

Article

# Analysing Organisational Collaboration Practices for Sustainability

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Received: 3 February 2020; Accepted: 19 March 2020; Published: 20 March 2020



**Abstract:** The complex sustainability challenges that society faces require organisations to engage in collaborative partnerships. Stakeholders affect, and are affected by an organisation's sustainability activities, making it an important element when deciding with whom to collaborate. A large number of studies have focussed on collaboration for sustainability, especially on vertical and dyadic partnerships and collaborative networks, while there is limited research on overarching collaboration activities from the perspective of individual organisations (for example, the Kyosei approach), and even less that includes a stakeholder perspective. The objective of this paper is to analyse with whom individual organisations collaborate and how stakeholders affecting and being affected by sustainability efforts are considered when choosing collaboration partners. A survey was sent to a database of 5216 organisations, from which 271 responses were received. The responses were analysed using non-parametric tests. The results show that organisations are engaged in collaboration activities for sustainability, collaborating mostly with two to three external stakeholders. However, the focus on collaboration for sustainability does not extend to a point that it would lead to a change of organisational practice nor do organisations necessarily consider how stakeholders affect and are affected by their efforts when choosing their collaboration partners. An update to the Kyosei process is proposed, in order to provide guidance on how to strengthen and extend collaborative partnerships for sustainability.

**Keywords:** organisations; collaboration for sustainability; stakeholder; multi-stakeholder collaboration; partnerships; Kyosei

## 1. Introduction

During the last decades, an increasing number of organisations have started to engage in sustainability activities to deal with environmental and social issues society is facing [1]. Handling the complexity of sustainability issues, however, often exceeds the capabilities of an individual organisation [2–4]. Collaboration for sustainability has, therefore, been recognised as a key element to solve complex sustainability problems and as one of the principles of a sustainable organisation [1,5,6].

Collaboration is a form of stakeholder interaction that allows individual organisations to extend their sustainability activities beyond their operations, and to transfer knowledge, resources and technology between organisations and other stakeholders [7–9]. In this paper, stakeholders are understood as individuals, groups, or organisations that are affecting or are affected by activities to solve a problem, as proposed by Gray and Purdy [5] for the collaboration context. This can be related to an organisation's efforts to solve sustainability challenges, and is therefore an important element to consider when deciding with whom to collaborate with to solve sustainability issues [10].

In particular, interaction with multiple stakeholders has been recognised as essential to solve sustainability issues and to create value for sustainability [4,11]. Several scholars [12–14] have shown the influence of stakeholders on the implementation of sustainability practices, and how these practices

can support organisations to better interact with their stakeholders. An increasing number of related but distinct literature streams have specifically addressed collaboration for sustainability, including: (1) the antecedents, the process, and the outcomes of collaboration activities [15–17]; (2) involvement of stakeholders in sustainable supply chain management (SSCM) [18,19]; (3) cross-sectoral partnerships with civil society and public sector organisations [20–22]; and (4) research on organisational collaboration with a focus on the relation to internal and external stakeholders, e.g., the Kyosei philosophy [9,10,23].

These different literature streams reflect the importance of collaboration with stakeholders for sustainability and that collaboration has become an imperative for all types of organisations [5,6]. However, while the challenges, benefits, and performance implications of collaboration have been investigated in detail [24–26], there is still limited knowledge about the collaboration practices of organisations to foster their sustainability efforts and how stakeholders affecting and being affected by such efforts, beyond economic gains, are considered [10,27]. Most efforts on organisational collaboration practices have focussed on case studies investigating collaborative stakeholder networks to solve specific sustainability issues [4,28] and vertical and dyadic collaboration relationships [18,29,30], while there is a lack of empirical studies on overarching organisational collaboration activities for sustainability [31,32]. This underlines the need to shift focus from *whether* to *how* collaboration activities with stakeholders should be formed and extended, and to investigate organisational collaboration practices including vertical and horizontal stakeholders [22,30,32].

Aiming to answer this research gap, the objective of this paper is to analyse organisational collaboration practices for sustainability. Accordingly, this research was guided by the following research questions:

RQ1. With whom do individual organisations collaborate for sustainability?

RQ2. How are stakeholders affecting and being affected by sustainability efforts considered when choosing collaboration partners for sustainability?

The remainder of this paper is organised as follows: Section 2 reviews collaboration for sustainability literature; Section 3 presents the methods used; Section 4 presents the results; Section 5 discusses them; and Section 6 draws conclusions from the study.

## 2. Organisational Collaboration for Sustainability

Organisations are often categorised into private companies, civil society organisations (CSOs), and public sector organisations (PSOs) building the “three pillars of society” [33] (p. 18). These types of organisations differ in nature and purpose, but they share some similarities in regards to their sustainability system elements, e.g., operations and service provision, assessment and reporting, and interaction with stakeholders [1].

Several scholars (e.g., [12,13,34]) have emphasised the importance of stakeholder interaction and stakeholder influence on organisational proactivity for sustainability and the implementation of sustainability initiatives, e.g., sustainability reporting and accounting, management control systems and environmental performance measurements. These tools can support organisations to address and interact with organisational stakeholders and to foster organisational change towards sustainability [14,35]. In addition, an organisation’s stakeholders can influence its sustainability awareness, the adoption of sustainability goals and the implementation of sustainability practices [19,36]. This requires constant stakeholder interaction and awareness of stakeholder expectations, e.g., how they affect and are affected by the organisation’s sustainability efforts [5,37,38].

Stakeholder interaction can vary in regards to involvement and depth of relationships from communication, coordination, and cooperation, to collaboration having the highest level of engagement [16,26]. Collaboration has been defined as a “process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited version of what is possible” [39] (p. 5). While this definition was not explicitly related to the sustainability context, it highlights how collaboration can foster the paradigm

shift from individual action towards partnership. Collaboration with various stakeholders has therefore been recognised as a driver to attain sustainability [26,40].

Collaboration is a complex and multidimensional topic, and has been analysed from various perspectives, i.e., focussing on the antecedents [41–43], the process [16], and the outcomes of collaboration activities [44], or the relation between these elements [15,17,20,31]. An understanding of these elements is required to be able to facilitate effective collaboration activities and to capitalise the full potential of collaborative partnerships [16,17,41].

Collaborative partnerships can have a positive effect on both an individual organisation and the value chain, and lead to system-wide changes [44–46]. For example, several studies (e.g., [18,24,44]) have analysed the potential influence of collaboration on organisational performance. In addition, collaborative partnerships allow organisations a more comprehensive approach towards social and environmental challenges by sharing risks, developing more innovative solutions, and getting access to complementary resources [47,48]. Collaboration for sustainability can lead to long-term benefits such as access to markets and knowledge, enriched creativity, increased legitimacy, and increased competitive advantage over time [25,26,49]. Collaboration with stakeholders may help organisations to overcome barriers to change and to incorporate sustainability within the organisational system [36]. Stakeholder collaboration might also lead to a change of business practice and the creation of more sustainable business models through joint value creation [11,30,44,50].

