

Research on the Dissemination of Environmental Information in the Publishing Industry at International Level

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Abstract. *The amplification of climate change risks and exponential impacts on the environment with multidimensional negative consequences at the global level is of interest to authorities, professional bodies, economic entities and other stakeholders. The research approach is two-dimensional. The first dimension aims at reviewing the literature on sustainability. The results highlighted the diversity of conceptual approaches and the importance given to sustainability issues. The second dimension of the research aims to identify the degree of dissemination of environmental information by companies in the Publishing Industry. Using thematic content analysis, we investigated the Annual and Sustainability Reports for the financial year 2023 published by companies in the Publishing Industry. The sample which included 29 companies operating internationally was extracted from the Refinitiv database, and the selection criterion was the existence of the calculated Resource Use Score indicator. The results of the research highlighted the low level of dissemination of environmental information and the ability of companies to reduce resource use and to identify new sustainable solutions for improving the supply chain. The ranking of the sampled companies with the highest level of environmental disclosure is as follows: Sanoma Oyj (Finland), Storytel AB (Sweden), Schibsted ASA (Norway). Diametrically opposed are companies from the United Kingdom, China and the Cayman Islands which did not provide any environmental information. The research conducted is a starting point for the development of future research on sustainability in the Publishing Industry and we consider that the research complements the literature, given its limitation from the Publishing Industry perspective.*

Keywords: sustainability reporting, Publishing Industry, environment, sustainable practices, Disclosure Index, Resource Use Score.

Introduction

In the current context, dominated by amplified climate risks, declining biodiversity, economic turmoil, the interest of shareholders and other stakeholders in sustainability information is growing. The Publishing Industry plays an important role in society as it contributes to the development and promotion of culture, knowledge, education and freedom of expression. Although it is recognized as the oldest and most significant component of the cultural industry, book publishing in its established form, print, has negative environmental consequences.

Our study is a preliminary research of the disclosure degree of Publishing Industry companies worldwide for information concerning environmental impact of their activities.

Traditional technological practices in the Publishing Industry are known for their negative impact on the environment. The consumption of natural fiber paper generates massive logging, ink often contains heavy metals and a petroleum-based (Tian & Martin, 2012), energy consumption is high, supply chains are often difficult to control. Digitization as a global process offers the Publishing Industry the opportunity to reduce this negative environmental footprint through e-book publishing. On the other hand, although without the sustainability risks associated with print books, e-books have their own environmental footprint: energy consumption, costs of recycling the physical media needed to read e-books, etc.

Against the backdrop of the upward trend in the adoption of sustainable practices by all industries, companies in the Publishing Industry have responded positively to stakeholder demands to align with globally adopted requirements. The objective of the research is to identify the degree of dissemination of sustainability information by companies in the Publishing Industry, to analyze how they inform their stakeholders about the environmental impact of their activities throughout the product life cycle and to identify the trend of moving to digital books. To conduct the research, we consider companies operating in this industry internationally and disclosing sustainability information in their annual reports and sustainability reports for the financial year 2023.

Our paper contributes to a relatively limited literature in the Publishing Industry concerning its activities' environmental impact and it also represents an approach that could open various other research directions for this domain.

The paper is structured in the following sections: the first section presents the literature review; the second section is devoted to the research methodology, and is followed by the results and discussion, the third section. The last section is devoted to conclusions, research limitations and future research directions.

Literature review

Publishing industry is one of the most important sectors of the field of cultural industries (Bedate Centeno et al., 2017; Shen et al., 2023), and what consists of the art of writing, illustration, and other old elements of the printing press are valuable elements of cultural expression (Øiestad & Bugge, 2013). Bedate Centeno et al. (2017) state that the publishing sector is of significant importance in the field of cultural industries, being the oldest and with the highest sales volume.

The end of the last millennium, marked by the advent of the Internet, made possible both the digital adoption and diffusion of technologies that have had disruptive effects including on the publishing industry (Øiestad & Bugge, 2013), but also contributed to the development of an innovative economy centered on creative processes and information systems (Cohendet & Simon, 2007).

Digitalization is infiltrating more and more aggressively in many business sectors, presenting huge implications also on the book publishing industry, and adapting to the digital age requires publishers to be customer-centric (Donoughue, 2010, cited by Øiestad & Bugge, 2013). Barge-Gil et al. (2011) are of the opinion that firms can still exist in the market if they are focused on the continuous modernization of technologies. Nowadays, when addressing topics in the publishing sector, e-books cannot be overlooked, their emergence dating back to the late 1990s (Bedate Centeno et al., 2017). Another angle from which the traditional publishing industry is viewed involves the framing of paper consumption among polluting and wasteful activities (Shen et al., 2023). Gu et al. (2013), cited by Shen et al. (2023) are of the opinion that the traditional

publishing industry, which involves the use of paper as a raw material, although producing cultural content, presents problems in terms of poor dissemination efficiency as well as risk factors regarding pollution.

