Environmental Science and Policy 138 (2022) 134–145

Contents lists available at ScienceDirect

Environmental Science and Policy

journal homepage: www.elsevier.com/locate/envsci

Sustainable Development Goals fail to advance policy integration: A large-*n* text analysis of 159 international organizations

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ARTICLE INFO

Keywords:
Sustainable Development Goals
Policy integration
International organizations
Global governance
Text analysis

ABSTRACT

While most of today's global challenges are deeply interconnected, international organizations often operate in silos. The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, have been advanced as a new agenda to break up these silos and to better integrate environmental, social and economic policies. Yet little is known about whether the SDGs had any effects in advancing policy integration. To investigate this, we conducted a quantitative content analysis on the website texts of 159 international organizations. Our study addresses two questions: (1) whether international organizations increasingly engage with the SDGs in their work; and (2) whether this engagement increased their attention for policy integration. Our results show that the SDGs are indeed increasingly used by most international organizations. However, this has not affected policy integration. We conclude with some possible explanations for this lack of effect and propose several research avenues.

1. Introduction

The 17 Sustainable Development Goals (SDGs) are the most recent and prominent example of new modes of "global governance by goals." The SDGs were agreed upon by the United Nations (UN) General Assembly in 2015 as part of their overarching "2030 Agenda for Sustainable Development" (2030 Agenda) (UN, 2015). The goals follow upon previous goal setting strategies by the UN, such as the Millennium Development Goals; all these goals are not legally binding, often more aspirational in nature, and have weak mechanisms to ensure compliance and reporting (Biermann et al., 2017; Finnemore and Jurkovich, 2020).

While global goals themselves are not new, the SDGs bring a new level of importance and prominence to goal setting as a global governance mechanism (Biermann et al., 2017, 2022). First, the SDGs are the most ambitious set of goals so far, aiming for nothing less than 'transforming our world' by their 17 main goals and 169 more concrete targets, all within a time span of merely 15 years (UN, 2015). Second, the SDGs are the most comprehensive set of goals so far. The 17 goals cover almost all current global issues ranging from poverty and inequality to land and ocean degradation and strengthening institutions. Third, the SDGs apply to all countries. Previous goals mainly applied to development in and for developing countries, with industrialized countries as donors. Yet the broadness of the SDGs makes every country a 'developing country', be it on combating poverty or reducing unsustainable consumption patterns.

The SDGs are unique also in that they are a first attempt to truly integrate the three pillars of sustainable development – the economic, social and environmental (Biermann et al., 2017; UN, 2015). The 17 SDGs are consistently presented as 'integrated and indivisible' in nature, with numerous explicit references between the different goals (LeBlanc, 2015). The central idea is that none of the goals can be achieved without advancing on all goals. Accordingly, policies on one goal should not negatively affect policies on other goals. It is up to political actors to come up with "integrated solutions" towards the achievement of all goals.

Despite enthusiasm and widespread support for the SDGs (Chasek et al., 2016; Yiu and Saner, 2014), little is empirically known about the effects of these goals on policy integration, that is, on integrating aims or

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https://doi.org/10.1016/j.envsci.2022.10.002
Received 15 July 2022; Received in revised form 28 September 2022; Accepted 2 October 2022
Available online 15 October 2022

concerns across policy domains. This lack of knowledge is especially profound when it comes to the effects of the SDGs on the hundreds of international organizations that are expected to play a central role in the global governance of the policy domains covered by the SDGs (Cormier, 2018; Eilstrup-Sangiovanni, 2020; Harrington, 2020; Van Driel et al., 2022). So far, international organizations have often been found to operate in "silos," blocking the integration of important policies (Bogers et al., 2022; Nilsson et al., 2009). If the SDGs had a positive effect on policy integration among international organizations, broad progress towards sustainability would be more likely (Haas and Stevens, 2017; Nilsson et al., 2009; Stafford-Smith et al., 2017).

But did the SDGs have an effect on policy integration in international organizations? This is the key concern of this paper. To better understand whether the SDGs have facilitated policy integration, we present here the findings of a quantitative content analysis on over 500,000 pages of website texts of 159 international organizations at three points in time, 2015, 2017 and 2019. Using automated keyword frequency analysis, we measured the use of the SDGs among international organizations and their subsequent attention for policy integration. We assessed whether the SDGs were able to facilitate one of their central ambitions - the integration of policies across policy domains - and to what extent international organizations' characteristics influence policy integration.

By effect of the SDGs, we refer here not to whether progress on the goals themselves is made. Rather, we are interested in the political impact of the SDGs on international organizations. More specifically, we look at discursive political impact of the SDGs (Biermann et al., 2022), and whether this subsequently has an effect on policy integration. The latter is assessed here as an increase in attention for policy integration on international organizations' websites, as measured by keyword frequencies. As it is conceivable that an increase in attention for policy integration will never lead to more integrated policies in practice, we thus assess a "soft form" of policy integration (Azizi et al., 2019). Nevertheless, any changes in attention of international organizations because of the SDGs may be a first indication that more profound change is possible (Biermann et al., 2022).

Our study makes three main contributions. First, we advance the knowledge base on the effects of global governance through goals, particularly related to policy integration at the global level. So far, this knowledge base is limited, especially when it comes to empirical analyses (Beisheim et al., 2022). Second, we contribute to the literature on international policy integration. By assessing what organizational characteristics increase policy integration, we add to our understanding of policy integration in international organizations (Tosun and Peters, 2018), which is important for global sustainable development (Biermann et al., 2009; Bornemann and Weiland, 2021; Nilsson and Persson, 2017). Third, we contribute methodologically by using an innovative approach to measure policy integration that could be applied in many other research settings. This may provide new opportunities for research on policy integration, which has relied heavily on small-n studies so far (Trein et al., 2020).

The rest of this paper is structured as follows. First, we define the concept of policy integration and describe how the SDGs and characteristics of international organizations may lead to increased policy integration among international organizations. Second, we elaborate on our data and methodological approach. Third, we report the results of the statistical analyses. Finally, we discuss possible explanations of our findings and recommend future research directions.

2. Policy integration in international organizations

Policy integration has been discussed since the 1980 s in many different forms and terminology. Often used terms include policy mainstreaming, policy coordination, holistic governance and – in the environmental field – environmental policy integration (Nilsson et al., 2012; Runhaar et al., 2020; Tosun and Lang, 2017). The core idea of policy integration is that policies in one domain should take into account potential side-effects in other domains, so that policies coming from different domains or organizations do not negate each other (May et al., 2006; Tosun and Lang, 2017). Following Tosun and Lang (2017), we define policy integration here as integrating aims or concerns from one policy domain into another within one organization. This is sometimes also referred to as horizontal policy integration (Duraiappah and Bhardwaj, 2007; Geerlings and Stead, 2003; Lafferty and Hovden, 2003). Policy integration can take place on multiple 'objects', including policy inputs, outputs, procedures, instruments, and goals (Bornemann and Weiland, 2021; Candel and Biesbroek, 2016; Nilsson et al., 2012; Runhaar et al., 2020). Given our interest in the SDGs, we focus on the latter, the integration of policy goals.