Organisations may also face challenges of collaboration such as free riding, information problems, coordination costs, or issues on how to split gains [26,51]. Collaboration is a resource- and cost-intensive process with insecure outcomes and increased resource dependency, which needs to be planned strategically [8,25,52]. However, studies (e.g., [51,53]) suggest that organisations often do not follow a strategy when forming collaborative partnerships for sustainability and organisations do not capitalise the full potential of their collaborative partnerships [24,44].

Collaborative partnerships of individual organisations can be formed in response to pressures from stakeholders (reactively), in anticipation of potential future sustainability issues (proactively), or during the process of adapting to emerging issues (adaptively) [22,54]. Organisations can collaborate with individuals, groups and organisations [9,55], and on different levels, such as with the internal members of an organisation (within and across functions) and with different external stakeholders [2,56,57]. Several research streams have addressed the various forms of organisational collaboration with stakeholders for sustainability. A large number of studies have focussed on corporate collaboration for sustainability and sustainable supply chain management (SSCM), where collaborative partnerships are often built with customers, suppliers, other companies, associations and other sector organisations, universities, non-governmental organisations and governments [58,59]. Within SSCM literature, most research efforts (e.g. [29,60,61]) refer to Barratt's [62] collaboration model. This model differentiates collaboration activities into external collaboration on (1) a vertical level with customers or suppliers and (2) a horizontal level with competitors and other organisations that are connected by internal collaboration (such as with employees across and within functions) [62]. Most SSCM research has focussed on case studies with individual organisations and their vertical and dyadic collaborative relationships, e.g., how collaboration with suppliers might influence sustainable supply chain management [3,18,49]. Only a few studies consider internal collaboration and collaborative partnerships with horizontal stakeholders, and even fewer studies consider vertical and horizontal collaboration concurrently [30]. This might be due to that most collaboration partnerships are established with external stakeholders on the vertical level that have a similar size, structure, capabilities and resources, while horizontal collaboration is only carried out if there are pre-established associations among the organisations [49]. The focus on vertical collaboration in SSCM literature might also be influenced by the underlying assumption of resource dependency theory and its extensions used by most of the studies (e.g. [3,18,45]).

Cross-sectoral collaboration literature investigates the impact of horizontal organisations in collaborative partnerships (e.g., [20,22,63]). Cross-sectoral collaboration is defined as collaboration with different types of organisations from two or more sectors facilitating new ways of value

creation [50,64]. Most research efforts focus on the benefits and challenges of dyadic relationships between (1) public sector organisations and companies [48,65,66]; and (2) civil society organisations and companies [50,67,68], including non-governmental organisations [69], and higher education institutions [70,71].

A growing number of studies on multi-stakeholder collaboration practices for sustainability can be found on the shift towards collaborative sustainable governance [72,73] and on collaborative networks, involving different stakeholder groups, e.g., public agencies, NGOs, and various private companies [4,28,74]. However, these studies are mainly place- or issue-based with a focus on strategies and challenges experienced by the network as a whole, while there is little research on multi-stakeholder collaboration activities from the perspective of individual organisations.

Kaku [23] proposed the Japanese “Kyosei” philosophy as an approach for individual organisations to establish multi-stakeholder interaction. Kyosei is a five-stage process originally focussed on co-operation practices of companies to address social challenges, but Lozano [9] suggested using it as a collaborative approach, applicable for all types of organisations and in a holistic sustainability context. The first stage for any implementation of Kyosei is to focus on economic survival; once that stage is achieved, organisations should start working collaboratively within the organisation, i.e., with employees and managers (stage 2). From the third stage on, organisations should open up to external collaboration partners that operate in similar activities, such as customers, suppliers, and competitors. In the fourth stage, organisations should collaborate with foreign organisations that operate on different activities or in different regions. In the last stage (stage 5), organisations should aim to establish partnerships with governmental institutions, to facilitate the shift towards sustainable societies [23]. The collaboration stakeholders at each stage have a different effect on the organisational sustainability efforts, and each stage of the Kyosei approach is dependent on the fulfilment of the previous stage. While the Kyosei approach has been suggested to work for all types of organisations, it has so far only been applied on one case study company [23]. However, it provides guidance on how to foster internal and external collaboration activities, underlining the importance of considering stakeholder impact when deciding with whom to collaborate.

Stakeholder impact is a multi-dimensional concept that has been used to describe the effect an organisation has on its stakeholders, and also how it is affected by them [75–77]. Stakeholder impact has been widely discussed in the sustainability context [19,78,79], and various approaches exist to analyse stakeholder impact and with whom to interact, e.g., focussing on power and influence grids [80,81]. However, this type of stakeholder analysis may lead to a focus on stakeholders that affect an organisation, while stakeholders that are affected by an organisation’s activities might not be taken into consideration [82]. Therefore, several scholars [5,82] underline the need for an issue-based approach, where the focus is not on an organisation itself, but on a specific problem and the activities to deal with such problem, when choosing collaboration partners. While most research on multi-stakeholder collaboration is based on a specific sustainability problem, it tends to neglect how the activities of individual organisations that deal with sustainability issues may affect and are affected by stakeholders.

The different literature streams highlight the importance of collaborative partnerships for sustainable development [5]. In particular multi-stakeholder collaboration has been recognised as being crucial to solve sustainability issues by a growing number of scholars [4,28,74]. However, most research on collaboration for sustainability focuses on strategies, problems and collaborative advantages for individual organisations in dyadic relationships [18,29,61] or issue-focussed collaborative networks [4,28,83]. As such, there is little knowledge of collaboration practices of individual organisations with multiple stakeholders considering how their sustainability efforts may affect and are also affected by these stakeholders. Consequently, in this paper, collaboration activities of individual organisations are analysed, with a focus on with whom organisations collaborate for sustainability and how their stakeholders affecting and being affected by their sustainability efforts are considered when choosing collaboration partners.

### 3. Methods

An online survey was developed to analyse the collaborative practices of multiple individual organisations. The questionnaire consisted of seven sections: (1) basic information; (2) role of sustainability for the organisation and its experience with working with sustainability; (3) the organisation's approach to sustainability issues; (4) organisational change management towards sustainability; (5) implementation of sustainability tools and initiatives; (6) collaboration for sustainability with stakeholders and how they affect and are affected by sustainability efforts; and (7) stakeholder interaction for sustainability specifically within the value chain. This paper uses the data collected in the sections (1), (2), (6), and (7) to answer the research questions.

Section (1) collected information on organisational characteristics, including organisational type, number of employees, location of the headquarter, focus on product or service provision, as well as the respondents' characteristics, including position within the organisation, work experience within the organisation, and work experience with the topic of sustainability.

Section (2) included questions regarding the general sustainability efforts of the organisation, including the role of sustainability for the organisational practices, the engagement of the organisation with sustainability efforts, as well as the organisation's focus areas on sustainability.

