CHEMICAL ENGINEERING TRANSACTIONS
VOL. 94, 2022
A publication of AIDIC
The Italian Association of Chemical Engineering
Online at www.cetjournal.it
Guest Editors: Petar S. Varbanov, Yee Van Fan, Jiří J. Klemeš, Sandro Nižetić

ISBN 978-88-95608-93-8; **ISSN** 2283-9216
DOI: 10.3303/CET2294063

Presenting Climate-related Disclosures in the Automotive Sector: Practical Possibilities and Limitations of Current Reporting Prototypes and Methods

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The eXtensible Business Reporting Language (XBRL) digital reporting system presents the annual accounts and financial data in a standardized format, thus producing comparable reports. This study examines how new sustainability reporting requirements proposed by the recent International Financial Reporting Standard (IFRS) S2 exposure draft could affect current reporting conditions of public listed European automotive manufacturers, from a taxonomical perspective. It was attempted the IFRS taxonomy to be linked with the ISSB's (International Sustainability Standards Board) proposed factors. Based on the changes in the regulatory environment and the existing digital reporting methodology, the paper proposed the inclusion of climate-related disclosure of automotive companies in the existing IFRS Taxonomy. In the taxonomical assessment, it was found that the recent sustainability reporting prototypes will likely affect certain financial statement sections, mostly the Notes to the financial statements. At present, there is no direct information available to investors and consumers on the environmental performance, which could be verified in the financial statements. There is no detailed emissions data that the company produces, as it is mainly the emissions compliance of the final product that is declared, especially in the automotive industry.

1. Introduction

The need for an integrated, accountable, relevant, verifiable, publicly available financial reporting system has been around for decades, but the technical sophistication of the various accounting and reporting systems has not yet made it possible. Recently, there have been increasing attempts by regulators to make business operations more transparent, which is also key to the verifiability of climate action, especially by large companies. In response to stakeholder demands, companies publish regular public reports at least annually, which extend well beyond financial reporting. Financial reports, which are normally published quarterly can be used subsequently, but their information content is limited to the requirements defined by standards or other Generally Accepted Principles. The International Financial Reporting Standards (IFRS) and International Accounting Standards (IAS) heavily regulate the parts disclosed in the Notes to financial statements, but the assessment of the climate burden has been based solely on voluntary disclosures. Although pollution regulation has been on Europe's regulatory agenda since the Green Deal, the years 2020 - 2021 have brought significant progress in (i) disclosure taxonomy standardization, and (ii) digitalization. The ISSB is a private-sector organization that develops and certifies the IFRS-compliant sustainability disclosure standards, established in 2021 after multiple consultations on the demand for global standards (Deloitte, 2021). In November 2021 a prototype reporting method was issued by the Technical Readiness Working Group (TRWG) of the IFRS Foundation, based on which the current supervisory panel, the ISSB, as of 31 March 2022, published the IFRS S2 Climate-related Disclosures (IFRS Foundation, 2022a). The current draft version is subject to consultation of the board, and open discussion by professionals. Companies in the automotive industry are among the top information providers in the field of this non-financial reporting (or ESG reporting), therefore they appear separately among the standard packages with several proposed climate-related disclosures, that identify the sustainability-related risks and opportunities bearing financial impact.

Paper Received: 27 April 2022; Revised: 28 May 2022; Accepted: 05 June 2022
Please cite this article as: Suta A., Tóth Á., Borbély K., 2022, Presenting Climate-related Disclosures in the Automotive Sector: Practical Possibilities and Limitations of Current Reporting Prototypes and Methods, Chemical Engineering Transactions, 94, 379-384 DOI:10.3303/CET2294063