The concern for policy integration is a response to the increasing functional fragmentation of governance subsystems. Increasingly, actors work on domain-specific policies to serve their domain-specific policy goals. The myopic nature of these subsystems becomes problematic when societal issues span multiple policy domains (Candel and Biesbroek, 2016; Jochim and May, 2010), as is the case for many sustainability issues today. Globalization and environmental change have led to higher interconnectedness between societal issues across domains, space and time. Combined with uncertainty and ambiguity, such cross-cutting issues have been described as "wicked problems" that governance actors struggle to deal with (Anthes, 2019; Candel and Biesbroek, 2016). Policy integration is considered essential to solving these cross-cutting issues (Jochim and May, 2010; Runhaar et al., 2020; Stafford-Smith et al., 2017; Termeer et al., 2015).

At the international level, policy integration is often called for because functional fragmentation among international organizations and institutions is especially strong there (Haas and Stevens, 2017; Nilsson et al., 2009). International organizations operate in a functionally fragmented manner due to rapid proliferation and specialization over the past decades (Anthes, 2019; Barnett and Finnemore, 1999; Bogers et al., 2022; Young, 2011; Zürn and Faude, 2013). This has led to calls for international organizations to be more aware of the impact of their activities on policy domains outside their policy area (Nilsson, 2004; Perez, 2005). Indeed, policy integration has been on the agenda of many international organizations since the 1990s. For example, the International Labour Organization (ILO) created a Policy Integration Department more than two decades ago to increase internal policy integration and to support governments with integrated cross-sectoral policies (Rodríguez-Pose, 2001; Tosun and Lang, 2017). Similarly, the Organisation for Economic Co-operation and Development (OECD) has published since the late 1990s a series of reviews and assessment frameworks to increase policy integration (see for example OECD, 1999, 2001, 2015).

Several mechanisms have been proposed to increase policy integration among international organizations, including interplay management (Oberthür, 2009; Stokke, 2020), hierarchization (Biermann et al., 2009; Kim et al., 2020) and orchestration (Abbott et al., 2015, 2020). Yet given the lack of institutional structures as compared to those at national levels, enhancing policy integration among international organizations remains difficult (Nilsson et al., 2009; Oberthür, 2009).

Governance through global goals, such as the SDGs, is another mechanism that is advanced to increase international policy integration (Vijge et al., 2020). Global goals are internationally agreed non-legally binding policy objectives that are time-bound, measurable and aspirational in nature (Biermann et al., 2017; Vijge et al., 2020), with the SDGs being more comprehensive and more focused on interconnections than previous global goals (Chasek et al., 2016). The SDGs thus seem to be a more promising attempt to integrate a broad range of issues into one coherent agenda, potentially leading to a more favorable environment for policy integration (LeBlanc, 2015; Nilsson and Persson, 2017; Stevens, 2017).

However, if the SDGs are to have any effect on policy integration among international organizations, the latter must first use the SDGs as a

guiding framework. Given the lack of binding force of the SDGs, international organizations are formally not obliged to use or work towards the SDGs. Yet, even without formal obligation, there might be a strong imperative for collective action and attention towards the goals, creating political and social pressure for all involved actors to align their work with the goals (Fukuda-Parr, 2014; Fukuda-Parr and McNeill, 2019; Haas and Stevens, 2017; Young, 2017). International organizations are influenced by this global environment and known to react to a changing global context (Abbott et al., 2016; Wit et al., 2020). Thus, it is conceivable that international organizations adopt the SDGs as a guiding framework and adjust their programs and efforts accordingly (Bridgewater et al., 2014).

Once international organizations use the SDGs as a guiding framework, this might lead to more policy integration. The SDGs are presented as "integrated and indivisible" in the Agenda 2030 (UN, 2015), and there are many cross-references between the goals in the 169 targets. There is even a specific target, SDG 17.14, to "enhance policy coherence for sustainable development" (LeBlanc, 2015; UN, 2015). The SDGs are thus explicitly designed to facilitate integration between policy domains (Chasek et al., 2016; Elder and Olsen, 2019). The SDGs may also raise the salience of a broad range of issues among international organizations (Dahl, 2012; Janoušková et al., 2018), including issues outside their specialization. This increased awareness of issues in other policy domains may lead to incorporation of those issues into the work of an international organization. In addition, many resources such as guidelines and toolkits have been made available to support integrated SDG implementation (Allen et al., 2018; ICS, 2017). If used, these guidelines may facilitate policy integration as well.

Indeed, a handful of case studies suggest increased policy integration through the SDGs. For example, studies on the ILO and the Asian Development Bank (ADB) have shown that the use of the SDGs as a framework had led to more policy integration in both organizations. The SDGs increased openness to integrated sustainability in the ILO (Montesano et al., 2021) and facilitated learning across policy domains in the ADB, resulting in more integrated approaches in project development and implementation (Censoro et al., 2020).

In sum, there is broad agreement in the literature that the success of the SDGs depends on the extent to which actors, especially international organizations, use these goals as a new framework of reference and pursue the goals in an integrated manner (Stafford-Smith et al., 2017; Underdal and Kim, 2017). Taking up the SDGs in policies and programs may thus trigger incremental change towards policy integration (Costanza et al., 2016; Vijge et al., 2020). This is the central hypothesis of this paper: The use of the SDGs as a guiding framework leads to higher levels of policy integration in international organizations. To investigate this hypothesis is the focus of this paper.

In addition to this core hypothesis, we analyze to what extent certain characteristics of international organizations affect any observed increase of policy integration in international organizations. We expect four characteristics of international organizations to possibly have some explanatory power.

First, international policy integration has historically focused on the integration of environmental issues into non-environmental policies (Biermann et al., 2009; Lafferty and Hovden, 2003; Tosun and Lang, 2017). Protecting the environment is widely regarded as a crosscutting theme (Tosun and Peters, 2018), and international environmental organizations have been working on policy integration for a longer time. We thus expect environmental organizations to show higher levels of policy integration than international organizations working on non-environmental issues.

Second, a key requirement for policy integration is having the resources to facilitate it (Ross and Dovers, 2008). For example, achieving higher intraorganizational policy integration requires interorganizational learning, cross-department coordination and in-depth analysis of issue areas and connections. All these activities require resources such as knowledge, staff and finances (Meijers and Stead, 2004; Ross and Dovers, 2008; Russel et al., 2018; Widmer, 2018). We thus expect larger international organizations to show higher levels of policy integration given their greater availability of resources.