Hviid et al. (2019) comparatively list some of the advantages of both traditional and electronic publishing in their paper. Thus, traditional publishing presents better data and has funds for advance payments, while electronic publishing is characterized by the superior speed and freedom attributed to authors, as well as control over the final products.

Since the last decade, the destabilization of the publishing industry created by the emergence of platforms such as Apple, Amazon or Google (Benghozi & Salvador, 2015) has been observed, with digital publishing gradually taking over higher publishing revenues (Shen et al., 2023). With the advent of e-books, the idea was propagated that they would replace the printed book (Gregory, 2008). This has not happened, one of the reasons being that there is not enough digital content (Kim et al., 2021), with publishers fearing a decrease in revenues (Vasileiou et al., 2009, cited by Kim et al., 2021). With mixed (print and digital) book production, companies in the publishing industry will have to assess the sustainability requirements for the entire product lifecycle and adopt sustainable business models, such as print-on-demand (Magadan-Diaz & Rivas-Garcia, 2021).

Other authors have approached the study of the evolution of the publishing industry from multiple perspectives. Hviid et al. (2019) analyzed the response of publishers to the self-publishing market, as well as the option of self-publishing as an alternative to traditional publishing. Investigating how digital technology affects the performance of the publishing industry is another research approach (Shen et al., 2023), as well as the motivations that drive publishers to adopt sustainable practices (Magadán-Díaz & Rivas-García, 2021).

Sustainability reporting and, respectively, the promotion of positive impacts on environmental, social or economic systems have gained public interest (Leeson & Kuszewski, 2023). In this regard, sustainability standards have been created and established. The Global Reporting Initiative (GRI) is an international organization established in 1997, and the standards introduced in October 2016 represent the latest GRI framework on non-financial reporting and provide a structured approach that makes it possible for companies to report on their impact on all ESG dimensions (Čular et al., 2024).

Tschopp & Nastanski (2014) are of the opinion that the GRI standards are the best standards on corporate sustainability reporting for providing relevant information for decision making, and reporting companies address five areas: *Strategy and Analysis, Organizational Profile, Report Parameters, Governance, Commitments, and Engagement* and *Management Approach and Performance Indicators*.

Methodology

In our research we used thematic content analysis (Scaltrito, 2015) applied to the Annual Reports and Sustainability Reports (where these were presented separately from the Annual Report) presented for fiscal year 2023 for a sample of 32 companies extracted from the Refinitiv database as of January 28, 2025. The criteria used to determine the sample was the companies' membership in the Publishing Industry, without taking into account the basis on which the Annual Reports (including Sustainability Reports) were prepared and the existence, for the year 2023, of the calculated Resource Use Score indicator required for the purpose of the analysis.

The content analysis that we conducted is partial, conceptual (Hassan & Marston, 2010) as it focused on the existence of the necessary information to answer the questions in the checklist

constructed by the authors. The content analysis was also performed manually, starting from the .pdf document search function, since the restricted work sample allowed keeping the manual work at a manageable level. Thus, following the .pdf document search and download process, three companies were identified for which reports were not available. The final sample therefore comprises 29 companies from 18 countries.

The checklist has been developed with the interviews conducted by Magadan-Diaz & Rivas-Garcia (2021) with a group of representatives of the Spanish book industry as a source. Magadan-Diaz & Rivas-Garcia (2021) synthesize the responses received into eight categories that form the basis of our research, as highlighted in Table 1. Based on these categories synthesized by Magadan-Diaz & Rivas-Garcia (2021) as well as on our own research rationale, we established questions whose answers we sought in the financial and non-financial information published by the companies, based on content analysis.

Table 1. Summary of response categories

No.	Response categories (Magadan-Diaz & Rivas-Garcia, 2021)
1.	The Most Polluting Phase of Life Cycle Analysis in Publishing Production
2.	Concern for the Raw Materials Used in Publishing Production
3.	Environmentally Sustainable Suppliers
4.	Sustainable Packaging
5.	Sustainable Transport
6.	Usage
7.	Final Disposal
8.	Sustainable Business Model

Source: Authors' research based on Magadan-Diaz & Rivas-Garcia, 2021.

As mentioned above, there is limited literature in the field of Publishing companies sustainability reporting. We chose to use the results of the interviews conducted by Magadan-Diaz & Rivas-Garcia (2021) as their focus group was based on representatives of a national book industry (Spain) so the answers were delivered by people dealing on a daily basis with concepts of raw materials consumption (mainly paper), supply chain, transportation and packaging issues, decisions on print books vs e-books, returned books and their recycling and so on. We considered their answers important because any sustainability reporting is a balance between issuer's needs/benefits from this disclosure, legal requirements in their jurisdiction and their community's expectations. As this is a preliminary research, future directions could consider a framework construction based on other papers in the area or in similar domains.