In parallel to the development of the content requirements for Climate-related Disclosures, technical development has also accelerated, enhancing the role of financial and non-financial accounting reporting by transitioning to a digital platform. Reports adapting the XBRL format will be published in the ESEF (European Single Electronic Format) format, as described by the European Securities and Markets Authority (ESMA), whose implementation plan has been published in recent years. At this stage of implementation, financial reports will be published in full compliance with the technical requirements of the framework, which focuses on tagging with standardized metadata ("facts" or "concepts"), thus creating a format that is easy for stakeholders to use.
The focus on ESEF is based on the expectation that when corporate reporting (including ESG reporting) evolves to a digital-first strategy, additional authorities around the world will scrutinize the ESEF mandate. With these advancements, considering that its current trial is successful, the “filings.xbrl.org” database will be expanded to provide similar services for other publicly accessible XBRL data (XBRL International, 2022). Our aim in the current study was greatly guided by the said regulatory developments, to highlight some of the connected scientific studies in the heavily soaring base of literature, and to review the place of the current “prototype” sustainability disclosures in the IFRS taxonomy structure. The list of abbreviations was included in Table 1.

Table 1: List of abbreviations

ESEF: European Single Electronic Format	ISSB: International Sustainability Standards Board
ESMA: European Securities and Markets Authority	SASB: Sustainability Accounting Standards Board
IAS: International Accounting Standards	TCFD: Task Force on Climate-related Fin Disclosures
IASB: International Accounting Standards Board	TRWG: Technical Readiness Working Group
IFRS: International Financial Reporting Standards	XBRL: eXtensible Business Reporting Language

2. Literature review

In the literature review process the search term *“(climate OR sustainab* OR green OR carbon) AND accounting AND (disclosure OR taxonomy)” was* used in different scientific databases. The search procedure targeted paper titles, abstracts, and keywords, publication years were limited to the last 10 y (2012-2022). All database searches were executed on 01/03/2022, whereas a total of 1,363 documents (Scopus 514 documents, Web of Science 849 documents) were exported. Further steps included the removal of duplications (253 documents), removal of missing titles and authors (9 documents), resulting in 1,101 screened documents, following specific keyword searches (e.g., IFRS, disclosure, automotive) in abstracts. In Figure 1, an illustrative overview of the carbon accounting development literature, both regulation and academics were presented.

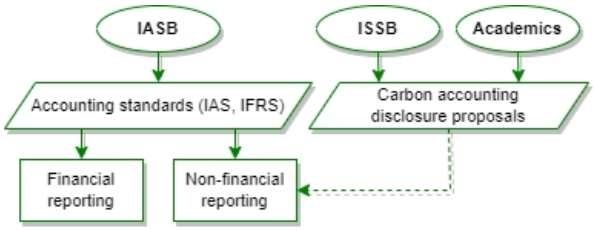

Figure 1: Structure of carbon accounting development in literature, Source: Own editing

2.1. Sustainability reporting in the accounting taxonomy – The link between IFRS and ISSB

The accounting taxonomy of non-financial items has gained rich literature in recent years. It was found that studies often discuss taxonomical aspects and aim to enhance the existing IFRS Taxonomy by improving the technical harmonization between financial and non-financial reporting. Current accounting practices (sometimes connected to standards) were mostly taken to fit these additional requirements in their current, or improved form. Some studies tackled the question of accounting for carbon emissions by attempting to integrate it into existing accounting practices–and IFRS standards. Fujii (2016) discussed carbon impact quantification and materiality by providing a regulatory synopsis, indicating the estimation of asset retirement obligations (AROs)–environmental obligations arising from the acquisition and operation of tangible assets–could serve as a base of carbon liability fair value definition. Haslam et al. (2014) highlighted the contradictions in carbon emission reporting caused by the methodological differences in carbon accounting of corporate business models, suggesting inter-organizationally comparable stakeholder carbon disclosures.
The representation of environmental impacts' possible drive for updating current standards was also found to be a heavily discussed topic. Kumar and Firoz (2020) analyzed the accounting practices of certified emission reductions (CERs) in annual statements with a very high non-disclosure rate for value recognition. Evain & Imoniana (2019) observed the recognition of IAS 37 contingent liabilities and risks narrated by environmental

reasons. Scholten et al. (2020) explained the impact of the proposed standards of the Task Force on Climate-related Financial Disclosures (TCFD) on the valuation of production assets (IAS 36 Impairment) of energy companies. Allini et al. (2018) state the financial accounting for GHG emission allowances and penalties (carbon trading), as one of the more developed areas of carbon accounting, is not uniform, which mainly affects the valuation of intangible assets and inventories.