Third, international organizations that work in multiple policy domains are expected to be knowledgeable on many diverse issue areas and how these areas relate. They may also be more incentivized to address connections between policy domains, in order not to contradict their work in one domain by their work in another domain. We thus expect international organizations working in multiple policy domains to show higher levels of policy integration than those working on a single policy domain (Tosun and Peters, 2018).

Fourth, the UN is the main international organization responsible for SDG monitoring, and the UN has provided resources for policy integration to other international organizations, both before and after the launch of the SDGs (see for example UN, 2013; PAGE, 2016). In addition, the UN agencies collectively have knowledge available across the entire scope of policy domains reflected by the SDGs, allowing for more in-depth analysis of connections between domains. While policy integration within the UN system is far from achieved (Bauer and Biermann, 2004), we expect higher levels of policy integration within UN organizations than within international organizations outside the UN system.

3. Research design and methods

3.1. Quantitative content analysis of website texts

To assess the use of SDGs as a guiding framework and its effect on policy integration, we conducted a quantitative content analysis on the website texts of 159 international organizations from the entire years 2015, 2017 and 2019. International organizations are defined in this study as organizations operating at the international level that have at least three states as members, have a permanent secretariat, and hold at least annual meetings. Our study is thus a retrospective longitudinal study. We conducted regressions with a two-year time-lag, that is, our independent variables are obtained for 2015 and 2017, and our dependent variables for 2017 and 2019.

Quantitative text analysis is increasingly common in political science (Bell and Scott, 2020; Lam et al., 2019; Linder et al., 2018; Wilkerson and Casas, 2017). Several earlier studies have used text analysis to identify whether (international) organizations mention the SDGs (Borchardt et al., 2020; Horne et al., 2020; LaFleur, 2019; Sebestyén et al., 2020; Tremblay et al., 2021). While many of such studies use policy documents, we relied in our analysis on website texts as an alternative. Websites are a unique source in global governance research, as they are machine-readable and systematically available for a large set of international organizations across policy domains and countries. Over the past decades, websites and other digital media have become a vital communication channel in international relations (Adesina, 2017). International organizations, too, have increased their digital communication efforts to promote their activities and mandates more effectively (Biermann and Siebenhüner, 2009; Ecker-Ehrhardt, 2018b). Websites are part of extensive communication strategies, often overseen by dedicated departments (Ecker-Ehrhardt, 2018a). The content of a website is an outcome of the organizational context in which it is created (Riffe et al., 2019). As such, we expect international organizations' websites to contain vital, carefully curated and up-to-date information about their goals, policies and activities, and we thus used websites to assess to what extent international organizations use the SDGs as a guiding framework and whether they are integrating policies.

To assess SDG use and policy integration by international organizations, we used keyword frequency counts. Automated keyword frequency analysis is gaining traction as a novel approach to assess policy integration (Azizi et al., 2019; Biesbroek et al., 2020; Bornemann and Weiland, 2021; Duraiappah and Bhardwaj, 2007; Gregorio et al., 2017; Scobie, 2021; Yang et al., 2018). For the four characteristics of international organizations that may affect policy integration as described

above, we relied on manual coding and data from the Correlates of War dataset (Pevehouse et al., 2020; Wallace and Singer, 1970).

3.2. Operationalization of variables

We now lay out how we measured our variables.

(1) To test our main hypothesis – the use of the SDGs as a guiding framework – we used the indicator *SDG Use* as an independent variable. We expect that if an international organization uses the SDGs as a guiding framework, they will mention the SDGs, the Agenda 2030 and related terms on their website. We assumed that *the more often* the SDGs are mentioned on a website, *the more important* the SDG framework is in guiding the activities of an international organization. We thus operationalized the indicator *SDG Use* by counting the frequency of SDG keywords, such as 'SDG', 'Sustainable Development Goal' or 'agenda 2030' and dividing this by the total words of a website. For the full list of SDG keywords, see supplementary material A.

(2) To measure policy integration as our dependent variable, we used two indicators, (2a) *Integration Saliency* and (2b) *Policy Domains Per Page*. (2a) *Integration Saliency* indicates the importance of policy integration for an international organization. What is of interest here is the importance of policy integration as a general concept, not related to specific domains or policies. We measured the importance of policy integration by the degree of attention this concept receives on an international organization's website, using keyword counts (Warntjen, 2012). As the concept of policy integration applies to all domains, also those outside the domains of the SDGs, this indicator could also measure attention for policy integration not related to any of the SDGs. However, we filtered the international organizations in our set to have their main work domain in at least one of the SDGs, see Section 3.3. Hence, any policy integration described on the website will be relevant to at least one of the SDGs. The keywords that we used to assess policy integration as a concept include 'policy integration', 'interlinkages', 'nexus' and 'policy coherence'; their full list can be found in supplementary material A. We operationalized *Integration Saliency* as the count of policy integration keywords divided by the total number of words on a website. *Integration Saliency* is a comparative measure to assess change over time in the importance of policy integration to an international organization. (2b) The indicator *Policy Domains Per Page* assesses how many policy domains co-occur on average on the webpages of an international organization. We assume here that if an international organization discusses multiple policy domains on a single webpage together, this signals integrating aims or concerns from one policy domain into another in that organization, that is, policy integration (Duraiappah and Bhardwaj, 2007). To operationalize *Policy Domains Per Page*, we first identified for each page of a website whether it contains keywords that relate to specific policy domains. The keyword set to identify policy domains was developed by Goyeneche et al. (2021, 2022) and contains 2155 keywords or keyword combinations that can be coupled to the 17 policy domains represented by the SDGs. For example, the keyword combination *Income+Poverty* is related to the policy domain "Poverty" (SDG1). The keyword set was developed specifically to couple SDG labels to texts, and was created using the 17 SDGs as guide. The keyword set was optimized to identify multiple SDG domains in a single text to assess connectedness between the SDGs, making it especially useful for the purpose of our study. For further details on the keyword set, see Goyeneche et al. (2021, 2022).

If a webpage contained at least three keywords related to a policy domain, we considered it a page that covers that policy domain. We discarded webpages that do not cover even one policy domain. A webpage can thus cover at least one and up to 17 policy domains. Subsequently, we assessed for each international organization the average number of policy domains covered per webpage, which is our *Policy Domains Per Page* indicator. The more policy domains are discussed jointly by an international organization, the higher the value of *Policy Domains Per Page*, indicating higher policy integration in an international organization. Like the indicator *Integration Saliency*, also the indicator *Policy Domains Per Page* is a comparative measure to assess change over time rather than assessing an absolute value.

(3) To assess characteristics of international organizations that might affect policy integration, we used four indicators: *Domain Scope, Environmental IO, IO Size* and *UN System*.

