulations resulting in a fine penalty. Considerations: Incident is any complaint or claim which has a resolution by the competent authority (administrative, arbitration or judicial), although this resolution could be appealed by the organization. As issues related to customers, the following will be considered: impacts of products and services on health and safety during their life-cycle, information and labelling of products and services, marketing communications, advertising, promotion and sponsorship, privacy and leakage of personal data of customers.	PR2 (GRI)
KPI_S11	**Locally-based suppliers**	Locally-based suppliers of the company	Presentation: Number of locally-based suppliers Considerations: Locally-based suppliers are those that operate in a concrete geographical space, such as the nation, region or locality where the entity also operates.	4 (UN) EC 6 (GRI)
KPI_S12	**CSR certified suppliers**	Percentage of suppliers who present a certification on corporate social responsibility	Presentation: Number of CSR certified suppliers Considerations: A strategic supplier is according to the entity perception of transaction volume. Some CSR certifications are: ISO14001/EMAS, SA8000, OHSAS, FQM, SG21, RS10:2009.	
KPI_S13	**Payment period to suppliers**	Average invoices payment period	Presentation: Average number of days between invoice dates and payment dates	

4. CORPORATE GOVERNANCE INDICATORS (8)

CODE	DENOMINATION	DEFINITION	PRESENTATION AND CONSIDERATIONS	REFERENCES
Fair corporate governance				
KPI_CG1	**Board members**	Number of board members	Presentation: Number of Board members	CSR-AECA[4]
KPI_CG2	**Independent board members**	Number of independent board members	Presentation: Number of independent board members Considerations: State how the organization defines 'independent' and 'non-executive'. This element applies only for organizations that have unitary board structures	4.3 (GRI 3.1) CSR-AECA
KPI_CG3	**Executive Committee**	Number of members of Executive Committee	Presentation: Number of members of the Committee that sets the company's strategy	
KPI_CG4	**Audit Committee**	Number of members of Audit Committee	Presentation: The Audit Committee is responsible for controlling and monitoring of external and internal auditors	
KPI_CG5	**Nominations Committee**	Number of members of Nominations Committee	Presentation: Number of Nominations Committee members	
KPI_CG6	**Meetings of the Board**	Number of meetings of the Board	Presentation: Number of meetings held by the Board annually	
KPI_CG7	**Total remuneration of the Board**	Board remuneration costs	Presentation: Remuneration paid to board members	CSR-AECA
KPI_CG8	**Gender diversity on Management Board**	Women with a labour contract, that have a position in the Management	Presentation: Number of women at the Management level Considerations: Management, such as the Management Board, the General Direction and Deputy Directors are included here.	LA13 (GRI)

References in this Appendix: United Nations (UN), Global Reporting Initiative (GRI), and previous CSR projects of AECA.

[4] CSR-AECA is the Corporate Social Responsibility Framework of the Spanish Accounting and Business Administration Association (AECA), available at www.aecareporting.com