

Álvaro Rocha · Francisco J. García Peñalvo ·
Ramiro Gonçalves · Alicia García-Holgado ·
Fernando Moreira
Editors

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Editors

Álvaro Rocha
ISEG
University of Lisbon
Lisbon, Portugal

Ramiro Gonçalves
Universidade de Trás-os-Montes e Alto
Douro
Vila Real, Portugal

Fernando Moreira
Universidade Portucalense
Porto, Portugal

Francisco J. García Peñalvo 
Departamento de Informática y Automática,
Facultad de Ciencias
University of Salamanca
Salamanca, Spain

Alicia García-Holgado 
GRIAL Research Group
Universidad de Salamanca
Salamanca, Spain

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Communicating sustainability through the adoption of the SDGs

Evidence from the reporting systems of European companies

Cecília Carmo

Research Unit on Governance, Competitiveness and Public Policies (GOVCOPP)
Universidade de Aveiro (ISCA-UA)
Aveiro, Portugal
cecilia.carmo@ua.pt

Joaquim Leite

Unidade de Investigação Aplicada em Gestão (UNIAG)
Instituto Politécnico de Bragança (IPB)
Bragança, Portugal
jleite@ipb.pt

Inês Chaves

Universidade de Aveiro (ISCA-UA)
Aveiro, Portugal
ines.chaves@ua.pt

Abstract — The adoption of the Sustainable Development Goals (SDGs) is increasingly becoming an integral part of sustainability reporting and used as a tool to disclose information on companies' sustainability actions. In this context, the aim of this work is to investigate how the adoption of the SDGs has evolved in Europe, to extend previous evidence that does not go beyond the year 2018. For this purpose, a sample of European companies belonging to the Euro Stoxx 50 Index and the period from 2017 to 2021 were selected. Data was collected and processed using manual content analysis methods. The results show a clear tendency for European companies to adopt an increasing number of SDGs over the period analyzed. It was also observed that among the most adopted SDGs are: in the economic area, SDG 12 and SDG 8; in the social area, SDG 3, SDG 4 and SDG 5; and in the environmental area, the most adopted is the SDG 13.

Keywords – Sustainable Development Goals (SDGs); SDG; Global Goals; disclosure; CSR.

I. INTRODUCTION

The concept of sustainable development was first raised in 1987 because of the need to integrate economic development, the management and protection of natural resources, and social equity and inclusion [1]. The concept was introduced by the 1987 Brundtland Report, better known as Our Common Future, which defined sustainable development as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” [2, § 27].

The Sustainable Development Goals (SDGs) were developed to build on the success of the eight Millennium Development Goals between 2000 and 2015, and complete what has not yet been achieved [3]. In September 2015, the document entitled “Transforming our world: the 2030 Agenda for Sustainable Development” [3] was formalized at the United Nations (UN) Summit in New York. The 2030 Agenda entered into force on 1 January 2016 and consists of 17 SDGs and 169 targets to be achieved by 2030, with the commitment that “no one will be left behind” [4]. The Agenda was seen as a broad and ambitious agenda, addressing multiple dimensions of sustainable development (social, economic and environmental) and that promotes peace, justice and effective institutions [3] [4].

The 17 SDGs and their targets, unanimously endorsed by the 193 UN Member States, are considered to be integrated and indivisible, global in nature and universally applicable, while taking into account different national realities, capacities and levels of development and respecting national policies and priorities [3]. In this way, the SDGs focus on the “5 Ps” - people, planet, prosperity, peace and partnerships - with the aim of achieving sustainable development in three dimensions: economic, social and environmental, in a balanced and integrated way [3]. By 2030, all countries are expected to develop policies, measures, and actions to meet the 169 goals and achieve the 17 SDGs. To participate in and contribute to the realization of the SDGs, companies can carry out

sustainable strategies and work in line with the SDGs targets [5].