For *Domain Scope* and *Environmental IO,* we first classified each international organization to one or more main policy domains, based on their self-reported 'vision' or 'mission statement' on their website. Coding was done separately by two researchers and discrepancies were discussed to come to agreement. Based on this coding, we operationalized the indicator *Domain Scope* as follows: If an international organization works in one policy domain, it is coded as 'single-domain'; if it works on two or three policy domains, it is coded as 'multi-domain'; if on more, it is coded 'omni-domain'. The latter is the case for example for the European Union and other regional collaboration organizations collaborating on a broad range of topics. For the indicator *Environmental IO*, we coded the indicator *Environmental IO* as '1' if an international organization is active in climate change or ocean, water or land protection, or '0' otherwise.

The indicator *IO Size* was operationalized by the number of members of an international organization. Data on membership count was obtained from the Correlates of War dataset and supplemented with manual data collection where necessary.

Lastly, the indicator *UN System*, was coded as '1' if an international organization is part of the UN system, or '0' otherwise. We coded this indicator manually.

3.3. Data collection and processing

Data collection consisted of two processes: first, the collection of data on the international organizations themselves, and second, the collection of website texts.

First, we collected and coded international organizations. We compiled the set of international organizations for this study based on three data sources. First, all organizations included in the Correlates of War International Governmental Organizations dataset (Version 3).[5] This set includes international organizations that have at least three member states; hold regular plenary sessions at least once every ten years; and have a permanent secretariat and headquarters. We excluded international organizations that did not have member states from 2009 onward. Second, we included all subunits of the UN that fall directly under the General Assembly and Economic and Social Council. These subunits operate with high autonomy, often with their own leadership and financial resources and are thus considered international organizations in their own right in this study. Following the UN system chart (2019),[6] we included thus all specialized agencies, funds and programs, research and training entities, and regional commissions of the UN. Third, we included all organizations that have been appointed by the UN as "SDG indicator custodians"[7] – organizations appointed to disseminate knowledge and collect data on specific SDG targets. The international

[5] Pevehouse et al., 2020; Wallace and Singer (1970).

[6] Document 19–00073, published July 2019

[7] The version of 11 December 2019 was used. The list was obtained via *https://unstats.un.org/sdgs/iaeg-sdgs/tier-classification/*, accessed on February 25, 2020.

organizations were coded on several indicators, as described above. Given our interest in policy integration related to the SDGs, international organizations were discarded from the set if they did not work on any of the policy domains of the SDGs.

Second, we collected website texts for the years 2015, 2017 and 2019. The website texts were retrieved from the Internet Archive, a platform that has been saving webpages since 1996 and keeps them publicly available (a 'library of the internet'). For each international organizations' website, we collected all unique webpages per year of interest available in the Internet Archive. In total, over 1.3 million webpages were collected for 315 international organizations. For a complete overview of how these webpages were collected see Bogers et al. (2022). After collection of the webpages, the pages were converted from HTML to plain text. We only took the headers and paragraph elements[8] of each HTML file, to exclude as much as possible text not relevant to the work and activities of the international organization (such as menu bars, addresses or footers). The pages were only converted to plain text if they are English, and if the selected text is at least 1000 characters long. This length was chosen to make sure there was enough content for text analysis. In total 39.7 % of all webpages was converted into plain text, the rest was either not English, too short or had an error in the file (see supplementary material B). Finally, if less than 20 plain text pages per year were available for an international organization, it was dropped from the set. Between years, duplicate pages may exist. We did not exclude duplicate pages across years, as the persistence of a page reflects the choice of an international organization to keep certain content online. In total, the final dataset consists of 159 international organizations, for which a total of 521,872 English text webpages with minimum length of 1000 characters are available for analysis. The set of 159 international organizations is listed in supplementary material C.

The plain text webpages were processed by removing all non-alphanumeric characters, stripping whitespace and converting all capitals to lower letters.

3.4. Statistical tests

We first conducted exploratory data analysis on our time-bound indicators, *SDG Use*, *Integration Saliency* and *Policy Domains Per Page* to assess how these have changed from 2015 to 2017–2019. Then, we used regression models across the two waves of data, with both a two-year time-lag: 2015–2017 and 2017–2019. Given that we used two indicators for the dependent variable, we also created two separate models. We included our independent indicators in these models and added the previous value of the dependent indicator as a control. When assessing *Integration Saliency* in 2019, we thus added *Integration Saliency* in 2017 as control indicator.

The indicator *Integration Saliency* is a fractional, namely the proportion of integration keywords as part of all words on a website. Hence, we used a fractional response model (Papke and Wooldridge, 1996, 2008), implemented through the R package 'frm' (Ramalho et al., 2011; Ramalho, 2016).

The indicator *Policy Domains Per Page* is continuous, so we used a linear regression model implemented in base R. As *Policy Domains Per Page* is right-tailed, see histogram in supplementary material D, we log-transformed it to meet the assumption of normality for linear regression. All categorical indicators were converted into dummy indicators for analysis. We conducted the Breush-Pagan test for heteroskedasticity from the R package 'lmtest' and tested for multicollinearity with Variance Inflation Factors implemented through the R package 'car'.

4. Results

4.1. Policy integration has increased over time

Both indicators for policy integration, *Integration Saliency* and *Policy Domains Per Page*, point towards a small but significant increase in policy integration in international organizations from 2015 to 2019, across the group as a whole.

The first indicator for policy integration, *Integration Saliency*, shows a slight increase over time, see Fig. 1. To assess the significance of this increase, we use a t-test[9] on the pairwise differences in *Integration Saliency*. For 2015–2017, the difference in *Integration Saliency* is not significant ($M = 1.135e\text{-}05$, $SD = 9.156e\text{-}05$, $t(158) = 1.56$, $p = 0.12$). However, the increase from 2015 to 2019 is significant at the 5 % level ($M = 2.254e\text{-}05$, $SD = 1.324e\text{-}04$, $t(158) = 2.15$, $p = 0.033$).

The second indicator for policy integration, *Policy Domains Per Page*, also shows a slight increase, see Fig. 2. The t-test on the pairwise differences shows that the increase from 2015 to 2017 is significant at the 10 % level ($M = 0.124$, $SD = 0.894$, $t(158) = 1.75$, $p = 0.082$). The increase from 2015 to 2019 is significant at the 0.1 % level ($M = 0.313$, $SD = 1.106$, $t(158) = 3.57$, $p < 0.001$).

Thus, on average, international organizations are increasingly mentioning policy integration and more policy domains are discussed jointly on international organizations' websites. Both indicators point towards an increase in policy integration in the group of international organizations from 2015 to 2019.