The questions in section (6) focussed on the potential collaboration partners mentioned in the Kyosei process that is applicable to all types of organisations (companies, PSOs, and CSOs), i.e., internal stakeholders (employees, managers/leaders), and external stakeholders (customers, suppliers, competitors, foreign organisations and governmental institutions) [9,23]. In addition, stakeholders that have been discussed in SSCM and cross-sector collaboration literature were included, such as associations (e.g., sector organisations) that operate in similar activities [47,48], as well as universities, NGOs and other companies as examples of foreign organisations [59,69,70]. The respondents were asked how these potential collaboration stakeholders affect and are affected by their sustainability efforts, and with which stakeholders they collaborate for sustainability on a 4-point scale, and to rank each stakeholder within each of the scale points. The respondents were also asked about their own and their stakeholders' sensitivity towards sustainability activities on a 1 to 5 Likert scale.

As there has been a focus in collaboration literature on suppliers and customers, section (7) included questions regarding selection criteria for suppliers and customers, i.e., if stakeholder involvement was considered when choosing the organisation's major suppliers, and if the responding organisations perceived that their customers would consider potential partnerships as selection criteria on a 1 to 5 Likert scale.

#### 3.1. Data Collection

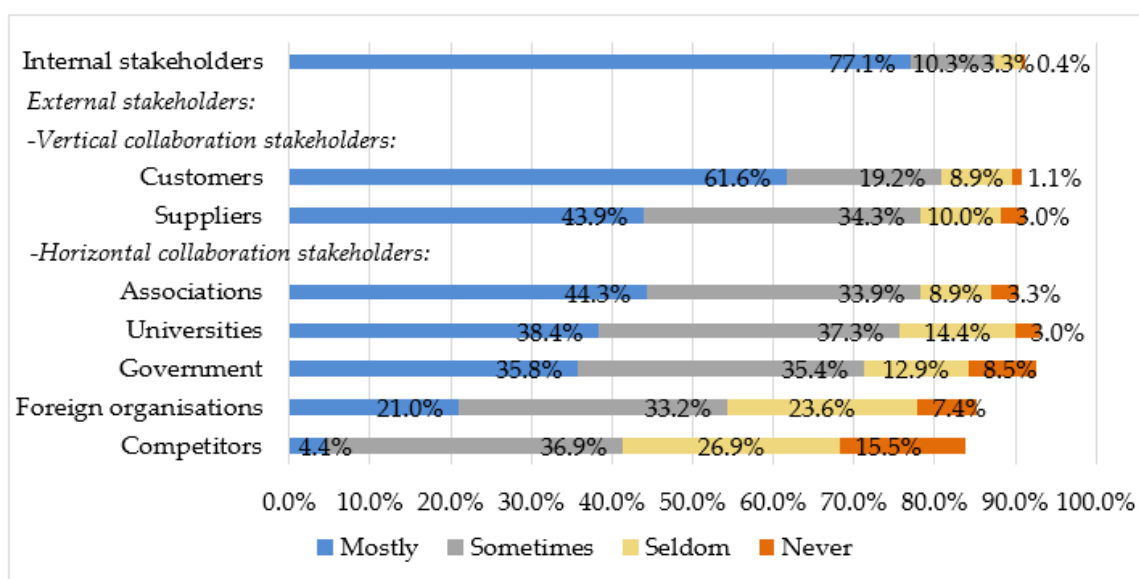
The survey was sent to a database of 5216 organisations, out of which 3967 (76.05%) were companies, 702 (13.46%) civil society organisations (CSOs), and 547 (10.49%) public sector organisations (PSOs), obtained from the Global Reporting Initiative (GRI) Disclosure Database [84], and personal contacts. The dominance of contacts from companies is due to the high number of sustainability reports published by this type of organisation, while the number of publications by CSOs and PSOs is still low in comparison [85,86]. As this research aims to analyse organisational collaboration activities for sustainability, respondents in positions related to sustainability or managerial issues were required. The GRI Disclosure Database was used as sustainability assessment, and reporting is an essential element of sustainability management activities [87–89]. Organisations that have published a sustainability report in the GRI database are potentially actively working with sustainability issues, and are therefore more likely to have experiences with collaboration for sustainability, independent of the industry, region or impact of their operations or services provided. In addition, this approach allowed finding appropriate contacts within the organisation's sustainability reports, i.e., personnel that is familiar with the organisational sustainability efforts and collaboration for sustainability practices.



The online survey tool Qualtrics [90] was used to administer the survey. The survey was open between May 2018 and November 2018. In order to increase the response rate, three reminders were sent out (July, September, and October 2018). From the initial sample, 616 of the email addresses were invalid or bounced back. 271 full responses from individual organisations were received that are analysed in this paper, which is a response rate of 5.89%. The response rate is consistent with other survey studies with similar approaches [24,91]. Reasons for the low response rate may be that potential respondents no longer work with the sustainability efforts of the organisation, time pressure, the length of the survey, or hesitation to participate in surveys about strategic or sensitive organisational issues. However, Van der Stede et al. [92] argue that survey studies with a low response rate can still be generalizable, if the responses are representative. To address potential non-response bias, a Mann-Whitney U test was conducted to compare the responses of 30 early and 30 late respondents, considering the late group respondents are likely to be similar to non-respondents [92,93]. The two groups were compared on the primary variables of interest and organisational characteristics, including organisational type, product-service orientation, and number of employees. As non-response may depend on the potential access to information and knowledge, early and late respondents were also compared against years on the job and job description. The results showed that there are no statistically significant differences at the 0.05 level between the studied variables (see Appendix A, Table A1); this indicates that there is no systematic non-response bias in the sample. In addition, samples of 200–300 respondents provide a certain degree of validity [92].

### 3.2. Data Analysis

The data set was mostly based on ordinal data, which restricts the types of statistical analysis permitted; therefore, non-parametric analyses were carried out. The statistical analysis was conducted using the software IBM SPSS Statistics 24 for Windows [94] and was complemented with descriptive data analysis (see Figures 1–3).



**Figure 1.** Response frequencies of organisational collaboration practices (n = 271; not all responding organisations answered for all collaboration stakeholders, therefore the total is not 100%).