In order to conduct the content analysis, we downloaded the Annual and Sustainability Reports and, using a series of keywords (including synonyms for some of the concepts, in order not to affect the accuracy of the analysis - Scaltrito (2015)), we searched for the information needed for each answer.

In order to quantify the results of the content analysis, we used a dichotomous and quantitative approach (Scaltrito, 2015) and assigned scores as follows:

- 0, for no information of any kind;
- 0.5, for only non-financial or only financial information;
- 1, for both non-financial and financial information.

We were thus able to calculate a Disclosure Index (DI) for each individual company with formula:

$$DI = \sum_{i=1}^n xi$$

Where:

- xi - is the score given to each research question following the content analysis
- n-represents the total number of points that can be obtained by a company (according to the checklist constructed by the authors, n has a maximum value of 12).

The content analysis performed on the annual and/or the sustainability reports for the sampled companies was performed by two coders. In order to provide the accuracy and consistency of the coding process, the two researchers performed separate analysis for the same annual report. Any inconsistencies between the two coding results were discussed and corrected in order to reach the final version of the checklist. Subsequently, a second annual report was coded by both researchers based on the corrected checklist and no other inconsistency was found.

Table 2. Research questions

Question	Source
1. Recognizing the most polluting stages of book production	Magadan-Diaz & Rivas-Garcia (2021)
2.a. The company discloses in the Annual or Sustainability Report the risk of sourcing raw material (paper) from unsustainable sources	Magadan-Diaz & Rivas-Garcia (2021)
2.b. The company discloses in the Annual or Sustainability Report the risk of sourcing raw material (ink) from unsustainable sources	Magadan-Diaz & Rivas-Garcia (2021)
3.a. The company presents in the Sustainability Report the supply chain management policy for raw materials (paper, ink, etc.)	Magadan-Diaz & Rivas-Garcia (2021)
3.b. The company presents information on investments in low-energy consumers	Authors' processing
4. Company outlines supply chain management policy for packaging services in Sustainability Report	Magadan-Diaz & Rivas-Garcia (2021)
5. Company presents in the Sustainability Report its supply chain management policy for transportation services	Magadan-Diaz & Rivas-Garcia (2021)
6.a. The company presents the destination of books published (bookstores vs libraries)	Magadan-Diaz & Rivas-Garcia (2021)
6.b. The company discloses revenues from sales of print books and ebooks separately in its Annual Report	Authors' processing
7.a. The company discloses financial information on returned/unsold print books in the Annual Report	Authors' processing
7.b. The company discloses in the Annual or Sustainability Report the destination of returned/unsold print books	Magadan-Diaz & Rivas-Garcia (2021)
8. Does the company present information on the adoption of a sustainable business model adapted to the industry (for instance, print-on-demand business model)?	Magadan-Diaz & Rivas-Garcia (2021)

Source: Authors' research based on Magadan-Diaz & Rivas-Garcia, 2021.

As for the construction of the final sample of companies, it is based on the Resource Use Score. The Resource Use Score is part of the Environmental Pillar categories and reflects a company's ability to reduce the use of materials (water, energy) and to identify and use sustainable solutions by improving the supply chain (LSEG, 2024).

The ESG score is a tool to assess a company's sustainability performance and the range is 0 to 100 units (LSEG, 2023). Resource Use Score represents 0.08 in the total ESG score and 0.24 in the Environmental Pillar score.

Results and discussions

The content analysis conducted aims to identify the multidimensionality of informational environmental concerns, i.e. the existence, consistency and volume of non-financial disclosures disseminated in annual reports versus action-oriented disclosures that detail and quantify the processes and procedures used in achieving sustainability goals, as modeled by Rogerson et al. (2024).

The study was conducted on 29 companies from 18 countries and the breakdown is illustrated in Figure 1. Thus, 13 of the countries correspond to a single company in the publishing industry in our sample, three countries contain two companies in the analysis, and the last two countries, the United States and the United Kingdom, contain five companies under analysis each.