4.2. The use of the SDGs has increased over time

The indicator *SDG Use* is plotted in Fig. 3. From 2015–2019, a strong increase can be seen in the use of SDG keywords on international organizations' websites. The t-test on the pairwise differences shows that the increase from 2015–2017 in *SDG Use* is significant at the 0.1 % level ($M = 2.784e\text{-}04$, $SD = 7.380e\text{-}04$, $t(158) = 4.76$, $p < 0.001$). The increase from 2017 to 2019 is also significant, at the 1 % level ($M = 1.773e\text{-}04$, $SD = 7.485e\text{-}04$, $t(158) = 2.99$, $p = 0.003$). On average, international organizations thus increasingly refer to the SDGs and Agenda 2030 on their websites. Building on the assumption that website texts reflect international organizations' activities, policies, and programs, this signifies that the SDGs are increasingly used as a framework to build activities around (Kanie et al., 2019).

As *SDG Use* is an average across all international organizations, it is also relevant to know what proportion of all international organizations uses the SDGs *at least once*. This is plotted in Fig. 4. The percentage of international organizations in the set that uses the SDGs has increased from 53.5 % in 2015 to 72.3 % in 2019. While the majority of international organizations refers to the SDGs in 2019, still more than one in four international organizations in the dataset does not mention the SDGs at all on their website.

4.3. The use of the SDGs does not affect policy integration

We now turn to our main question of whether the use of the SDGs has been an influencing factor in the increase in policy integration that we observe. The summary statistics for all indicators in both models are given in Table 1. Pearson correlation coefficients are given in supplementary material E.

Model 1 assesses the effect of the independent indicators in 2015 and 2017 on *Integration Saliency* in 2017 and 2019, respectively, using a fractional response model. Results of the regression are shown in Table 2.

In the 2015–2017 period, the indicator *Issue scope: Omni* is positive

[8] To do so, the paragraph elements <p > and headers <h1 > to <h6 > were extracted from the HTMLs.

[9] T-test results are reported as (M = Mean, SD = Standard Deviation, t(degrees of freedom) = t-value, p = p-value).

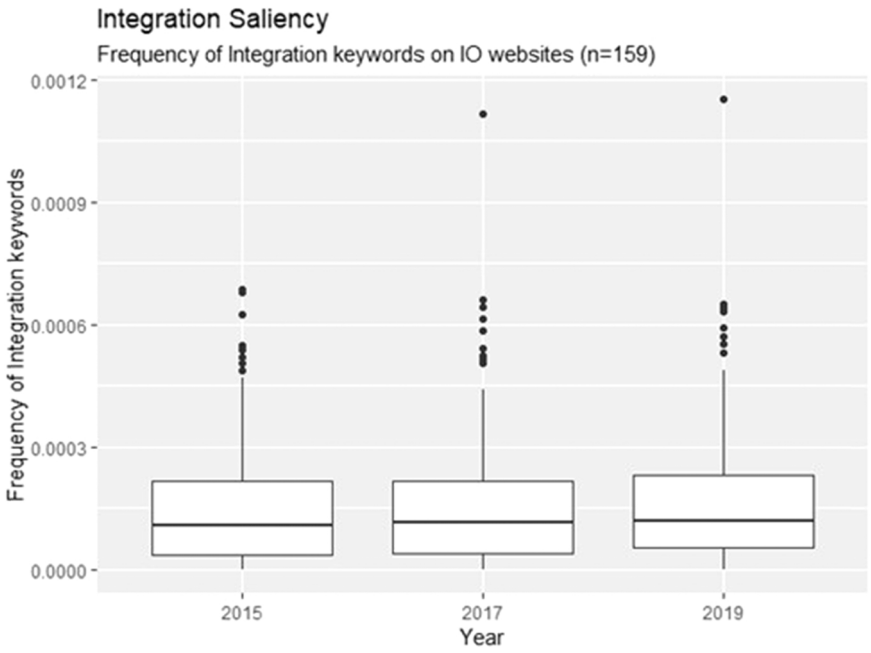

Fig. 1. Plot of the indicator *Integration Saliency* in 2015, 2017 and 2019. *Integration Saliency* is operationalized as the relative frequency of policy integration The increase from 2015 to 2019 is significant at the 5 % level.

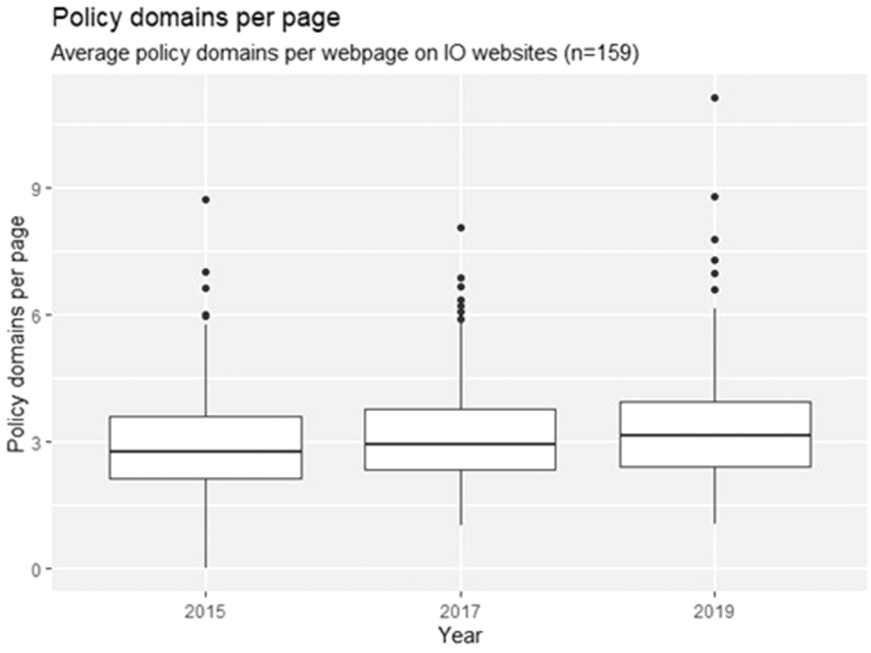

Fig. 2. Plot of the indicator *Policy Domains Per Page* in 2015, 2017 and 2019. *Policy Domains Per Page* is operationalized as the average number of policy domains mentioned on a single webpage of an international organization. The increase from 2015 to 2017 is significant at the 10 % level, and the increase from 2015 to 2019 is significant at the 0.1 % level.

and significant, indicating that in 2017, international organizations working on 4 or more policy domains mention policy integration significantly more often than those who work on a single policy domain. This confirms that international organizations working on multiple policy domains show higher levels of policy integration. As expected, the control indicator, *Integration Saliency (y = 2015)*, is also positive and significant, indicating that international organizations mentioning policy integration more in 2015, also do so in 2017. The other indicators in the model show no significant effects.