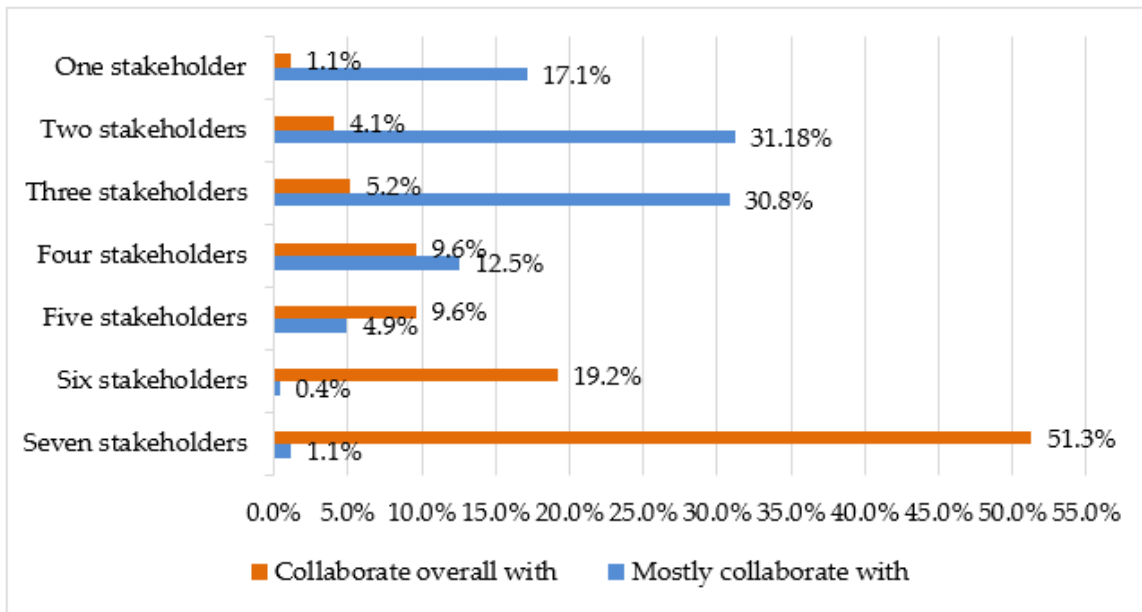


Figure 2. Number of external collaboration stakeholders (n = 263 for mostly; n = 271 for overall).

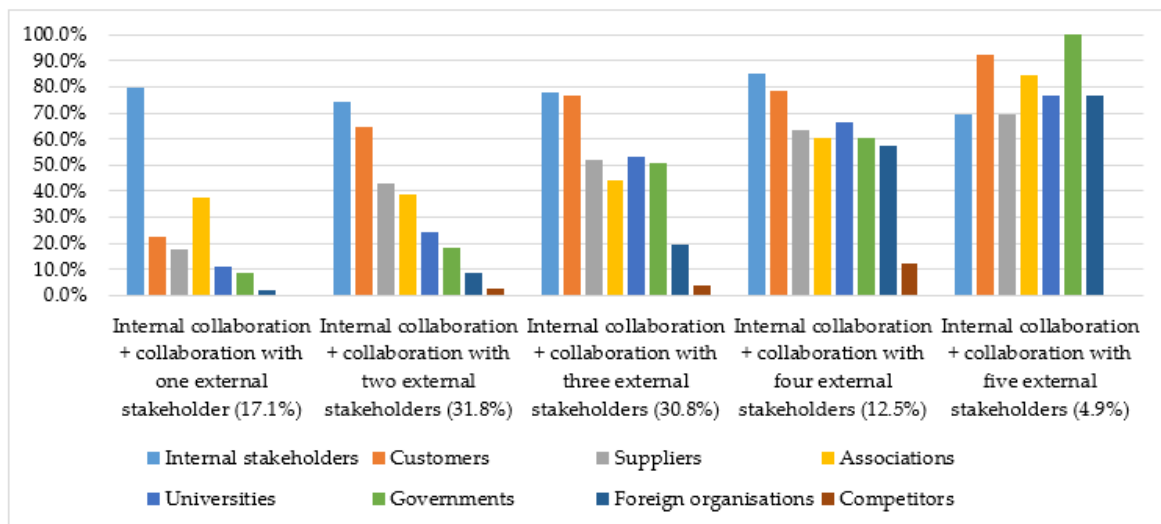


Figure 3. Collaboration activities per stakeholder and number of collaboration stakeholders organisations collaborate mostly with (n = 263).

Two sets of analysis were carried out. The first set was to analyse the number and type of stakeholders that organisations collaborate with as well as the perceived importance of the different stakeholders as collaboration partners. A Friedman significance test (with  $p < 0.01$ ) was conducted to detect the relative importance of each collaboration stakeholder (shown in Figure 4 and Appendix A, Table A2). In addition, a Kruskal-Wallis test (with  $p < 0.05$ ) was conducted to test whether there are differences in collaboration practices between different organisational types, size and product-service orientation. The results showed that there are no statistical significant differences, indicating that an overarching approach towards analysing organisational collaboration practices is appropriate (see Appendix A, Table A3).

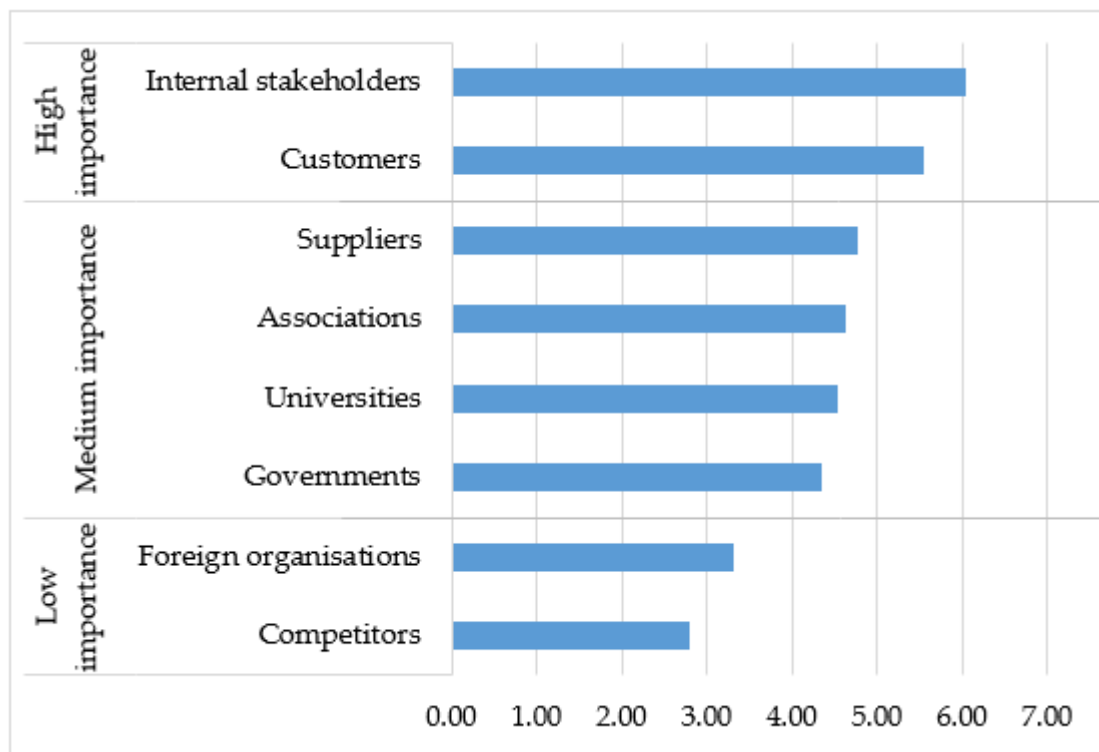


Figure 4. Ranking of importance of collaborating with stakeholders (n = 271; Friedman test, p < 0.01).