As another approach, some studies extended existing accounting practices by involving additional economic concepts. Ramin and Lew (2015) proposed a reporting framework that measures the financial impact of non-financial items using their 3Ps (products, people, and physical infrastructure) capital orientation, which enables the technical implementation of integrated reports illustratively in XBRL. He et al. (2022) carried out a Systematic Literature Review on carbon accounting, where four major topics in prior literature were highlighted: disclosures, management, performance, and assurance. The study indicated the absence of formal carbon accounting standards and digital technology as a potential improvement area. It was also proposed that in their reporting, firms should simulate their climate-related risks and assurance for different levels of emissions, with at least one low-emission scenario in line with international pledges to limit warming at 2 °C above pre-industrial levels (O'Dwyer and Unerman, 2020).

Some studies reviewed how the adoption of IFRS standards influenced environmental accounting. Wegener & Labelle (2017) observed the pre-and-post IFRS environmental provisions (IAS 37), without significant impact on the value relevance of investors. Mandatory disclosure regulation in the form of standards should be initiated at an industry level to increase harmonization, including the definition of materiality and –unlike general ledger and double-entry bookkeeping used in financial reporting– the variety of different, ad-hoc measurement tools (Christensen et al., 2021). The XBRL data structure adds to the technical aspect of research, by tags and hyperlinking to relevant information and item interpretation. Uniform XBRL tagging could be divided into three categories in IFRS reporting practice; tags that capture IFRS reporting requirements, tags that capture firm-specific disclosures, and tags that represent additional mandates of local authorities (Becker et al., 2021).

2.2. Specific climate-related disclosures in industry sectors

Research from different disciplines contributes to the development of useful standards for industry-specific OEMs, where the main question could be approached by how reliable and clear the disclosed information is (Tóth et al., 2021a). For the automotive industry, environmental impacts can be measured on different levels, but the focus is on CO_2 equivalent emissions (IFRS Foundation, 2022). In the literature, more industry-specific approaches were found. As previously mentioned, climate-related impacts often surpass organizational boundaries in their assessment. Sellitto et al. (2015) used the Green Supply Chain Management (GSCM) model in the qualitative evaluation of two automotive supply chains, with the use of predefined keywords. Gola et al. (2022) analyzed keywords of Green Accounting of corporate report disclosures based on GRI standards but did not find any environmental disclosure in IFRS relevant for automotive OEMs. Models capable of handling complex and interconnected variables and subsystems of sustainability issues should be used to design and monitor sustainable policies (Dorgo et al., 2018). Of course, the measurement of such, previously neglected operational elements, such as indirect CO_2 emissions can now be supported by smart energy systems and other IoT applications (Chong et al., 2022).

Other industry-specific approaches proposed further concepts. Based on Analytic Hierarchy Process (AHP) theory, Fu et al. (2018) examined assessment indicators and separated them into three dimensions: relevance, saliency, and reliability. Cormier & Beauchamp (2021) stated different measures of "CO_2 emission" actual pollution. Puroila and Mäkelä (2019) discussed the materiality assessment of sustainability reporting, where the SASB (Sustainability Accounting Standards Board) standards with industry-specific material issues are observed not to be preferred by reporting organizations. Considering that the new ISSB proposal is reliant on former SASB standards, it can be expected that manufacturers will experience higher costs of adoption.