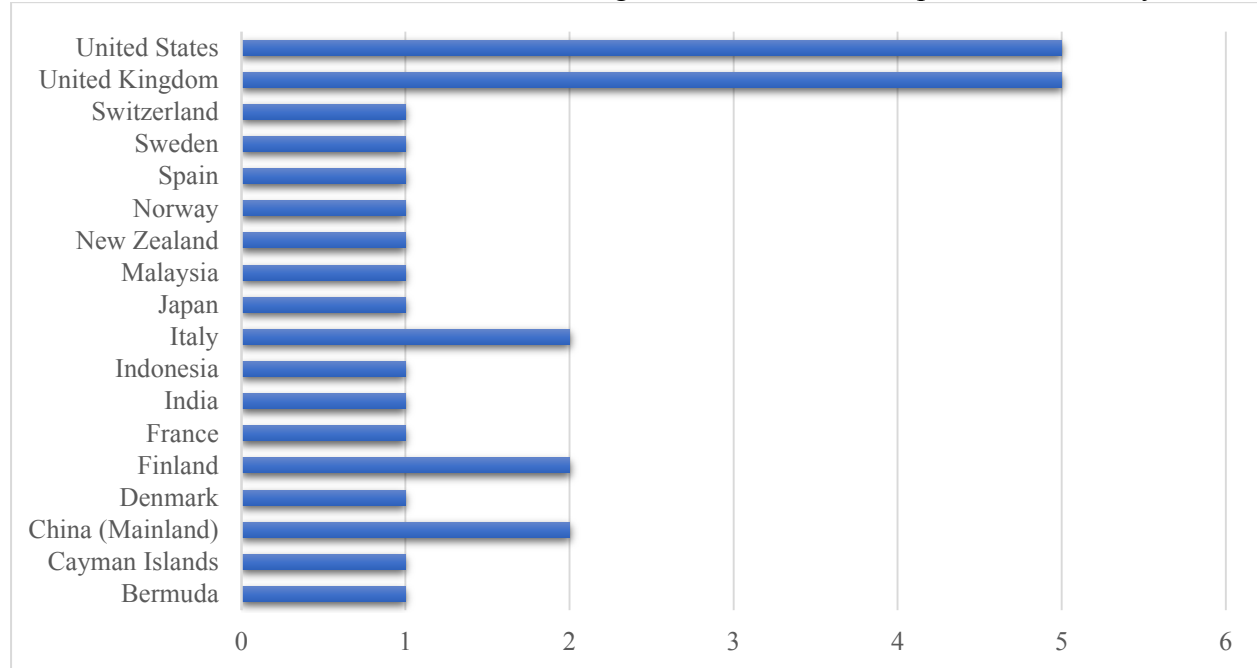


Figure 1. Distribution of companies across sample countries

Source: Authors' own research.

By analyzing the Annual and Sustainability Reports according to the methodology described above, we obtained the results presented in Table 3.

Table 3. Results of the content analysis

Company Name	Country	Disclosure Index
Star Media Group Bhd	Malaysia	3
North Media A/S	Denmark	1.5
Centaur Media PLC	United Kingdom	0
Storytel AB (publ)	Sweden	6.5
Alma Media Oyj	Finland	0.5
News Corp	United States	1.5
Gannett Co Inc	United States	0.5
Kadokawa Corp	Japan	2
Time Out Group PLC	United Kingdom	0
NZME Ltd	New Zealand	2
Xinhua Winshare Publishing and Media Co Ltd	China (Mainland)	3.5

Company Name	Country	Disclosure Index
Citic Press Corp	China (Mainland)	0
China Literature Ltd	Cayman Islands	0
Lagardere SA	France	5
Arnoldo Mondadori Editore SpA	Italy	5
New York Times Co	United States	2
Scholastic Corp	United States	5
John Wiley & Sons Inc	United States	5
Reach PLC	United Kingdom	3
Media Chinese International Ltd	Bermuda	3
Sanoma Oyj	Finland	8
Schibsted ASA	Norway	6.5
Future PLC	United Kingdom	5
Promotora de Informaciones SA	Spain	3
Cairo Communication SpA	Italy	4
TX Group AG	Switzerland	3
Mahaka Media Tbk PT	Indonesia	1
Bloomsbury Publishing PLC	United Kingdom	6
Navneet Education Ltd	India	5
Average Disclosure Index		3.12

Source: Authors' own research.

The research results illustrate that the degree of disclosure of the information needed to answer the questions in the checklist constructed by the authors is low, with the highest Disclosure Index score being 8 points out of a maximum of 12 points that could have been obtained. Therefore, the first position is obtained by the company Sanoma Oyj from Finland, followed by Storytel AB (publ) and Schibsted ASA from Sweden and Norway respectively, in the next two positions with a score of 6.5.

At the opposite pole are four companies with a score of 0, as they did not provide the information required for this research, located in the United Kingdom, China and the Cayman Islands.

Correlating the resulting Disclosure Index (Table 3) with the sustainability scores, i.e. Resource Use Score and ESG Score at the level of the sample countries, we obtain the results illustrated in Figure 2. The results indicate the existence of several scenarios. France presents a favorable situation, registering the highest score on Resource Use Score, i.e., 95 units, the second highest ESG Score of 71.68 units, and the second position on Disclosure Index, scoring 5. Spain has the best ESG Score of 80.15 units, a Resource Use Score close to the maximum in the sample of 82.06 units, but the calculated Disclosure Index is 3 points, which is below average.