In 2017–2019 period, the indicators *Issue scope: Omni* and *Integration Saliency (y = 2017)* are also positive and significant, just as in 2015–2017. In addition, in 2019, the indicator *UN System* is positive and significant. This indicates that international organizations that are part of the UN system mention policy integration more on their websites. Lastly, the indicator *IO Size* has a small, but significant, negative effect on *Integration Saliency*. This somewhat surprising finding indicates that larger international organizations discuss policy integration less on their websites. This is opposite of what we expected. The other indicators show no significant effects.

Model 2 assesses the effect of the independent indicators on the log-

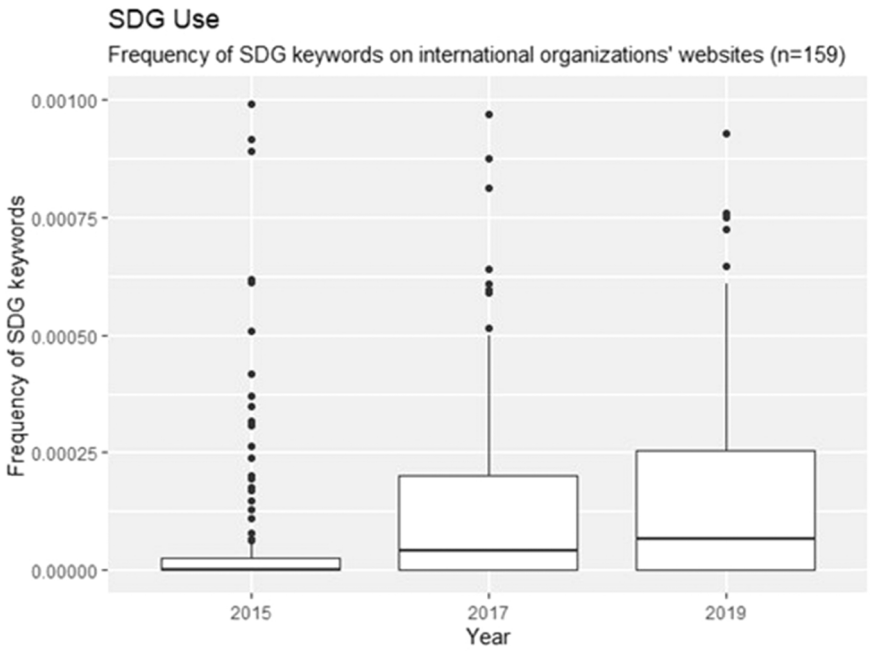

Fig. 3. Boxplots of the indicator *SDG Use* in 2015, 2017 and 2019. *SDG Use* is operationalized as the relative frequency of SDG keywords on international organizations' websites.

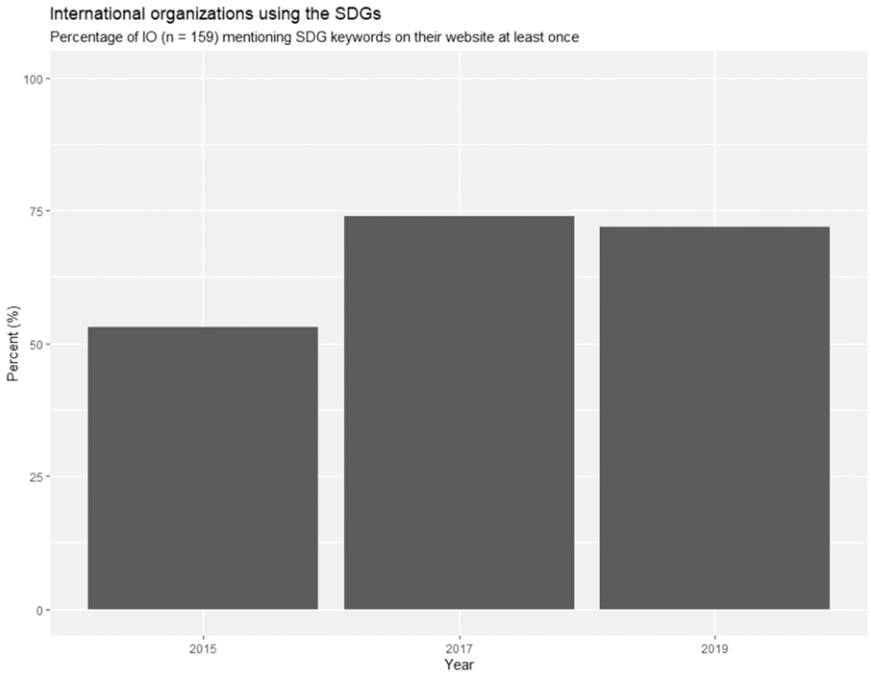

Fig. 4. Percentage of international organizations in the set (n = 159) that uses SDG keywords at least once (*SDG Use* > 0) on their website, in 2015, 2017 and 2019.

transformed indicators *Policy Domains Per Page* in 2017 and 2019 using a linear regression analysis. Results of the regression are shown in Table 3. The Breush-Pagan test showed no significant heteroskedasticity and all Variance Inflation Factors were under 3, indicating no issue with multicollinearity.

In the 2015–2017 period, the indicator *UN System* is positive and significant, confirming that UN-system international organizations show higher levels of policy integration. Similar to model 1, the control indicator for previous policy integration, in this case *Policy Domains Per Page (y = 2015)*, is the strongest significant predictor.

In the 2017–2019 period, the indicator *UN System* is no longer significant, as the p-value is just over our threshold value of 0.1. The indicator *Issue scope: Multi* is positive and significant, indicating that international organizations working on two or three policy domains discuss more policy issues together. Lastly, the control indicator is again the strongest significant predictor.

The results taken together indicate that two characteristics of international organizations have a positive and significant influence on policy integration: working on multiple policy domains and being part of the UN system. However, *we find no support for our main hypothesis that the use of the SDGs as a guiding framework leads to higher levels of policy integration.* In none of the models, *SDG Use* showed a significant effect on

Table 1
Summary statistics indicators. DI = Dependent indicator; II = independent indicator; CI = control indicator. *The values of 2017 serve as dependent indicator in the 2015–2017 model, and as control indicator in the 2017–2019 models.

Indicator	Mean	SD	Min.	Max.	False	True
Number of observations = 159						
DI: Integration Saliency 2017*	1.603e-04	1.676e-04	0	1.117e-03	*NA*	*NA*
DI: Integration Saliency 2019	1.715e-04	1.752e-04	0	1.151e-03	*NA*	*NA*
DI: Policy Domains Per Page 2017* (log-transformed)	1.375	0.297	0.693	2.205	*NA*	*NA*
DI: Policy Domains Per Page 2019 (log-transformed)	1.413	0.312	0.718	2.494	*NA*	*NA*
II: SDG Use 2015	7.386e-05	2.070e-04	0	1.291e-03	*NA*	*NA*
II: SDG Use 2017	3.523e-04	8.520e-04	0	4.950e-03	*NA*	*NA*
II: IO Size	76.2	72.3	1	193	*NA*	*NA*
II: Environmental IO	*NA*	*NA*	0	1	112	47
II: U.N. System	*NA*	*NA*	0	1	121	38
II: Issue scope: multi-issue	*NA*	*NA*	0	1	124	35
II: Issue scope: omni-issue	*NA*	*NA*	0	1	147	12
CI: Integration Saliency 2015	1.489e-04	1.492e-04	0	6.867e-04	*NA*	*NA*
CI: Policy domains per page 2015 (log-transformed)	1.341	0.308	0	2.274	*NA*	*NA*

policy integration indicators.