In recent years, there has been a growing awareness on the part of the various stakeholders of the importance of sustainability, with companies no longer being judged solely on their financial performance but also on the impact of their actions in environmental and social terms. This change has required changes in corporate reporting itself, with companies now disclosing information on the impact of their activities on the environment and society through reports containing non-financial information. In fact, there has been a growing interest on the part of companies in strengthening the paths towards sustainable development, demonstrating their assumption of responsibility towards stakeholders, and increasing transparency [6]. In this context, in recent years there has been a growing interest among companies in the SDGs, which have been progressively integrated into corporate reports as a way of communicating companies' commitment to sustainability [7].

The adoption of the SDGs has been analyzed in various geographical areas: in Europe [7] [8] [9] [10]; in Asia [5] [11] [12] [13]; in Africa [14]; and in samples from various countries [15] [16]. In the specific case of Europe, there is no extensive empirical evidence on the adoption of the SDGs after 2018 and in the context of the adoption of Directive 2014/95/EU (Non-Financial Reporting Directive). Therefore, this paper aims to analyze the adoption of SDGs based on a sample of companies belonging to the Euro Stoxx 50 Index and the period from 2017 to 2021, in order to answer the following research question:

RQ: How has the adoption of SDGs by European companies evolved over the period 2017 to 2021?

II. LITERATURE REVIEW

A. Measuring the "adoption of the SDGs"

Empirical approaches to measuring the level of adoption of the SDGs are based on content and textual analysis of the reports where this information is disclosed, i.e., annual reports, sustainability reports and integrated reports [8].

A simple way to "measure" the adoption of the SDGs is to identify only the presence or absence of the expression SDGs in the reports, using a binary code that takes the value 1 if the expression is mentioned and the value 0 (zero) if it is not [7] [17]. This approach has been followed in the first years after the entry into force of the 2030 Agenda, in a context where the level of adoption was still low, and many companies still did not mention the SDGs in their reports. Some authors have used this approach to identify which reports and/or their respective sections were chosen by companies to address the topic of the SDGs [18] [19].

To effectively measure the number of SDGs adopted, several studies apply a binary code to each of the 17 SDGs, assigning a value of 1 if a particular SDG is adopted and 0 (zero) otherwise. Based on this binary code, some authors use only the total number of SDGs adopted as a measure of adoption, so that the level of adoption ranges from 0 to 17 [5] [16] [20]. Other authors calculate a proportion using the ratio between the total number of adopted SDGs and the total number of 17 SDGs [5] [13] [15] [21]. Finally, there are

studies that apply these procedures not only to the SDGs but also to the 169 targets [12] [22].

Some studies go beyond "quantifying" the number of SDGs adopted, seeking to "qualify" whether this adoption translates into a substantive strategy of alignment with the SDGs (greenwashing or green action) or if it is merely a symbolic disclosure strategy (greenwashing or green talk). For example, a reference to the SDGs in the CEO's and/or president's message; the disclosure of potential risks and opportunities related to the SDGs; or the presentation of key performance indicators specifically related to priority SDGs would be considered substantive strategies [23]. And, in this line of thinking, when SDGs are linked with strategy, business model, value creation, capitals, and performance, this is also seen as a substantive alignment with the SDGs [16]. Finally, additional information on activities or actions undertaken by entities to achieve the SDGs, presented alongside the terms "Sustainable Development Goals", "SDG", "SDGs", "Global Goals", "Goal", "CSR", "Objective", and "UNSDG" are also considered to represent substantive strategies [5].

The amount of information disclosed about the SDGs can be considered an indicator of the quality of SDGs reporting, and higher quality reporting may indicate a greater commitment to SDGs adoption. In this line, the quality of SDGs reporting is captured considering two dimensions: "definition and prioritization of the SDGs" and "measurement and analysis of the SDGs" [8]. Each of these dimensions is analyzed through a binary code, which takes the value of 1 if a specific item from that dimension is present in the report, and 0 (zero) if the opposite is true. For the first dimension, five items are considered: if CEO statements refer to the SDGs; if the report provides general information about the SDGs; if the report provides information about the prioritization process of the SDGs; if the report provides information about the outcome of the prioritization of the SDGs; and if the prioritization process discusses not only positive impacts but also negative impacts. For the second dimension, six items are considered: if the report provides information about qualitative goals related to the SDGs; if the report provides information about quantitative goals related to the SDGs; if the report provides information about specific actions to achieve the SDGs; if the report provides qualitative information about the outcome of these actions; if the report provides quantitative information about the outcome of these actions; and if the report provides information about future actions related to achieving the SDGs. The resulting measure of SDGs adoption varies between 0 and 11.