The second set analysed the relationship between collaboration activities and stakeholders affecting and being affected by sustainability efforts. The relation between organisations’ and stakeholders’ sensitivity regarding sustainability activities and a potential relation to the number of collaboration stakeholders was tested applying Spearman Rho correlation tests (with p < 0.05; see Appendix A, Table A4). The relative ranking of each stakeholder in how much they affect and how much they are affected by the organisational sustainability efforts was tested using Friedman significance tests (with p < 0.01). The results showed three groups for both tests, and the statistical significant difference between those groups was tested by applying Kruskal-Wallis tests (with p < 0.05; see Appendix A, Table A2). In addition, the results of the Friedman tests were compared to the ranking of importance of collaboration stakeholders, displayed in two materiality matrices (see Figures 5 and 6).

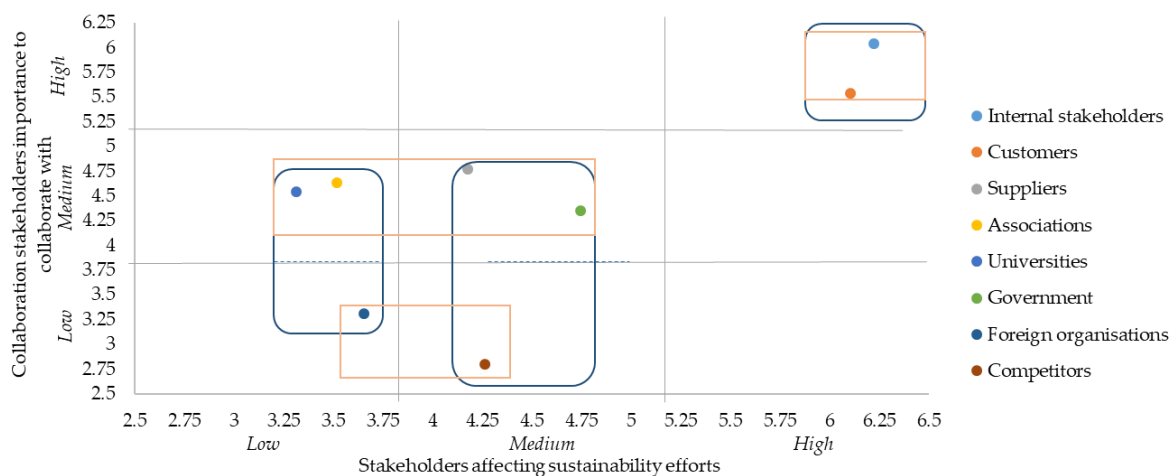
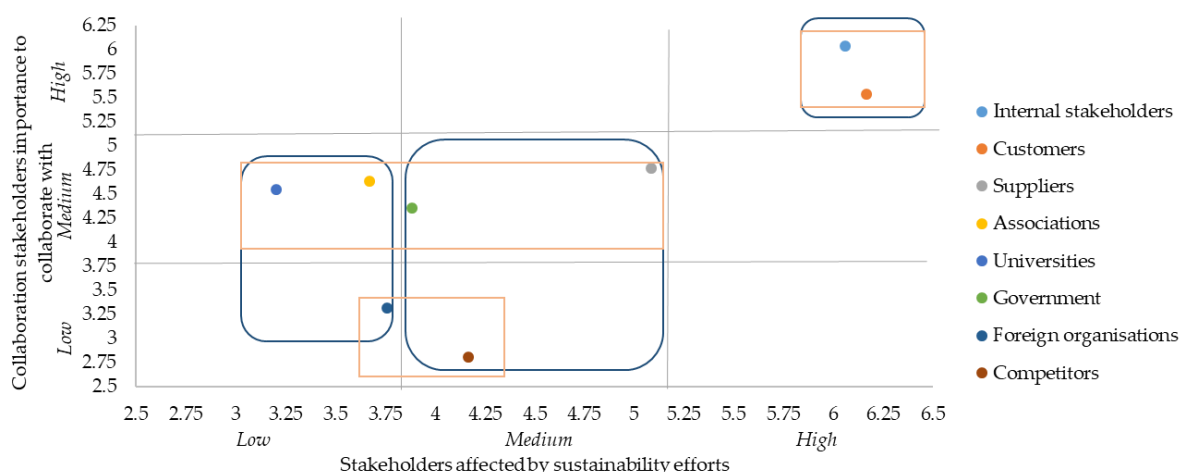


Figure 5. Comparison of importance of collaborating with stakeholders affecting sustainability efforts, where the orange boxes are groups in regards to affecting and the blue boxes in regards to importance of collaborating with (n = 271; Friedman test, p < 0.01; Kruskal-Wallis test, p < 0.05).





**Figure 6.** Comparison of importance of collaborating with stakeholders affected by sustainability efforts, where the orange boxes are groups in regards to affecting and the blue boxes in regards to importance of collaborating with (n = 271; Friedman test,  $p < 0.01$ ; Kruskal-Wallis test,  $p < 0.05$ ).

### 3.3. Limitations of the Methods

This study used a non-probability sample that was drawn from the GRI Disclosure Database, so most of the contacts generated were from companies [95,96]. For this reason, it may not be representative of the population of all organisations. Section 4 includes descriptive data to assist with the interpretation and applicability of the results. More than two-thirds of the respondents were companies, which does not allow a complete generalisation to all types of organisations; but, it does reflect well on the study sample. The low response rate also represents a limitation; however, no systematic non-response bias was detected. In addition, this limitation might be outbalanced by the effective number of responses and the quality of the responses, i.e., the expertise and work experience of the respondents in regards to organisational sustainability efforts, collaboration efforts, and stakeholder relations.

The responding organisations might have been biased by self-selection in describing their sustainability activities, since they are expected to be proactive in their sustainability approach [97]. In addition, employees that are working with or are interested in sustainability issues might be more willing to respond to studies on the topic [13].

The internal validity of the research methods may have been limited by the questions, which did not include all potential stakeholders an organisation could collaborate with and how they affect or are affected by an organisation's sustainability efforts.

Generalisability could be improved by increasing the number of respondents from public sector organisations and civil society organisations, and in particular, from medium-size organisations. However, statistical tests showed that there were no significant differences in responses between the different organisational types and sizes in regards to the overarching collaboration practices.

## 4. Results

### 4.1. Descriptive Statistics

Information on characteristics of the respondents and the surveyed organisations is shown in Table 1. More than 50% of the respondents' job positions were directly linked to the sustainability activities of the organisation, including sustainability directors/Head of sustainability (34), sustainability managers/specialists/coordinators (88), environmental managers/coordinators (9), sustainability communication and promotion (7), and sustainability reporting (16). Around 15% of the respondents were in general management positions (12), part of the board of directors (7), in policy and compliance (6), in strategy and implementation (10), experts or consultants (4), and in HR (3), and almost 10%

had positions related to sustainability education (9) and research (17). In addition, more than 90% of the respondents answered that their organisation has been actively engaged with sustainability for several years. This indicates that the respondents have adequate information and knowledge about the organisation's sustainability efforts and its collaboration for sustainability practices, which made them qualified respondents for this study.