4.4. Policy integration influences the use of the SDGs

Models 1 and 2 do not show any significant effect of *SDG Use* on policy integration. Yet, the Pearson correlation coefficients, see supplementary material E, indicate a weak to moderate correlation between the indicators *SDG Use* and *Integration Saliency*. Hence, the connection between the two indicators may be reversed: that higher levels of policy integration in international organizations lead to more use of the SDGs as a guiding framework. If this is the case, it would indicate that international organizations that were already working on policy integration also use the SDGs more in their work. To test this, we ran an additional model where we switch the dependent indicators with the independent indicator *SDG Use*. The results of this third model are in Table 4.

The results show that *Integration Saliency* has a strong positive impact on *SDG Use*, indicating that international organizations that mention policy integration frequently, also mention the SDGs frequently two years later. This holds both in the 2015–2017 period and in the 2017–2019 period. In the first period (when the SDGs were just adopted), larger international organizations and those international organizations working on multiple policy domains also use the SDGs more. Environmental organizations use the SDGs less than non-environmental organizations in the 2015–2017 period. Noticeably, the indicator *Policy Domains Per Page* is not significant, indicating that discussing more policy domains jointly does not lead to more use of the SDGs. In the 2017–2019 period, only the indicator *UN System* is positive and significant, indicating that UN system international organizations use the SDGs more than non-UN system organizations in 2017–2019, but not in 2015–2017. A possible explanation is many new international organizations started using the SDGs for the first time from 2015 to 2017, see

Table 2
Results of model 1, the influence of independent indicators on *Integration Saliency*. Sign. = Significance. * = significant at α = 0.10; ** = significant at α = 0.05; *** = significant at α = 0.01.

Model 1 - Dependent indicator: Integration Saliency (in y + 2)						
Indicator	2015 (y) - 2017 (y + 2)			2017 (y) - 2019 (y + 2)		
	Estimate	Sign.	p-value	Estimate	Sign.	p-value
SDG Use (y)	-282.585	n.s.	0.243	72.213	n.s.	0.217
IO size	0.000	n.s.	0.742	-0.002	*	0.079
Environmental IO	-0.059	n.s.	0.639	-0.150	n.s.	0.262
UN System	-0.069	n.s.	0.748	0.370	*	0.096
Issue scope: Multi	0.167	n.s.	0.114	0.143	n.s.	0.189
Issue scope: Omni	0.394	**	0.032	0.566	*	0.087
Integration Saliency (y)	4312.726	***	< 0.001	2822.840	***	< 0.001
Intercept	-9.668			-9.276		
R-squared	0.622			0.447		
N	159			159		

Table 3
Results of model 2, the influence of independent indicators on *Policy Domains Per Page – log-transformed*. Sign. = Significance. * = significant at α = 0.10; ** = significant at α = 0.05; *** = significant at α = 0.01.

Model 2 - Dependent indicator: Policy Domains Per Page (in y + 2) - Log-transformed						
Indicator	**2015 (y) - 2017 (y + 2)**			**2017 (y) - 2019 (y + 2)**		
	Estimate	**Sign.**	**p-value**	**Estimate**	**Sign.**	**p-value**
SDG Use (y)	-9.889	n.s.	0.901	-9.682	n.s.	0.612
IO size	0.000	n.s.	0.799	0.000	n.s.	0.695
Environmental IO	0.005	n.s.	0.898	0.024	n.s.	0.503
UN System	0.135	**	0.023	0.087	n.s.	0.117
Issue scope: Multi	0.044	n.s.	0.269	0.086	**	0.019
Issue scope: Omni	0.007	n.s.	0.922	0.043	n.s.	0.501
Policy Domains Per Page (y)	1.144	***	< 0.001	0.186	***	< 0.001
Intercept	0.859			0.792		
R-squared	0.576			0.666		
N	159			159		

Table 4
Results of model 3, the influence of policy integration as independent indicators on *SDG Use*. Sign. = Significance. * = significant at α = 0.10; ** = significant at α = 0.05; *** = significant at α = 0.01.

Model 3 - Dependent indicator: SDG Use (in y + 2)						
Indicator	**2015 (y) - 2017 (y + 2)**			**2017 (y) - 2019 (y + 2)**		
	Estimate	**Sign.**	**p-value**	**Estimate**	**Sign.**	**p-value**
Integration Saliency (y)	2670.911	***	0.005	1217.308	**	0.017
Policy Domains Per Page (y)	0.095	n.s.	0.470	0.131	n.s.	0.176
IO size	0.005	**	0.019	-0.003	n.s.	0.259
Environmental IO	-0.668	*	0.100	0.105	n.s.	0.725
UN System	0.371	n.s.	0.361	0.771	*	0.077
Issue scope: Multi	0.696	*	0.069	-0.022	n.s.	0.943
Issue scope: Omni	0.922	*	0.067	0.456	n.s.	0.326
SDG Use (y)	1906.678	***	< 0.001	649.780	***	< 0.001
Intercept	-9.956			-9.068		
R-squared	0.437			0.642		
N	159			159		

Fig. 4. Yet in 2017–2019, the use of the SDGs may have consolidated in most international organizations, except in the UN system organizations that did increase their use of the SDGs from 2017 to 2019.

5. Discussion

There are several limitations to this study that require further analysis with complementary methodologies. First, we focused on website texts, based on our assumption that international organizations' websites reflect their activities and programs. As described in the introduction, this is a soft form of policy integration (Azizi et al., 2019), that may be sensitive to "window-dressing." Future studies could improve and expand on our paper by assessing other types of policy texts, such as reports on policy outcomes and decisions of international organizations, and by comparing the results across these text types. The method offered here could be scaled to accommodate these different types of text. Results from these studies may yield further insights on the effects of the SDGs on international organizations' policy decisions. Second, our analysis focuses exclusively on international organizations in the intergovernmental sense. Hence, it does not cover any integration among or with other types of international organizations, such as international non-governmental organizations, or national and subnational organizations. Future research could assess other types of organizations and combinations, to assess whether the SDG may have a stronger political effect there. Third, we used data only until 2019. This limited time span might not be enough for the SDGs to impact policy integration. In future studies, more recent data would need to be added.