Another approach is to assess the quality of SDGs reporting by creating a score that quantifies the information disclosed for each SDG [11]. This information consists of a set of disclosure items outlined in the Global Reporting Initiative (GRI) standards that relate to each SDG.

Finally, the impact of the implementation of the Agenda 2030 and the consequent adoption of the SDGs had on sustainability reporting are quantified using a computerized textual analysis tool [24]. To do so, the authors developed a vocabulary list consisting of 10 terms related to each of the 17 SDGs. For each company, two sustainability reports are

analyzed: one from the “pre-adoption” period of the SDGs (the most recent year from the period 2011 to 2014) and another from the “post-adoption” period of the SDGs (the most recent year from the period 2016 to 2019). Based on the vocabulary list and using the computerized textual analysis tool, the frequency of terms is quantified, calculating the level of alignment of each report with each SDG.

B. Empirical evidence on the adoption of the SDGs in Europe

The reports of 523 European companies (from 19 countries and 12 different industries) for years 2015 and 2016, were analyzed with the aim of evaluating the influence of SDGs reporting on company performance, and the effect of industry-level factors on moderating the relationship between SDGs approach and business performance [7]. From a country perspective, the study provides evidence that companies located in Sweden are leading the way in adopting the SDGs in their sustainability reports, with 14.21% of companies reporting on the SDGs, followed by companies located in Italy with 13.11% and Germany with 10.93%.

The disclosure of the SDGs by companies listed on the STOXX Europe-600 Index was studied for the period from 2015 to 2018 [8]. The authors observed an increase in the number of adopted SDGs over the analyzed period, as well as an increase in the amount of information disclosed about them. The item that deserved the most attention from companies in terms of disclosure is related to the outcome of SDGs prioritization, meaning that companies specify the SDGs that are relevant to their businesses. SDGs 3, 8, 9, 12, and 13 were the most adopted.

The SDGs reporting of 37 European banking institutions was assessed for the year 2018 (number of banks by country: Netherlands - 6, Norway - 5, Greece and Sweden - 4, Germany and Russia - 3, Austria - 2, Belgium, Finland, Denmark, Hungary, Ireland, Poland, Serbia, Spain, Switzerland, and the United Kingdom - 1) [10]. The results showed that SDG related to decent work and economic growth (SDG 8) and peace, justice, and strong institutions (SDG 16) were prioritized. The themes of industry, innovation and infrastructure (SDG 9) and quality education associated with training and development opportunities for workers (SDG 4) were also of particular importance. However, SDGs 6, 7, 14, and 15 were not adopted by most banks, indicating a limited alignment with environmental issues. On average, banks placed great emphasis on the economic dimension (SDGs 8, 9, and 12), followed by the social dimension (SDGs 1, 2, 3, 4, 5, 10, and 16), and lastly, the environmental dimension (SDGs 6, 7, 11, 13, 14, and 15).

The SDGs adopted by companies in the energy sector and listed on the Warsaw Stock Exchange were analyzed with the aim of assessing the extent to which the Covid-19 pandemic delayed the achievement of SDG 7 targets related to access to reliable, sustainable, and modern energy for all [9]. To do so, the authors examined the SDGs adopted in 2016 (before the pandemic), 2020 (the first year of the pandemic - before vaccination) and 2021 (with vaccination). The results showed that the pandemic increased the Corporate Social

Responsibility actions undertaken by companies and did not affect actions contributing to SDG 7.

C. Empirical evidence on the adoption of the SDGs in Asia

The disclosure of information on the SDGs in five Southeast Asian countries (Indonesia, Malaysia, Singapore, Thailand, and the Philippines) was studied for the years 2016 and 2017 [13]. The results demonstrated the following decreasing order of the analyzed countries, in terms of the level of information disclosed about the SDGs: Thailand, the Philippines, Indonesia, Malaysia, and Singapore. The theme related to SDG 16 received the least disclosure, while the themes related to SDGs 2, 4, 7, 9, 11, and 17 were the most disclosed.