3. Methodology

The core element of the methodology and the data source was the IFRS Taxonomy published by the IASB in March 2022, which includes all financial reporting taxonomy items, forming a database with a total of 7,635 items with several variables (IFRS Foundation, 2022). All entities that adopt IFRS use these disclosures to communicate their results, both in the financial information and in the Notes section. Public listed companies that are required to report digitally (based on ESEF) will also implement their tagging by using these variables as the metadata. Custom disclosures allowed by IFRS were not included in the analysis. The database variables were structured as in Table 2, where the number of unique elements differed between variables.

Next, a classification step was implemented to identify taxonomically relevant keywords, using separate manual and computer-based selection steps. The aim was to identify the potential linkages of the newly presented ISSB

sustainability disclosures within the existing IFRS taxonomy. A manual selection of the first parts of the methodology was carried out based on the literature review, which was based on the accounting keywords that arise in the relationship between IFRS and climate-related disclosures.

Table 2: Structure of the dataset based on the IFRS Taxonomy, Source: IFRS Foundation (2022)

Variable name		Unique elements	Variable description
Location		68	Location of fact in the Financial Statements and Notes
Concept name (XBRL tag) and related label documentation	St. of Financial position	115	Taxonomy elements that provide meaning for a fact by assigning a tag from the list of standard tags. Includes accounting-and structural textual information.
	St. of P&L and CI	254	
	St. of Cashflows	147	
	St. of Changes in Equity	108	
	Notes / other	6,705	
	Axis (structural)	306	
Type		28	Type of fact data: Monetary, Text, Table, Date, Line item
Reference to standard		1,954	Referenced financial accounting standards (IAS, IFRS) or specific connected disclosures

4. Results

4.1 The conceptual linkage between IFRS and ISSB

The IASB and the ISSB are two independent organizations working for different purposes and are therefore not linked in standard-setting. Yet as they are both overseen by the IFRS Foundation and its Trustees and primarily target potential investors, lenders, other credit providers, and related users through standard-setting, they are designed to serve the same target group, with the same decision-making mechanisms, from a purely accounting perspective on the one hand, and from a sustainability perspective on the other. The decision to make sustainability standards issued by the ISSB mandatory, as well as the adoption of IFRS standards, will be taken by existing regional or national organizations. In Europe, this means, for example, the European Financial Reporting Advisory Group's (EFRAG) proposal for endorsement or mandatory adoption by the EU. The primary purpose of the ISSB standards in the Exposure Draft S1 is general sustainability reporting, while the objectives in S2 are specifically to present the risks and opportunities associated with climate change. This includes three main sub-objectives: a) to accurately present the impacts on the financial position and performance of the reporting entity; b) to present the impacts on the future cash flows (short, medium, long term) of the reporting entity; c) to present the entity's planned actions to address these risks and opportunities and its business model.

4.2 Direct requirements in the IFRS Taxonomy

The research aim was to investigate what additional information is expected to be displayed when the ISSB requirement is introduced and comes into force. In terms of climate-related disclosures for the automotive industry, the aspects previously discussed by Tóth et al. (2021b) are located at the links with financial accounting items of Provisions, Contingent assets and liabilities, Impairment of assets, and more generally influencing Fair value measurement. Following the current taxonomy-based methodology, these items can also be interpreted in the digital XBRL format. Table 3 presents the locations of the relevant accounting facts in the reporting of climate-related disclosures in the current IFRS Taxonomy. These XBRL tags are required to be incorporated into the reporting process at some level by companies, but the possibility of custom tags is also explicitly shifting towards the "Notes to the financial statements" sections. The disclosure requirements of quantified financial data are significantly lower, so the recognition of the financial impacts of climate-related activity is likely to be reflected only in the supplementary material.