**Table 1.** Characteristics of survey respondents (n = 271).

Position of Respondents	N	Percent (%)
Related to the organisational sustainability practices	154	56.8%
Related to management and organisational issues	42	15.5%
Related to education and research	26	9.6%
Other	25	9.2%
No information	24	8.9%
<b>Organisations engagement with sustainability issues</b>		
<1 year	2	0.7%
Between 1 and 3 years	14	5.2%
Between 3 and 5 years	29	10.7%
Between 5 and 10 years	75	27.7%
Between 10 and 15 years	61	22.5%
>15 years	90	33.2%

The overview in Table 2 shows that there is a balanced assortment of organisations providing products and services from a broad range of industries. More than two thirds of the respondents worked for private companies (66.8%), from different industries such as agriculture (2), automotive (5), chemicals (10), commercial (9), computers and technology hardware (6), construction (8), consultancy (6), energy (14), financial services (23), food and beverages (10), forest and paper products (5), healthcare (4), manufacturing (18), mining (3), ports (2), railroad (1), sustainability-related services (2), telecommunication (8), textiles and fashion (4), transport (7), tourism and hospitality (5), real estate (6), retail (4), and others (19). 15.5% of the respondents worked for public sector organisations, including areas such as public business (3), development (3), education (15), environment (7), external affairs (1), health and safety (1), justice (1), municipal company (1), ports (2), research (4), transport (1), and others (3); and 15.1% worked for organisations in the civil society sector including community-based organisations (2), education (3), faith-based organisations (1), higher education institutions (23), NGOs (1), NPOs (1), research (3), trust/charity (1), and others (6).

The majority of the respondents worked for large (1000 employees or more) or small organisations (one to 49 employees), while only a small percentage were from medium-size organisations (see Table 2). The high number of respondents from companies and large organisations is due to the high number of this type and size of organisations in the original database.

The respondents had their headquarters in the following locations: 81.9% in Europe, including Austria (9), Belarus (1), Belgium (13), Bulgaria (1), Croatia (3), Czech Republic (3), Denmark (2), Finland (12), France (5), Germany (40), Gibraltar (1), Ireland (1), Italy (12), Luxembourg (1), Netherlands (22), Norway (3), Poland (4), Portugal (6), Romania (1), Serbia and Montenegro (5), Slovenia (1), Spain (24), Sweden (31), Switzerland (9), United Kingdom (12); 7.4% from Asia, including, India (2), Japan (1), Lebanon (1), Qatar (1), Russia (4), Saudi Arabia (1), Singapore (1), Thailand (1), Turkey (6), and United Arab Emirates (2); 5.5% from North America, including Canada (5), Mexico (2), and United States (8); 1.1% from South America, including Argentina (1), Brazil (1), and Chile (1); 1.1% from Africa, including Egypt (1), South Africa (2); 0.4% from Oceania, including Australia (1), and 2.6% with no information (7).

**Table 2.** Demographics of responding organisations (n = 271).

Organisational Type	N	Percent (%)
Company	181	66.8
Public sector organisation	42	15.5
Civil society organisation	41	15.1
No information	7	2.6
<b>Product-service provision</b>		
Only Products	31	11.4%
Mainly products with some services	55	20.3%
Equal amount of products and services	26	9.6%
Mainly services with some products	55	20.3%
Only Services	101	37.3%
No information	3	1.1%
<b>Size (number of employees)</b>		
1–49	50	18.5
50–249	24	8.9
250–499	18	6.6
500–999	15	5.5
1000–4999	71	26.2
> 5000	91	33.6
No information	2	0.7
<b>Country of origin</b>		
EU countries	222	81.9
Non-EU countries	42	15.5
No information	7	2.6

Most of the respondents indicated that sustainability plays an important role in the overall organisational practices of their organisation, with 63.8% strongly agreeing and 25.8% somewhat agreeing. In addition, the majority of the respondents (81.9%) indicated that they have a focus on collaboration, being ranked as the second most important focus area for their organisation after “have a vision/strategy” (87.8%) regarding sustainability issues.

#### 4.2. Organisational Collaboration Practices for Sustainability

The respondents of the individual organisations were asked with whom they collaborate. The results are shown in Figure 1, differentiated in vertical and horizontal collaboration stakeholders to allow for a more in-depth analysis of collaboration activities [62]. Almost all organisations (90.8%) collaborate to some degree with the internal members of their organisation, with 77.1% collaborating mostly within their organisation, i.e., between colleagues (86%) or groups (84.1%). In regards to external collaboration for sustainability, the responding organisations indicated that they collaborate mostly with customers (61.6%), followed by their associations (e.g., sector organisations) (44.3%) and suppliers (43.9%). Considering all collaboration activities (including mostly, sometimes and seldom), universities are the most common collaboration stakeholder (90%), followed by customers (89.75%), and suppliers (88.2%). Only a few organisations collaborate with competitors, and more than 15% even indicate that they do not have any collaboration activities with this stakeholder.

Regarding the number of external collaboration partnerships, the majority of the respondents indicated that they collaborate mostly with two (31.18%) or three (30.8%) external stakeholders. Including the stakeholders the responding organisations collaborate sometimes or seldom with, more than half of the responding organisations have established collaborative partnerships with all seven stakeholders in question (see Figure 2). There was neither a statistical significant difference between the different types of organisations, nor between the size of the responding organisations, nor between organisations with a different focus on production or services in regards to the number of most often collaboration stakeholders (see Appendix A, Table A3).

More in detail, the responding organisations that collaborate mostly with one or two external stakeholders often have partnerships with associations, customers and suppliers. Organisations that collaborate mostly with three to five stakeholders also collaborate often with customers, but there is a strong increase of collaboration activities with horizontal stakeholders such as universities and governments, being as common as collaborating with suppliers (Figure 3). Collaboration with foreign organisations only increases from collaboration activities with four stakeholders on, while collaboration with competitors remains low. Independent of the number of external collaboration stakeholders, collaboration with internal stakeholders is consistently high. The collaboration activities of stakeholders with six and seven stakeholders are not displayed due to the low number of this constellation (less than 2%).

The overall importance of each stakeholder to collaborate with (including mostly, sometimes, and seldom collaboration activities) was tested using a Friedman significance test (see Appendix A, Table A2). The stakeholders were divided into terciles according to their ranking. As shown in Figure 4, collaboration with internal stakeholders and collaboration with customers were ranked highest (in the first tercile). Although the vertical stakeholders are distributed in the first and second tercile, the analysis indicates that internal and vertical collaboration is overall recognised as more important for the respondents than horizontal collaboration. That is in line with the frequency and number of collaboration stakeholders, with the responding organisations having a focus on collaboration activities with horizontal stakeholders from three partners on, or having more frequent collaboration activities when considering collaborating sometimes or seldom with these stakeholders.

#### *4.3. Organisational Sustainability Efforts, Stakeholders and the Impact on Collaboration Practices*

The respondents were asked about their general perception of their stakeholder sensitivity towards negative impacts of unsustainable activities. More than 80% of the respondents indicated that they perceive their organisational stakeholders as being conscious of negative impacts of unsustainable activities. A Spearman Rho correlation test showed that this perception is positively correlated with the organisation's own sensitivity towards unsustainable activities of their stakeholders. However, neither a high sensitivity towards stakeholder activities nor a high perceived stakeholder sensitivity towards the organisation's unsustainable activities led to a higher number of collaboration stakeholders (see Appendix A, Table A4). As there has been a focus in collaboration literature on suppliers and customers, the responding organisations were specifically asked if potential collaborative partnerships were considered when choosing their major suppliers. The majority of the respondents were indifferent (41.6%) or somewhat agreed (23.7%). Similarly, only 11.7% of the respondents perceived that their customers would use stakeholder involvement as selection criteria to start a business relationship with their organisation, while over 30% were indifferent.