Two other significant examples are Norway and Sweden, which achieved Disclosure Index scores of 6.5 points. What differentiates them are their sustainability scores: Norway both score above the calculated averages, while Sweden scores well below.

The Cayman Islands also differentiate themselves by having a Disclosure Index equal to zero and by having sustainability scores among the highest of the sample averages.

Therefore, we do not support the existence of correlations between the Disclosure Index and the Resource Use Score and ESG Score, respectively.

Analyzing the results obtained for the criteria detailed in the Checklist, the highest scores are attributed to questions 3.a. *The company presents in the Sustainability Report the supply chain management policy for raw materials (paper, ink, etc.), 1. Recognizing the most polluting stages of*

book production and 3.b. The company presents information on investments in low-energy consumers and are presented in Table 4.

Table 4. Results obtained for the content analysis criteria

Question	Score
1. Recognizing the most polluting stages of book production	10,5
2.a. The company discloses in the Annual or Sustainability Report the risk of sourcing raw material (paper) from unsustainable sources	8
2.b. The company discloses in the Annual or Sustainability Report the risk of sourcing raw material (ink) from unsustainable sources	5,5
3.a. The company presents in the Sustainability Report the supply chain management policy for raw materials (paper, ink, etc.)	11
3.b. The company presents information on investments in low-energy consumers	10
4. Company outlines supply chain management policy for packaging services in Sustainability Report	7
5. Company presents in the Sustainability Report its supply chain management policy for transportation services	8,5
6.a. The company presents the destination of books published (bookstores vs libraries)	5
6.b. The company discloses revenues from sales of print books and ebooks separately in its Annual Report	7
7.a. The company discloses financial information on returned/unsold print books in the Annual Report	7,5
7.b. The company discloses in the Annual or Sustainability Report the destination of returned/unsold print books	6
8. Does the company present information on the adoption of a sustainable business model adapted to the industry (for instance, print-on-demand business model)?	4,5

Source: Authors' own research.

Thus, question 3.a. *The company presents in the Sustainability Report the supply chain management policy for raw materials (paper, ink, etc.)* scored 11.

The next two questions score 10.5 and 10. These three criteria with the highest values are characterized by the presentation of sustainability policies on the raw material supply chain, the recognition of polluting production processes, but also the investments allocated for sustainable production equipment, representing mostly discussion-oriented disclosures.

At the opposite pole are the lowest scores of 4.5, 5 and 5.5 respectively, corresponding to criteria 8. *Does the company present information on the adoption of a sustainable business model adapted to the industry (for instance, print-on-demand business model)*, 6.a. *The company presents the destination of books published (bookstores vs libraries)* and 2.b. *The company discloses in the Annual or Sustainability Report the risk of sourcing raw material (ink) from unsustainable sources*. Criterion 8, characterized by the lowest score, involves action-oriented disclosures; only nine companies in the sample disseminate non-financial information disclosing the sustainable business model adopted.

Continuing the analysis, we have grouped the results into categories. Starting from the sample average Disclosure Index score of 3.12 points (Table 3), we identified three categories into which companies can be classified according to the score obtained from the analysis of the Annual and Sustainability Reports. These categories are presented in Table 5.

Table 5. Disclosure categories

Disclosure Index Range	Category	Description
3.5-12	Category A	Good disclosure and above-average dissemination of information
0.5-3.5	Category B	Poor disclosure and below average dissemination of information
0	Category C	Lack of disclosure of relevant study information

Source: Authors' own research.

The distribution of companies in the three categories by country of origin is shown in Table 6.

Table 6. Ranking of companies by disclosure categories

Country	Category A	Category B	Category C	Total
Bermuda		1		1
Cayman Islands			1	1
China (Mainland)	1		1	2
Denmark		1		1
Finland	1	1		2
France	1			1
India	1			1
Indonesia		1		1
Italy	2			2
Japan		1		1
Malaysia		1		1
New Zealand		1		1
Norway	1			1
Spain		1		1
Sweden	1			1
Switzerland		1		1
United Kingdom	2	1	2	5
United States	2	3		5
Total	12	13	4	29
%	41.38%	44.83%	13.79%	100%

Source: Authors' own research.

The results indicate good disclosure and above-average dissemination of information for only 12 companies in the sample, which is less than half, i.e. 41.38%. The countries with most companies scoring above the average of 3.12 points are Italy, the United Kingdom and the United States (category A).

Category B is the most comprehensive, with 13 companies or 44.83% of the sample. Three of the companies in the United States score below average, indicating poor disclosure and below average dissemination of information. The other countries in this category have only one company that discloses information that answers the research questions set out in the research methodology.