Table 3: Number of IFRS Taxonomy items and location in financial statements, Source: IFRS Foundation (2022)

Location	Fair Value	Provisions	Contingent assets and liabilities	Impairment losses
St. of Financial position	0	12	0	0
St. of P&L and CI	18	0	0	3
St. of Cashflows	1	1	0	1
St. of Changes in Equity	6	0	0	0
Notes / other	725	105	95	122
Axis (structural)	11	2	4	5

Among the filtered set of XBRL tags (n = 1,111), no climate-related tags were observed. Therefore, it can be argued that obligatory disclosure criteria would be necessary to assess climate impacts feasibly. The direct impact of voluntary disclosure is difficult to assess based on current information because custom financial and non-financial items are not present at the taxonomy level. In the Notes sections, the most frequent XBRL facts are, according to Table 4, diverse and related to different main account classes. The highlighted Notes sections are likely to be subject to updates to enhance the representation of climate-related impacts.

Table 4: Top 5 Notes sections by the number of disclosures (in parentheses), Source: Own editing

	Fair Value	Provisions	Contingent assets and liabilities	Impairment losses
1.	[823000] Fair value measurement (302)	[827570] Other provisions, contingent liabilities and contingent assets (42)	[817000] Business combinations (49)	[832410] Impairment of assets (26)
2.	[822390] Financial instruments (168)	[800100] Subclassifications of assets, liabilities, and equities (33)	[827570] Other provisions, contingent liabilities, and contingent assets (31)	[822390] Financial instruments (20)
3.	[800100] Subclassifications of assets, liabilities and equities (48)	[818000] Related party (8)	[825700] Interests in other entities (4)	[823180] Intangible assets (14)
4.	[834480] Employee benefits (40)	[800200] Analysis of income and expense (4)	[800500] List of notes (3)	[800200] Analysis of income and expense (13)
5.	[836500] Insurance contracts (30)	[822390] Financial instruments (4)	[823000] Fair value measurement (3)	[800300] Statement of cash flows, additional discl. (7)

5. Conclusions

Based on the literature review and methodological research, the following conclusions can be drawn on the influence of the IFRS Taxonomy on the ISSB standards. In general, the reporting of automotive and other manufacturing sector companies will be positively affected by the ISSB proposals' mandatory introduction, which will make the published information more transparent. The SASB framework used by the reporting could thus have a crowding-out effect on other more widely used standards (e.g. GRI). The analysis of standard disclosures suggests a direct link between IFRS and the ISSB standards, as additional sustainability metadata for the disclosure of financial items could also be linked in the form of eXtensible Business Reporting Language (XBRL) facts. Among limitations of the current study, in the form of the current IFRS S2 Climate Exposure Draft, the aggregated financial impacts related to sustainability in IFRS reporting can still only be estimated by relying on content analysis in the Notes to the financial statements. The directly affected financial statement tags (the St. of P&L and CI in the case of Fair Value recognition, or the St. of Financial position in the case of Provisions) could hypothetically already include disclosures impacted by climate-related activities, but the presentation of details in the Notes section is not controlled by the eXtensible Business Reporting Language (XBRL) tagging.
There is no one-to-one correspondence between the two standard taxonomies, which implies further harmonization opportunities. The ISSB-IFRS harmonization issues are a problem for the future, but it could be an obvious option to align ISSB with IFRS and to establish a direct link in aggregated financial reporting, giving users greater and more transparent information to complement the financial information. The present study presents strong future research opportunities using the IFRS uniform digital taxonomy, which provides an internationally accepted technical framework for financial and non-financial analysis of corporate reports. Adaptation will be mandatory for companies with EU regulations, so a substantial increase in the content of the disclosures recorded is expected.

Acknowledgements

The research presented in this paper was funded by the National Research, Development and Innovation Fund of Hungary under grant RRF-2.3.1-21-2022-00004 “Establishment and complex development of the National Artificial Intelligence Laboratory (MILAB)”.

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XBRL International, Inc. 2022. About filings.xbrl.org. <filings.xbrl.org/about.html>