In more detail, the respondents were asked how they affect stakeholders and how they are affected by stakeholders in regards to sustainability efforts. A Friedman test was conducted to investigate the relative ranking of stakeholders affecting and being affected by the organisations' sustainability efforts (see Appendix A, Table A2). The results showed that both stakeholder rankings could be differentiated into three groups: High, medium and low affecting and affected by sustainability efforts. The results were compared with the importance of collaboration stakeholders (see Figure 4) and displayed in two materiality matrices (Figures 5 and 6).

Internal stakeholders and customers were ranked as most affecting and affected by sustainability efforts and are also perceived as the most important to collaborate with. There is some difference in regards to the stakeholders in the second tercile of important collaboration stakeholders (see Figure 4), with some being ranked as least affecting and being affected by sustainability efforts, e.g., associations and universities. Suppliers, which have been ranked in the top of the second tercile of important collaboration stakeholders for the sustainability efforts, are perceived as more affected by their efforts, while governments at the bottom of the second tercile are perceived as more affecting stakeholders in regards to sustainability efforts. This indicates that organisations perceive stakeholders that are more

affected by their sustainability efforts as more important to collaborate with than with the ones that affect their activities (see Figures 5 and 6). The comparison of the third tercile of important collaboration stakeholders (see Figure 4) shows a mismatch for competitors being ranked as of medium in affecting and affected by sustainability efforts, while they are perceived as least important to collaborate with for sustainability (see Figures 5 and 6).

Combining the comparison of the importance of collaboration stakeholders with the ranking of stakeholders affecting and being affected by sustainability efforts, the results point towards the following three stages of collaboration activities that organisations may follow when establishing collaboration partnerships for sustainability.

1. High in affecting and affected by sustainability efforts and high perceived importance to collaborate for sustainability: Internal stakeholders (e.g., employees and leaders/managers) and customers.
2. Medium in affecting and affected by sustainability efforts and low to medium importance to collaborate for sustainability. This group is distinguished by:
  - a. Medium affecting and affected by sustainability efforts and medium importance, including suppliers and governments;
  - b. Medium affecting and affected by sustainability efforts and low importance, including competitors.
3. Low in affecting and affected by sustainability efforts and low to medium importance. This group is distinguished by:
  - a. Low affecting and affected by sustainability efforts and medium importance, including associations (e.g., sector organisations) and universities;
  - b. Low affecting and affected by sustainability efforts and low importance, including foreign organisations (e.g., NGOs and other companies).

Comparing these results with the type and number of collaboration partners the responding organisations collaborate mostly with (see Figure 3), it shows that organisations, independent of the number of collaboration stakeholders, collaborate concurrently with stakeholders that are high, medium and low in affecting and affected by sustainability efforts.

## 5. Discussion

### 5.1. Organisational Collaboration Practices for Sustainability

The majority of organisations in this study have experience in addressing sustainability issues and have a focus on collaboration for sustainability, underlining that organisations have recognised the importance of collaboration to advance their sustainability activities concurring with [1,22,28].

Most of the individual organisations, independent of the organisational type, have established collaborative partnerships to strengthen their sustainability activities [1]. Overall, the individual organisations collaborate for sustainability with the internal members of their organisation and several vertical and horizontal organisations concurrently, but with varying degrees. For example, universities are overall the most common external collaboration stakeholder to work on sustainability issues; however, when focussing on with whom organisations collaborate mostly with, the majority of the responding organisations focus on collaborative partnerships with two to three external stakeholders. These are mainly customers plus additional vertical and horizontal stakeholders. The ranking results also indicate that collaboration with vertical stakeholders is overall perceived as more important than with horizontal stakeholders. This could be due to the similar structure and capabilities these stakeholders have and their operations in similar activities [23,49]. However, the analysis highlights that the focus on vertical and dyadic collaboration activities does not reflect the collaboration activities of individual organisations [18,29,30].



Comparing the results with the Kyosei philosophy [23], most of the responding organisations appear to have passed stage 2 and have established collaboration activities within their organisation. The majority of organisations collaborate often with customers, suppliers and associations, indicating that these organisations are on stage 3 of the process. While this is in line with collaboration practices described and analysed in collaboration literature [30], there are differences in regards to the remaining stages when compared against the main collaborating practices of the individual organisations. Even though the importance of collaborating with competitors is discussed in the Kyosei process, the number of organisations that focus on collaborating with competitors is limited, although most organisations recognise them as affecting and being affected by their sustainability efforts. When having three or more external collaboration partners, organisations collaborate more with universities and governmental institutions that are on later stages in the Kyosei process. The differences might be due to that the Kyosei did not consider varying degrees of collaboration activities. This highlights the need to further investigate the different degrees of collaboration partnerships with multiple stakeholders from the perspective of an individual organisation.

### *5.2. Organisational Sustainability Efforts, Stakeholders and The Impact on Organisational Practices*

The results show that the responding organisations are sensitive towards their stakeholders and their perception of unsustainable activities, but this does not lead to more proactive stakeholder involvement for sustainability which partly disagrees with the proposals in [12,19,34]. Whereas the responding organisations are actively engaged in sustainability issues and have a focus on collaboration, the formation of collaborative partnerships appears to be dependent on reactive and adaptive responsibilities [22,53]. This indicates that even though the responding organisations collaborate for sustainability with various stakeholders, this does currently not extend to the point that it would be the basis to choose new customers or suppliers, nor does it necessarily lead to a change of organisational practice [44,50].

Organisations tend to collaborate more with stakeholders that are affected by their sustainability efforts, such as suppliers, than with stakeholders that might affect the organisations' sustainability activities (such as governments and competitors). In addition, the results showed a mismatch between perceived importance to collaborate with a stakeholder for sustainability and the stakeholder affecting and affected by sustainability efforts, indicating that organisations do not necessarily choose their collaboration stakeholders strategically, e.g., considering how stakeholders might affect or are affected by sustainability efforts [10,51,53]. This might lead to the experience of challenges stemming from collaboration activities, e.g., insecure outcomes.