There are also four companies that are characterized by non-disclosure of information relevant to the study, from three countries, namely the United Kingdom, China and the Cayman Islands (category C).

Table 7 summarizes the minimum, maximum and average values obtained by the sample companies in terms of Resource Use Score and ESG Score. Time Out Group PLC from the United Kingdom stands out by obtaining the lowest scores of 12.12 units for the Resource Use Score and 13.83 for the ESG Score. The top scores are achieved by two other European companies. Lagardere

SA from France has the best Resource Use Score of 95.00 units and Promotora de Informaciones SA from Spain has the highest ESG Score of 80.15 units.

Table 7. Descriptive statistics

Score		Company/ Country
Resource Use Score		
Maximum	95.00	Lagardere SA; France
Minimum	12.12	Time Out Group PLC; United Kingdom
Mean	57.62	16 companies above average score; 13 companies below average score
ESG Score		
Maximum	80.15	Promotora de Informaciones SA; Spain
Minimum	13.83	Time Out Group PLC; United Kingdom
Mean	48.59	15 companies above average score; 14 companies below average score

Source: Authors' own research.



Figure 2. Correlation between obtained Disclosure Index and sustainability scores

Source: Authors' own research.

Figure 3 illustrates the average Resource Use Score versus ESG Score across the sampled countries. We can see that 14 of the countries have Resource Use Score scores higher than the average ESG Score. This reflects the ability of the companies in these countries to reduce resource use as well as to identify new sustainable solutions for supply chain improvement (Resource Use Score) more effectively than the overall sustainability performance of these companies (ESG Score).

The other four countries, namely New Zealand, Denmark, Japan and Sweden, scored lower than the average ESG Score on the Resource Use Score.

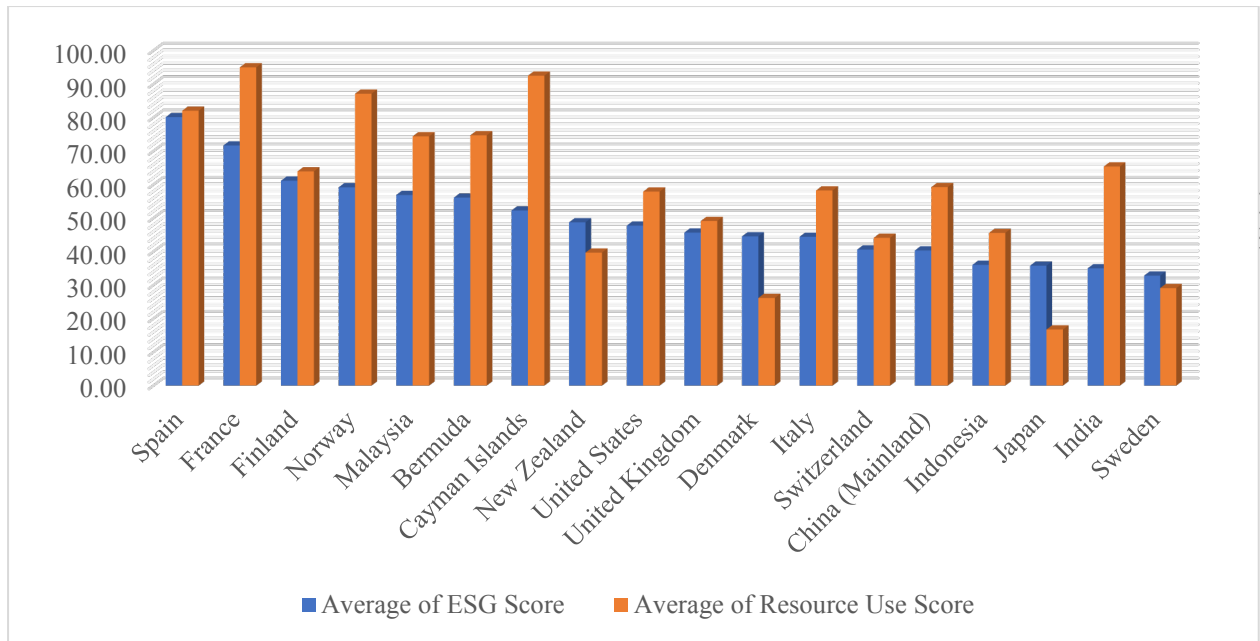


Figure 3. Mean sustainability scores relevant to the study

Source: Authors' own research.

Completing the analysis also from a financial perspective, which involved financial results, the objective was to identify the link or lack thereof between a financial component, i.e. net income after tax, and a non-financial component, the Resource Use Score. The results are presented in Figure 4 and Table 8 below.