In Malaysia, the disclosure of information on SDGs themes was analyzed for 16 Islamic banks for the period from 2011 to 2020 [11]. The results showed the highest levels of disclosure for the following SDGs: SDGs 9, 17, 11, and 1. SDG 16 obtained the lowest score.

Similarly, in Malaysia, a sample of the 100 largest publicly listed companies, documented an increase in the number of SDGs adopted by each company between 2016 and 2020 [5]. The authors also found that for all SDGs, there was an increase in the number of companies that adopted them. In terms of priority, the most adopted SDGs were 3, 4, 8, 12, and 13, while the least adopted were 1, 2, and 14.

An analysis of SDGs implementation in companies listed on the Indonesia Stock Exchange (IDX), during the period from 2016 to 2020, showed some differences in the level of implementation of the SDGs between public (state-owned) and private companies, and provided evidence on the effects of the Covid-19 pandemic on this implementation [12]. The results showed that, overall, companies listed on the IDX had a moderate performance in their practice of adopting the SDGs, with an average score of 12.64 SDGs adopted out of a total of 17. Public (state-owned) companies generally showed a higher level of adoption of the SDGs compared to private companies. Although there was a slight decline in the number of SDGs adopted during the Covid-19 pandemic period, compared to the period before the pandemic, the difference was not significant.

D. Empirical evidence on the adoption of the SDGs in other countries

Information on the SDGs disclosed by listed companies in 8 African countries, was analyzed for the period from 2016 to 2018, based on a set of 15 indicators provided by GRI standards and an additional set of 9 indicators defined by PriceWaterhouseCoopers (PWC) [14]. The results revealed that only 29 out of the 80 companies analyzed disclose information about the SDGs. The authors supplemented the analysis by conducting questionnaires with the respective auditing firms (the Big Four: PWC, KPMG, Ernst and Young, and Deloitte) with the aim of understanding the reasons for such a low adoption of the SDGs. The responses obtained led to the conclusion that the voluntary nature of SDGs disclosure, lack of management commitment, lack of enforcement mechanisms,

and costs are the reasons for the limited disclosure of information about the SDGs by African companies.

The adoption of the SDGs was also examined for 46 companies, which were considered to be pioneers in terms of integrated reporting practices, in year 2017 [16]. The companies were distributed across the following countries: South Africa (19), United Kingdom (12), Australia (2), Netherlands (2), New Zealand (2), Singapore (2), Sri Lanka (2), Brazil (1), Mexico (1), Italy (1), Germany (1), Russia (1), and Japan (1). In an initial analysis, 23 companies were identified with no mention of the SDGs; 20 companies mentioned several SDGs and were considered “adopters”; and 3 companies were considered “future adopters” as they only mentioned the intention to adopt in the future. The 20 adopting companies mention, on average, the adoption of 9 SDGs. The most adopted SDGs by companies were, in descending order: 13, 8, 12, and 9. The least adopted SDGs were 1, 2, 14, and 16. The authors also conducted a textual and visual analysis of the reports to assess whether the adoption of the SDGs was merely symbolic or represented a substantive commitment to sustainability. This analysis concluded that more than half of the adopting companies provided information demonstrating a concrete alignment of business strategies, business models, and value creation processes with selected SDGs. However, there are companies that use the SDGs as a symbolic tool to enhance the company’s image and reputation.

The evolution of the adoption of the SDGs around the world has been analyzed based on the reports of 6941 companies from 30 countries for the period from 2016 to 2019 [15]. The results showed a growing trend of adoption over the analyzed period. Throughout the analyzed period, the Philippines was among the countries with the most companies and SDGs adopted, and Greece was the country with no companies adopting the SDGs. In Europe, Italy leads, followed by Spain. In Asia, the Philippines leads, followed by Singapore, and South Korea ranks last. In Latin America and the Caribbean, Mexico shows the highest level of adoption. In the remaining regions of the globe, the leaders are Australia in Oceania, Canada in North America, and South Africa on the African continent.