While the Kyosei process appears to be a good starting point for organisations to orient themselves when establishing collaboration activities [23], their efforts could be strengthened by considering how stakeholders may affect or are affected by their sustainability efforts when choosing collaboration partners. Therefore, the Kyosei process could be updated by incorporating the results of this study: As collaboration for sustainability can increase benefits and competitive advantage and with that contribute to economic survival of an organisation [25,26,48], organisations may start directly collaborating with stakeholders that are most affecting and affected by sustainability efforts and that are perceived as the most important to collaborate with, e.g., collaboration with internal stakeholders and collaboration with customers. The next stage could be to extend the collaboration activities to stakeholders that are perceived as medium affecting and affected by the sustainability efforts, i.e., suppliers, governments, and competitors. Although the importance of collaborating with competitors is only perceived as limited, most of the responding organisations recognise that they affect and are affected by their sustainability efforts, as also suggested by [23,30]. After that, organisations may broaden their collaborative practice and include stakeholders that are less affecting and affected by their sustainability efforts, such as organisations that are focussing on other activities or operate in different regions, e.g., foreign organisations. This might help organisations to increase the benefits from collaboration activities, reduce potential challenges, and at the same time, contribute to sustainable



development. As a majority of organisations have already established collaboration activities with several stakeholders, this approach does not have to be understood as a rigid stage-by-stage approach, but could also be used to determine with whom to strengthen or extend already existing partnerships.

## 6. Conclusions

Organisations increasingly engage in sustainability activities to deal with social, environmental and economic challenges. However, the complexity of sustainability issues often exceeds the capabilities of an individual organisation. Collaboration with multiple stakeholders has therefore been recognised as crucial to solve sustainability problems and as imperative for all types of organisations.

Despite the increasing number of studies on challenges and benefits of collaboration for sustainability, there are only a few studies analysing the collaboration practices of organisations to foster their sustainability efforts. These studies focus mainly on vertical and dyadic partnerships of specific organisational types and stakeholder networks, whereas there is a lack of empirical studies on overarching collaboration activities for sustainability of individual organisations. In addition, several scholars have discussed the influence of stakeholders on the implementation of sustainability efforts, requiring the consideration of how stakeholders affect and are affected by such efforts when choosing collaboration partners. However, there are only limited studies which consider such effects on the sustainability efforts in relation to collaboration practices.

This paper offers new insights into collaboration for sustainability by analysing patterns of organisational collaboration activities. The research shows that, while organisations collaborate with several stakeholders, they collaborate mostly internally and with two to three external stakeholders for sustainability, both vertical and horizontal. The focus on collaboration activities for sustainability, however, does not extend to the point that it would lead to a change of organisational practice.

The research highlights that stakeholders affect and are affected by an organisation's efforts to solve sustainability challenges, but organisations do not necessarily take the potential effects into account when choosing their collaboration partners. The paper, therefore, proposes to update the Kyosei philosophy in order to provide guidance on how to form and extend collaborative partnerships for sustainability.

Some limitations and future research directions should be considered when interpreting the findings. First, the research relied on a single respondent per organisation. Further studies could employ multiple respondents per organisation, and collect data from several organisational stakeholders and how they perceive the organisation's collaboration activities. Second, this research considered the degree of collaboration practices, but did not consider the length of the relationship. Further research may extend the empirical findings with longitudinal studies of organisational collaboration practices for sustainability and how collaboration activities might change in terms of involvement and degree over time. In addition, the influence of antecedents, the process and the outcome of collaboration activities in relation to varying number and degree of collaboration partnerships, and the benefits and challenges experienced by different types of organisations with varying numbers of collaboration stakeholders should be explored. Third, the paper does not capture all stakeholders an organisation could collaborate with, but offers new insights on how individual organisations could form and extend their collaborative partnerships for sustainability.

Notwithstanding these limitations, this study has implications for research and practice: The research contributes to the literature on collaboration for sustainability by shedding light on overarching collaboration practices of individual organisations, including stakeholder relations on sustainability efforts. This study, therefore, serves on one hand, as a first step to analyse in-depth organisational collaboration activities from an overarching perspective, and to include stakeholder affecting and affected by sustainability efforts in the analysis. On the other hand, the results can be used by organisations to determine with whom to strengthen and extend their collaboration practices while considering how stakeholders may affect and are affected by their sustainability efforts. Such a

collaborative approach may support organisations to better interact with their stakeholders, to become more sustainable, and with that, contribute to a more sustainable society.

**Funding:** This research received no external funding.

**Acknowledgments:** I would like to thank the respondents of the survey for their input; Rodrigo Lozano, Camilla Niss, and Maria Barreiro Gen for commenting on drafts of the paper, and Robin von Haartman for his support and expertise.

**Conflicts of Interest:** The author declares no conflict of interest.

## Appendix A

**Table A1.** Significance tests for differences between early and late respondents (N = 30 early and 30 late respondents; Mann-Whitney U test).

Variables	Mann-Whitney U Test
Number of collaboration stakeholders organisations collaborate mostly with	0.866
<b>Collaboration activities with:</b>	
Internal stakeholders	0.749
Customers	0.780
Suppliers	0.169
Associations	0.834
Universities	0.138
Governments	0.870
Foreign organisations	0.172
Competitors	0.694
<b>Organisational characteristics</b>	
Organisational type	0.124
Region/Location of headquarter	0.083
Size	0.075
Product-Service orientation	0.0844
<b>Respondents' characteristics</b>	
Work experience within the organisation	0.480
Work experience with sustainability	0.485
Position in the organisation	0.849

**Table A2.** Results statistical tests (n = 271; Friedman test, p < 0.01; Kruskal-Wallis test, \* p < 0.05).

	Friedman tests			Kruskal-Wallis Tests	
	Collaboration Partners	Stakeholders Affecting the Organisational Sustainability Efforts	Stakeholders Affected by the Organisational Sustainability Efforts	Groups: Stakeholders Affecting Sustainability Efforts	Groups: Stakeholders Affected by Sustainability Efforts
<b>Collaboration Stakeholders</b>					
Internal stakeholders	6.04	6.22	6.06		
Customers	5.54	6.10	6.16		
Suppliers	4.77	4.18	5.09		
Governments	4.35	4.75	3.89	0.044 *	0.044 *
Competitors	2.80	4.26	4.17		
Associations	4.63	3.52	3.67		
Universities	4.55	3.31	3.20		
Foreign organisations	3.32	3.65	3.76		

**Table A3.** Significance tests for differences between collaboration activities and organisational characteristics (Kruskal-Wallis test, with \* $p < 0.05$ ).

	Variables	N	Kruskal-Wallis Test
Number of collaboration stakeholders organisations collaborate mostly with	Organisational type (Company, public sector organisation, civil society organisation)	264	0.626
Number of collaboration stakeholders organisations collaborate mostly with	Product-service provision (Only product, mainly products with some services, equal amount of product and services, mainly services with some products, only services)	268	0.3
Number of collaboration stakeholders organisations collaborate mostly with	Size (1–49, 50–249, 250–499, 500–999, 1000–4999, >5000)	269	0.759

**Table A4.** Results statistical tests (Spearman Rho correlation; \* $p < 0.05$ , \*\* $p < 0.01$ ).

Items	N	Spearman Rho Correlation Coefficient
Organisation's own sensitivity towards unsustainable activities and the perceived stakeholder sensitivity towards unsustainable activities	259	0.578 **
Organisation's own sensitivity towards unsustainable activities and number of collaboration partners	265	0.203 **
Perceived stakeholder sensitivity towards unsustainable activities and number of collaboration partners	265	0.146 *

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