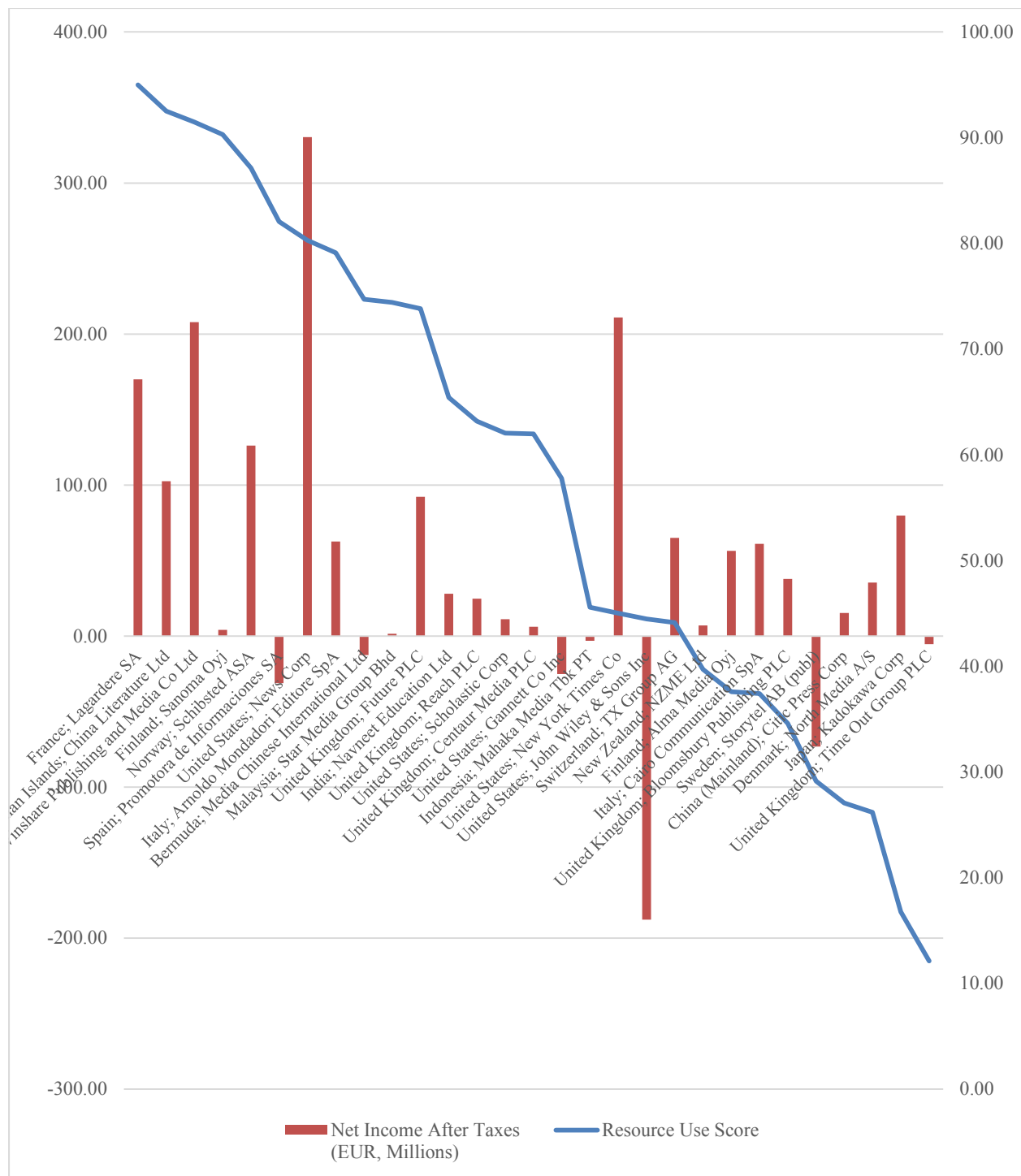


Figure 4. Correlation between net income after tax and Resource Use Score

Source: Authors' own research.

Seven of the companies have both net income after tax and resource utilization scores above the calculated averages, as follows: Lagardere SA(France), China Literature Ltd (Cayman Islands), Xinhua Winshare Publishing and Media Co Ltd (China), Schibsted ASA(Norway), News Corp (United States), Arnoldo Mondadori Editore SpA (Italy), Future PLC (United Kingdom). Eight of

the companies have net income after tax and resource utilization scores below average: Mahaka Media Tbk PT (Indonesia), John Wiley & Sons Inc (United States), NZME Ltd (New Zealand), Bloomsbury Publishing PLC (United Kingdom), Storytel AB (publ) (Sweden), Citic Press Corp (China), North Media A/S (Denmark), Time Out Group PLC (United Kingdom). The difference of 14 companies is not correlated. Therefore, according to the results obtained and presented above, a link between the profit realized in relation to the Resource Use Score recorded by the companies was not identified.