III. METHODOLOGY

A. Sample selection and data collection

Given the purpose of the study, we select a group of companies belonging to different European Union countries and subject to the same regulations regarding the disclosure of information on sustainability. To this end, the sample was selected from the companies included in the Euro Stoxx 50 Index, consulted at <https://qontigo.com/index/SX5E/> in September 2022.

In addition, the years 2017 to 2021 were defined as the period of analysis, with 2017 being the first year in which these companies were required to disclose sustainability information under Directive 2014/95/EU (Non-Financial Reporting Directive) and 2021 being the most recent year at the time of data collection. The number of companies in the final sample was further reduced due to the imposition of certain criteria, which are explained below.

In order to collect the required data, we consulted each company’s website and extracted the following documents in pdf format: the annual report, which includes the management report and financial statements; the sustainability report, when presented separately from the annual report; and the integrated report, when presented instead of the traditional annual report.

In the process of collecting the reports, it was required that they be available in English, which led to the exclusion of three companies whose reports were in other languages. Four companies that did not have all the data required for the study for all years were also excluded. Finally, given the subject of the study, three companies that did not adopt SDGs in any of the years in the sample were excluded. The final sample of this study consists of 40 companies and the years 2017 to 2021.

The reports of these companies were subjected to a manual content analysis [25] to identify the SDGs adopted. Following previous studies, the adopted SDGs were further categorized into three areas: economic, social, and environmental [10]. It should be noted that these authors did not consider SDG 17, which was considered here in the economic area.

Table I shows the distribution of companies in the sample by country and shows that the most representative countries are France and Germany with 14 and 13 companies respectively. These two countries represent 67.5% of the sample. On the other hand, Belgium, Finland, and Ireland are represented by only 1 enterprise. In terms of number of employees and balance sheet total, the sample is represented by large companies, as they have more than 250 employees and a balance sheet total of more than 43 million euros, as defined by the European Commission [26].

TABLE I. DISTRIBUTION OF COMPANIES BY COUNTRY

Country	No. of companies
France	14
Germany	13
Spain	4
Holland	4
Italy	2
Belgium	1
Finland	1
Ireland	1

a

IV. RESULTS AND DISCUSSION

To answer the research question, the evolution of the SDGs adopted by European companies between 2017 and 2021 is analyzed. This evolution is analyzed in two dimensions: the number of SDGs adopted by each company during this period, and the areas (economic, social, and environmental) in which the SDGs adopted fall.

As can be seen from Table II, in 2017, 2018 and 2019 there are companies that have not adopted any SDG or that mention that they have adopted SDGs but do not specify how many or which SDG they have adopted. All these situations are considered here to be equivalent to not adopting the SDGs. Over the period analyzed, there is a clear trend for companies to adopt an increasing number of SDGs, with the number of companies adopting between 11 and 17 SDGs increasing consistently over the different years. By 2021, 27 of the 40 companies in the sample (67.5 per cent) had adopted between 11 and 17 SDGs.

TABLE II. NUMBER OF SDGs ADOPTED BY YEAR

No. of SDGs adopted	No. of companies				
	2017	2018	2019	2020	2021
Does not adopt or does not identify the SDGs adopted	10	3	1	0	0
Adopts between 1 and 5	7	6	7	4	4
Adopts between 6 and 10	7	11	12	14	9
Adopts between 11 and 17	16	20	20	22	27

Regarding the areas of the SDGs, as can be seen in Table III, the SDGs in the social area saw the largest increase between 2017 and 2021 (62 per cent), followed by the SDGs in the environmental area (55 per cent) and lastly the economic area (43 per cent). In line with this trend, the SDGs with the highest number of adopters (26 companies) in 2017 were in the economic area (SDG 12) and the environmental area (SDG 13), and these will also be the most adopted SDGs in 2021 (37 and 38 companies respectively).