Despite these limitations, we are confident that the results of our study provide important insights. We could show that most international organizations mention both the SDGs and the need for policy integration on their websites, and that these references have significantly increased from 2015 to 2019. The number of policy domains that the websites of international organizations discussed together has significantly grown as well. Yet while SDG use and policy integration are increasing, a detailed reading of our results reveals no support for our main hypothesis: we find that the discursive use of the SDGs as a guiding framework does not necessarily lead to higher policy integration in international organizations.

The strongest predictor of policy integration remains previous policy integration. This corroborates earlier studies that showed that policy integration requires a long-term embedding in an organization and tends to increase with momentum and persistence (Ross and Dovers, 2008). In addition, we find that international organizations working on multiple policy domains show higher levels of policy integration. This is in line with earlier studies demonstrating the commitment of multi-issue international organizations to policy integration (Tosun and Peters, 2018). Finally, we find that international organizations that are part of the UN system show higher levels of policy integration, which confirms the long-standing commitment of the UN to policy integration (Bauer and Biermann, 2004; Bornemann and Weiland, 2021; UN, 2013).

Have the SDGs then been successful? Part of the success of the goals lies in their uptake by a broad group of governance actors. Our study shows that this uptake is increasing and that a large majority of international organizations used the SDGs already in 2017. The SDGs are thus universal enough to speak to a broad group of international organizations working in diverse policy domains. In this regard, the SDGs can be considered a success.

However, the SDGs fail to deliver on one of their central ambitions. While the SDGs are taken up into activities and policies, this does not lead to more policy integration. This finding contrasts several previous studies, such as on the International Labour Organization (ILO) and the Asian Development Bank (ADB) that we mentioned earlier, where the SDGs were found to have somewhat spurred policy integration (Censoro et al., 2020; Montesano et al., 2021). One explanation for this difference could be that the SDGs have some influence in some cases, but that the effects across a very large group of international organizations, as we study it here, are minimal. The ILO and ADB would then be the exception rather than the norm. Another explanation is that any change in policy integration is explained much more strongly by other factors, including by previous policy integration, than by SDG use. In the cases of ILO and ADB, this was also reported. Both organizations have a long-standing commitment to policy integration and intersectoral learning. The SDGs were used to endorse on-going processes, rather than bringing something entirely new to the table (Censoro et al., 2020; Kim, 2016; Montesano et al., 2021). Potentially, the observed increase in policy integration in the ILO and ADB could have happened without the SDGs as well. Our findings are in line with a recent impact assessment of the SDGs that concluded that the SDGs have had mostly discursive effects on international institutions, where SDGs are used in the language but have not any major effect on organizations' activities (Biermann et al., 2022). While there have been reforms in several international institutions to improve policy coherence since 2015, these reforms appear part of longer trajectories rather than a direct effect of the SDGs (Beisheim et al., 2022).

Furthermore, our reverse causality model showed that international organizations that mentioned policy integration more often also use the SDGs more often. One explanation is that the SDGs as a guiding framework better fit organizations that already work on policy integration. If the activities of an international organization align well with the integrative SDGs, they can easily use the SDGs to frame those activities, making it likely that those international organizations use the SDGs more.

These insights raise an important question: what about international organizations that pay little attention for policy integration and that rarely use the SDGs? According to our results, these are generally the single-issue international organizations outside the UN system. While

these organizations are less inclined to use the SDGs as a guiding framework, these could be exactly the organizations where the SDGs could make a difference. As described, the SDGs are designed to facilitate better policy integration and may raise the salience of a broad range of issues (Chasek et al., 2016; Dahl, 2012; Elder and Olsen, 2019; Janoušková et al., 2018; LeBlanc, 2015; Vijge et al., 2020). While this may not make a difference in international organizations that already work on multiple policy domains and have worked on policy integration before, it may make a difference when policy integration is not yet on the agenda. Yet, in those organizations the SDGs appear less used. Further research could focus here on single-issue international organizations outside the UN system to assess how they use, or do not use, the SDGs and how this affects policy integration in their organization. There appears to be little research on this, with most existing studies on the SDGs focusing mainly on multi-issue, UN-system international organizations (Beisheim et al., 2022).

Another noticeable finding is that environmental international organizations used the SDGs less compared to non-environmental organizations. This is contrary to the common wisdom, given that the SDGs are generally considered better in integrating environmental concerns in a global development agenda (Biermann et al., 2017; Griggs et al., 2014; UNEP, 2013). More recently, however, the SDGs have also been criticized for prioritizing socioeconomic development and not being adequate to protect the environment (Clémençon, 2021; Hirons, 2020; Reid et al., 2017; Salleh, 2016; Spaiser et al., 2016; Zeng et al., 2020). It could thus be the case that environmental international organizations are less interested in using the SDGs. Further research in this area could look at why SDGs are differently used by environmental and non-environmental international organizations.

6. Conclusion

Our study shows that the discursive use of the SDGs among international organizations has significantly increased over time since 2017. In this sense, the SDGs can be considered a success. They give the impression of a truly global discourse among international organizations, covering many policy domains. However, this discursive use of the SDGs does not increase policy integration in international organizations. Rather, it is existing high policy integration of organizations that leads them to refer to SDGs more often.

Altogether, our results suggest that the SDGs are largely an agenda adopted by international organizations within the UN system that work on multiple domains of mainly socio-economic development. These are also the international organizations where policy integration was already more frequent. The effects of the SDGs on policy integration thus appear limited, with international organizations using the SDGs rather to reframe existing activities, policies, and programs. In short, while the SDGs are widely referred to by many international organizations, they fail to deliver on one of their key ambitions: to increase policy integration and "break down the silos" of global sustainable development.

With eight years left till 2030, the insights from our study can prove valuable in efforts to achieve the goals. First, the use of SDGs could be further promoted among those international organizations where their use is still low, namely single-issue international organizations outside the UN system. Second, environmental protection within the SDGs needs to be strengthened for the goals to become truly an overarching agenda. Lastly, it is becoming clear that much more than the SDGs is needed to further policy integration.

CRediT authorship contribution statement

Maya Bogers: Conceptualization, Methodology, Writing – original draft preparation, Writing – review & editing, Writing – revisions, Visualization, Formal analysis. **Frank Biermann:** Conceptualization, Supervision, Writing – review & editing, Funding acquisition. **Agni Kalfagianni:** Conceptualization, Supervision, Writing – review & editing. **Rakhyun E. Kim:** Conceptualization, Supervision, Writing – review & editing.

Acknowledgements

This work was supported by the European Research Council through the Advanced Grant project GLOBALGOALS (grant number 788001). We would like to thank Oscar Yandy Romero Goyeneche and Jolynde Visch for sharing their data and code, and Lucas de Oliveira Paes for his comments on an earlier version of this paper.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data is partially open-access (Web Archive data), other data and code can be requested through corresponding author.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.envsci.2022.10.002.

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