Table 8. Net income after tax and Resource Use Score results

Company Name	Country of Incorporation	Net Income After Taxes (EUR, Millions)	Resource Use Score
Lagardere SA	France	170.00	95.00
China Literature Ltd	Cayman Islands	102.58	92.51
Xinhua Winshare Publishing and Media Co Ltd	China (Mainland)	207.88	91.47
Sanoma Oyj	Finland	4.10	90.29
Schibsted ASA	Norway	126.06	87.13
Promotora de Informaciones SA	Spain	-31.23	82.06
News Corp	United States	330.44	80.29
Arnoldo Mondadori Editore SpA	Italy	62.58	79.12
Media Chinese International Ltd	Bermuda	-12.63	74.71
Star Media Group Bhd	Malaysia	1.48	74.41
Future PLC	United Kingdom	92.22	73.82
Navneet Education Ltd	India	27.98	65.41
Reach PLC	United Kingdom	24.80	63.17
Scholastic Corp	United States	11.16	62.06
Centaur Media PLC	United Kingdom	6.14	61.98
Gannett Co Inc	United States	-25.28	57.78
Mahaka Media Tbk PT	Indonesia	-3.08	45.59
New York Times Co	United States	210.90	45.00
John Wiley & Sons Inc	United States	-187.83	44.46
TX Group AG	Switzerland	65.04	44.12
NZME Ltd	New Zealand	6.99	39.71
Alma Media Oyj	Finland	56.40	37.60
Cairo Communication SpA	Italy	61.10	37.41
Bloomsbury Publishing PLC	United Kingdom	37.74	34.59
Storytel AB (publ)	Sweden	-73.23	29.12
Citic Press Corp	China (Mainland)	15.26	27.06
North Media A/S	Denmark	35.47	26.18
Kadokawa Corp	Japan	79.74	16.76
Time Out Group PLC	United Kingdom	-5.47	12.12
Average		48.18	57.62

Source: Authors' own research.

Conclusions

The literature review, although limited, revealed the importance of the Publishing Industry both from a cultural point of view, the impact of traditional publishing practices on sustainability, but also the need for change by adopting sustainable practices such as digitization.

The research highlights the low level of environmental disclosure (Disclosure Index scores 8 points out of a maximum of 12 points). Companies ranked in descending order of score are Sanoma Oyj from Finland, Storytel AB (publ) from Sweden and Schibsted ASA from Norway.

Diametrically opposed are companies from the United Kingdom, China and the Cayman Islands which did not disclose environmental information.

Taking into account the average Disclosure Index obtained at the sample level, we grouped the companies with the highest disclosure of the following information: most polluting stages of book production, supply chain management policy for raw material (paper, ink, etc.), supply chain management policy for packaging services, supply chain management policy for transportation services, financial information on returned/unsold print books. The results showed good disclosure and above-average disclosure for only 12 companies in the sample. The countries with the most companies are Italy, the United Kingdom and the United States (category A). Three of the companies in the United States show poor disclosure and below-average disclosure, and the other countries have only one company disclosing the information specified (category B). Four companies in the United Kingdom, China and the Cayman Islands do not disclose information relevant to the study (category C).

In terms of disclosures on net income after tax as well as resource utilization scores, seven companies scored above the calculated averages, as follows: Lagardere SA(France), China Literature Ltd (Cayman Islands), Xinhua Winshare Publishing and Media Co Ltd (China), Schibsted ASA(Norway), News Corp (United States), Arnoldo Mondadori Editore SpA (Italy), Future PLC (United Kingdom). Eight of the companies have below average net income after tax and resource utilization scores: Mahaka Media Tbk PT (Indonesia), John Wiley & Sons Inc (United States), NZME Ltd (New Zealand), Bloomsbury Publishing PLC (United Kingdom), Storytel AB (publ) (Sweden), Citic Press Corp (China), North Media A/S (Denmark), Time Out Group PLC (United Kingdom). The difference of 14 companies is not correlated. From this perspective, the research results did not reveal a correlation between realized profit and Resource Use Score recorded by the companies.

The research results also revealed that 14 out of the 18 countries have Resource Use Score component scores higher than the average ESG Score, reflecting the ability of companies in these countries to reduce resource use as well as to identify new sustainable solutions for supply chain improvement.

In terms of research limitations, we consider that one of them is reporting only to the year 2023. However, although the research has only reported on one calendar year, given the international reporting, we consider that the research results are not affected.

Our paper contributes to a relatively limited literature in the Publishing Industry concerning its activities' environmental impact and it also represents an approach that could open various other research directions for this domain.

As future research directions, we propose to conduct a longitudinal study to identify the trend of reporting and dissemination of environmental information in Publishing Industry companies.

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