TABLE III. AREAS OF THE SDGs ADOPTED

Area	SDG	No. of companies					Δ
		2017	2018	2019	2020	2021	
E C O N O M I C	8	24	33	35	36	36	+39 (+43%)
	9	19	24	25	29	28	
	12	26	35	36	36	37	
	17	21	27	26	26	28	
		90				129	
S O C I A L	1	12	15	19	21	22	+71 (+62%)
	2	10	10	12	14	16	
	3	24	31	31	32	34	
	4	20	27	25	25	27	
	5	18	27	31	32	34	
	10	15	19	19	24	27	
	16	15	20	20	22	25	
	114				185		
E N V I R	6	17	20	23	24	26	
	7	15	20	23	24	25	
	11	18	19	18	22	24	

Area	SDG	No. of companies					Δ
		2017	2018	2019	2020	2021	
O N M E N T A L	13	26	31	36	38	38	+58 (+55%)
	14	13	18	17	20	23	
	15	16	21	21	25	27	
		105				163	

In 2017, the most adopted SDGs in the economic area were SDG 12 (responsible consumption and production) and SDG 8 (decent work and economic growth); in the social area, SDG 3 (good health and well-being) and SDG 4 (quality education); and in the environmental area, SDG 13 (climate action). This pattern is similar in 2021, with SDG 12 and SDG 8 leading in the economic area, SDG 3, and SDG 5 (gender equality) dominating in the social area, and SDG 13 being the most adopted in the environmental area.

In answer to the research question, it can be said that the number of companies adopting the SDGs has increased significantly over this period, although the SDGs most adopted in 2017 are generally also the most adopted in 2021. Thus, although there is a positive trend in the level of adoption of the SDGs, it should be emphasized that the topics that deserve the most attention from the largest number of companies have not changed significantly over time, suggesting that companies adopting the SDGs for the first time have the same perception of the most prioritized goals as other companies.

The results obtained show a clear tendency for European companies to adopt an increasing number of SDGs in the period from 2017 to 2021. This is a new result and extends the knowledge on the adoption of the SDGs in Europe, for the period from 2015 to 2018, where an increase in the number of SDGs adopted was also observed, based on a sample of companies belonging to the STOXX Europe 600 Index [8]. This evidence suggests that as the SDGs become more widely known, companies are incorporating them into their strategies. However, the SDGs most adopted in 2017 are roughly the same as those adopted in 2021, suggesting that companies adopting the SDGs for the first time have the same perception as other companies about the goals that need to be achieved most urgently.

Among the most adopted in the economic area are SDG 12 (responsible consumption and production) and SDG 8 (decent work and economic growth); in the social area are SDG 3 (good health and well-being), SDG 4 (quality education) and SDG 5 (gender equality); and in the environmental area the most adopted is the SDG 13 (climate action). It is worth noting that for the period from 2015 to 2018 and for companies in the STOXX Europe 600 Index, the most adopted SDGs were SDG 3, SDG 8, SDG 9, SDG 12 and SDG 13 [8].

V. CONCLUSIONS

The aim of this paper was to study the evolution of the adoption of the SDGs by European companies over the period 2017-2021, in order to extend the knowledge of this

phenomenon in terms of time, as the existing evidence on Europe does not go beyond 2018.

The results show a clear tendency for European companies to adopt an increasing number of SDGs over the period analyzed. However, it was found that the most adopted SDGs in 2017 are practically the same in 2021, suggesting that companies adopting the SDGs for the first time have the same perception of the most prioritized goals as other companies. It was also found that the most adopted SDGs in the economic sphere include SDG 12 (responsible consumption and production) and SDG 8 (decent work and economic growth); in the social sphere, SDG 3 (good health and well-being), SDG 4 (quality education) and SDG 5 (gender equality); and in the environmental sphere, SDG 13 (climate action).

This work is not without some limitations, mainly related to the nature of the information analyzed, which is sometimes scarce in terms of details on the adoption of the SDGs. The first relates to the measure of “SDGs adoption”, which is based on the number of SDGs adopted, without taking into account the targets included in them or the possible prioritization of SDGs by companies. For future research, we suggest following the trend of SDGs adoption by extending the period analyzed to new years, considering other measures of “SDGs adoption”, and analyzing the number of SDGs adopted.

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